Government of Nepal | United Nations Development Programme | Green Climate Fund

FP 272: Protecting Livelihoods and Assets at Risk from Glacial Lake Outburst Floods (GLOFs) and Climate Change-Induced Flooding in Glacial River Basins of Nepal.

GLOF–SANJIBANI

COUNTRY: NEPAL

Project Duration: 12 March 2026 – 12 March 2033

Implementing Partner:
Department of Hydrology and Meteorology (DHM)
Ministry of Energy, Water Resources and Irrigation (MoEWRI)
Government of Nepal.

Responsible Parties:
Department of Forests and Soil Conservation (DoFSC) / Department of National Parks and Wildlife Conservation (DNPWC)/Ministry of Forests and Environment.

National Disaster Risk Reduction and Management Authority (NDRRMA)/Ministry of Home Affairs.

Independent Power Producers' Association of Nepal (IPPAN)
Nepal Tourism Board (NTB).

Accredited Entity:
United Nations Development Programme (UNDP)

Kathmandu, Nepal
2026

Project title: Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal		
Country: Nepal	**Implementing Partner (GCF Executing Entity):** Government of Nepal, represented by the Department of Hydrology and Meteorology (DHM) under the Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal	**Execution Modality:** National Implementation (NIM) with UNDP CO Support
Contributing Outcome (UNSDCF/CPD, RPD, GPD): OUTCOME 3: By 2027, more people, especially women, youth, and the most marginalized and poor, will increasingly benefit from and contribute to building an inclusive, sustainable, climate-resilient and green society and reduced impacts of disasters at the federal, provincial, and local levels.		
UNDP Social and Environmental Screening Category: Substantial (GCF Category B)		**UNDP Gender Marker:** GEN2
Quantum Award ID: 1547032		**Quantum Project/Output ID:** *01006042*
UNDP PIMS ID number: 6045		**GCF Project ID number:** *FP 272*
LPAC meeting date: 06 January 2026		
Actual start date: 12 March 2026		**Project completion date:** 12 March 2033
Interim Evaluation Report (a.k.a. Mid-Term Review) deadline for submission to GCF: *12 December 2029*		**Final Evaluation Report (a.k.a. Terminal evaluation report deadline for submission to GCF:** *12 September 2033*
		Project Completion Report deadline for submission to GCF: *12 June 2033*
Operational Closure Date: 12 December 2033		**Financial Closure Date:**12 June 2034

Brief project description:

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows in the downstream that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing snow melt due to temperature rise and sudden rainfall which increases the volume of the lakes, thereby increasing the likelihood of overflow and the intensity of resulting floods.

The four target glacier lakes under the project Thulagi/Dona (located in Marsyangdi sub-basin of Gandaki river basin), Lower Barun (located in Arun sub-basin of Koshi river basin), Lumding Tsho and Hongu 2 (located in Dudhkoshi sub-basin of Koshi river-basin)- are at exceptionally high risk of breaching due to considerable increases in volume, accelerated degradation of ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. All these factors combined, have destabilized these lakes with a potential threat of a GLOF event at any given moment. The project with a funding of USD36 million from GCF, alongside USD14 million in cofinance, has been designed to reduce the risk and impacts of GLOFs at the four priority glacial lakes. The project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection, hazard monitoring and early warning. This integrated approach will ensure: i) lowering the water levels of four glacial lakes to reduce their risk of breaching; ii) implementing Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts; iii) establishing and implementing early warning systems to prevent the loss of lives; and iv) strengthening technical and institutional capacity of Department of Hydrology and Meteorology (DHM) to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented for 7 years, and the interventions will reduce flood risks associated with glacial lakes over 11,000 km², delivering considerable adaptation benefits to downstream communities and reducing potential economic losses by US$86.9 million. The project will directly benefit to 385,956 people and indirectly to 1,986,980 living in the Gandaki. The project will be executed by DHM under the Ministry of Energy, Water Resources and Irrigation (MoEWRI) as the Implementing Partner in close partnership with Department of Forest and Soil Conservation (DoFSC), Department of National Parks and Wildlife Conservation (DNPWC) and National Disaster Risk Reduction and Management Authority (NDRRMA) as Responsible Parties in close collaboration with the 30 local governments and two provincial governments.

FINANCING PLAN *(only cash transferred to UNDPs bank account and included in the TBWP for this specific GCF project should be included under this section (1), all others should be included under section (2).*	
GCF Grant	USD 36,158,230
UNDP TRAC resources	USD 2,143,869
Confirmed cash co-financing to be administered by UNDP	USD 0
(1) Total budget administered by UNDP	**USD 38,302,099**
CONFIRMED CO-FINANCING COMMITTED TO THE FUNDED ACTIVITY (AS DEFINED IN THE FAA)	
Department of Meteorology and Hydrology (DHM)	Grant: USD 4,542,721 In kind: USD 1,555,234 In-Project O&M: USD 1,033,897
Department of Forest and Soil Conservation (DoFSC)	In kind: USD 2,196,839 In-Project O&M: USD 607,448
National Disaster Risk Reduction and Management Authority (NDRRMA)	Grant: USD 174,904 In-Project O&M: USD 216,833
Department of National Park and Wildlife Conservation (DNPWC)	In kind: USD 407,952
Ministry of Forest and Environment (MoFE)	In kind: USD 293,245
Ministry of Energy, Water Resources and Irrigation (MoEWRI)	In kind: USD 293,245
Nepal Tourism Board (NTB)	In kind: USD 58,334
Independent Power Producers' Association, Nepal (IPPAN)	In kind: USD 261,299
(2) Total confirmed co-financing that is not administered by UNDP	**USD 11,641,951**
(3) Grand-Total Project Financing (1)+(2)	**USD 49,944,050**

SIGNATURES

Signature: Ms. Kyoko Yokosuka, Resident Representative, UNDP Nepal	**Agreed by UNDP[1]**	19 May 2026 **Date/Month/Year:**
Signature: Dr. Archana Shrestha, Director General Department of Hydrology and Meteorology, Ministry of Energy, Water Resources and Irrigation (MoEWRI), Government of Nepal	**Agreed by Implementing Partner[2]**	14 May 2026 **Date/Month/Year:**

[1] For NIM projects this is the Resident Representative. For DIM projects in a single country this is the Resident Representative. For global, regional DIM projects this is UNDP-BPPS/VF Programme Support, Oversight and Compliance Hub.

[2] Not required when UNDP is the implementing partner (i.e. DIM implementation modality). If a UN Agency is the implementing partner, and has signed a SBEAA with UNDP, then the Government Development Coordination Authority, UNDP and UN Agency sign the project document. If an IGO is the implementing partner, and has signed a SBEAA with UNDP, then the Government Development Coordination Authority, UNDP and IGO sign the project document, provided that the IGO shall provide documentary evidence that it has submitted the ProDoc to the relevant governments and has been duly authorized by the governments to execute the project document. If a CSO/NGO is the implementing partner, the Government Development Coordination Authority and UNDP sign the project document and attached it to the Project Cooperation Agreement to be signed by the CSO/NGO and UNDP.

Disbursement: Government is aware of the conditions of disbursement ascribed to the first and subsequent tranches of the GCF funding as specified in the FAA (and in particular Clause 9 of the FAA, as referenced in the Financial Management Section of this Project Document). To the extent that these obligations reflect actions of the Government, the Government must ensure that the conditions are met and there is continuing compliance, as well as understanding that availability of GCF funding is contingent on meeting all conditions listed in the FAA.

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Acronyms

AE	Accredited Entity
AMA	Accreditation Master Agreement
AMIS	Agriculture Management Information Systems
AML-CFT policy	Anti-Money Laundering and Combating the Financing of Terrorism
APR	Annual Performance Report
AWS	Automatic Weather Stations
BIPAD	Building Information Platform Against Disaster
BPPS	Bureau for Policy and Programme Support
BRCRN	Building a Resilient Churia Region in Nepal
CAP	Common Alert Protocols
CBD	United Nations Convention of Biodiversity
CBO	Community-based Organizations
CCA	Climate Change Adaptation
CDMC	Community Disaster Management Committee
CSO	Civil Society Organizations
CTS	Chief Technical Specialist
DEOC	District Emergency Operation Centre
DGPS	Differential Global Positioning System
DHM	Department of Hydrology and Meteorology
DIM	Direct Implementation Modality
DNPWC	Department of National Park and Wildlife Conservation
DOA	Delegation of Authority
DoFSC	Department of Forests and Soil Conservation
DREF	Disaster Response Emergency Fund
DRR	Disaster Risk Reduction
DSS	Decision Support System
EcoDRR	Eco-disaster Risk Reduction
EE	Executing Entity
EOCs	Emergency Operations Center
ERC	Evaluation Resource Center
ERT	Electrical Resistivity Tomography
ESIAs	Environmental and Social Impact Assessments
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESS	Environment and Social Safeguard
EWS	Early Warning Systems
FAA	Funded Activity Agreement
FECOFUN	Federation of Community Forestry Users Nepal
FER	Final Evaluation Report
FGDs	Focus Group Discussions
FP	Funding Proposal
FUGs	Forest User Groups
GAP	Gender Action Plan
GBON	Global Basic Observing Network
GBV/SEAH	Gender Based Violence/ Sexual Exploitation, Abuse and Harassment
GCF	Green Climate Fund
GCF Sec	Green Climate Fund Secretariat
GCM	General Circulation Models
GDI	Gender Development Index
GESI	Gender Equality and Social Inclusion Assessment
GHG	Greenhouse Gas
GIS	Geographic Information System
GLOF	Glacial Lake Outburst Floods
GoN	Government of Nepal
GPR	Ground Penetrating Radar
GRM	Grievance Readdress Mechanism
HACT	Harmonized Approach to Cash Transfers
HEC-RAS	Hydrologic Engineering Center's River Analysis System
ICIMOD	International Centre for Integrated Mountain Development

ICT systems	Information and Communications Technology
IER	Independent Interim Evaluation Report
IGO	Intergovernmental Organizations
IP	Implementing Partner
IPs	Indigenous Peoples
IPP	Indigenous Peoples Plan
IPPAN	Independent Power Producers' Association of Nepal
IPPF	Indigenous Peoples Planning Framework
ITAP	GCF Independent Technical Advisory Panel
IUCN	International Union for Conservation of Nature
KIIs	key informant interviews
LAPA	local adaptation programmes of action
LDC	Least Developed Country
LDMCs	Local Disaster management Committees
LEOC	Local Emergency Operation Centre
LMBIS	Line Ministry Budget Information System
LoA	Letter of Agreement
M&E	Monitoring and Evaluation
MEOC	Municipal Emergency Operation Centre
MHRRM	Multi-Hazard Risk Reduction Measures
MIS	Monitoring Information System
ML	Money Laundering
MoEWRI	Ministry of Energy, Water Resources and Irrigation
MoF	Ministry of Finance
MoFE	Ministry of Forest and Environment
MTEF	Mid-term Expenditure Framework
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NbS	Nature-based Solutions
NCCSP I-TE	NCCSP I-Transition Extension
NCCSPII	The Nepal Climate Change Support Programme II
NDA	National Designated Authority
NDC	Nationally Determined Contributions
NDRRMA	National Disaster Risk Reduction and Management Authority
NEFIN	Nepal Federation of Indigenous Nationalities
NEOC	National Emergency Operation Centre
NGO	Non-governmental Organizations
NIM	National Implementation Modality
NPV	Net Present Value
NTB	Nepal Tourism Board
O&M	Operation and Maintenance
OHS	Occupational Health and Safety
PB	Project Board
PCAT	Partner Capacity Assessment Tool
PCS	Project Coordination Specialist
PCP	Precipitation Gauges
PDGLs	Potentially Dangerous Glacial Lakes
PIU	Project Implementation Unit
PLMBIS	Provincial Line Ministry Budget Information System
PMU	Project Management Unit
PNAS	Proceedings of the National Academy of Sciences of the United States of America
POPP	Programme and Operations Policies and Procedures
PP	Prohibited Practices
PPPs	Public-private Partnerships
PSC	Project Steering Committee
PWD	People with Disabilities
RCP	Representative Concentration Pathways
RfD	Request for Disbursement
RLS	Radar-based Water Level Sensors

RPs	Responsible Parties
RUSLE	Revised Universal Soil Loss Equation
SBEAA	Standard Basic Executing Agency Agreement
SBFA	Standard Basic Framework Agreement
SDGs	Sustainable Development Goals
SEP	Stakeholder Engagement Plan
SOPS	Standard Operating Procedures
SSC/TrC	South-South and Triangular Cooperation
SUTRA	Sub-National Treasury Regulatory Application
TAAN	Trekking Agencies' Association of Nepal
TAG	Technical Advisory Group
TE	Terminal Evaluation
TF	Terrorist Financing
TNC	Third National Communication
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VCs	Value Chains

II. DEVELOPMENT CHALLENGE

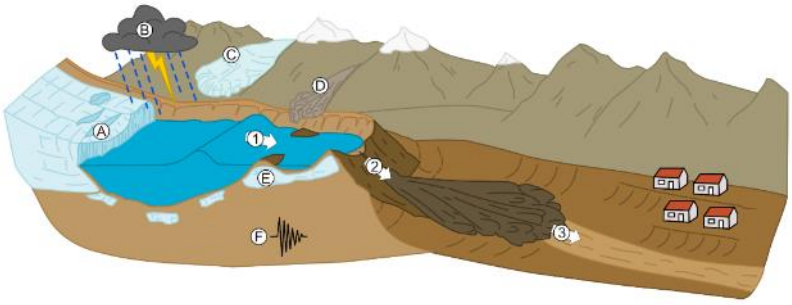
Context

Nepal is located in Southern Asia, with a land area of 147,181 km^2 and a population of 29 million people. The country's topography varies dramatically, with an elevation range of 8,848.86 m in a span of only 80 km with flat, lowland Terai Plains (less than 70 masl) along the southwest border with India to the high, steep Himalayan Mountains in the northeast (reaching 8,848.86 masl). This variable terrain influences the local climate, with polar conditions at higher altitudes, intermediate cold climates south of the higher peaks, transitioning into tropical regions along the southern border. In addition to this geographic variation in climate, Nepal experiences temporal climate variation, with hot, wet summers and mild, dry winters. Summer rainfall is strongly influenced by the monsoon, which brings heavy rainfall. The impact of the monsoon, combined with the steep topography, exposes Nepal to numerous climate-induced natural hazards, including severe thunderstorms, landslides, extreme rain-induced flooding and Glacial Lake Outburst Floods (GLOFs) in high mountain areas. The geophysical setting combined with the socio-economic status and exposure of local/indigenous populations to these hazards make them highly vulnerable to associated risks from climate-induced hazards, particularly GLOFs and flooding.

Nepal is a Least Developed Country (LDC), ranked as the 26th- poorest nation globally and the second poorest in South Asia, with approximately a quarter of the population living below the poverty line. Socio-economic development is constrained by several factors, including the limited provision of basic services and resources. Although 87% of the population has basic access to water, available water is often not safe for consumption and the incidence of water-borne diseases is high. Limited access to electricity and transportation for many communities in remote areas further reduces access to goods and services. Nepal's development is further challenged by the impacts of natural hazards, which lead to the loss of lives and resources, damage to infrastructure, and considerable declines in economic productivity. Steep terrain and destruction of transport networks by natural disasters often cuts communities off from relief efforts, delaying critical aid and recovery.

Baseline scenario Glacial Lake Outburst Floods

Glacial lakes are formed when a glacier erodes the underlying terrain and subsequently melts, filling the depression with fresh water. The resulting lakes are either dammed downstream by moraines[3] or ice. Many of these lakes are considered extremely dangerous as their dam walls are unstable and have the potential to burst, resulting in devastating Glacial Lake Outburst Floods (GLOFs). In Nepal, there are 3,800 glaciers and 2,000 glacial lakes. Of these, 47 are considered potentially dangerous based on: i) characteristics of the lakes and their dams; ii) the activity of the source glacier; and iii) the morphology of the surroundings[4].



Glacial Lake Outburst Floods (GLOFs) can have many triggers, including: (A) glacier calving; (B) intense precipitation; (C) avalances; (D) rockfalls and landslides; (E) degradation of the moraine, particularly ice cores; and (F) seismic activity. The key stages of a GLOF include: (1) the formation of a seiche wave that can overtop the moraine; (2) breach and degradation of the moraine; and (3) reesultant flooding downstream.

Figure 1. *Basic glacial lake structure and the sequences of triggers that cause Glacial Lake Outburst Floods (GLOFs).*

A GLOF occurs when there is a breach of a glacial lake. In the Himalayas, the primary GLOF trigger is an avalanche entering a lake, causing a tsunami-like wave that can overtop and erode the terminal moraine, and generate the ensuing flood. Other triggers include: i) displacement waves from rockfalls; ii) moraine failure due to dam settlement and/or piping; iii) degradation of ice-cored moraines; iv) seismic activity; or v) rapid input of water from extreme rainfall events or from a GLOF upstream. The unpredictable nature of GLOFs and the interdependence of their trigger mechanisms make it difficult to quantify the threats they pose. Historically, GLOFs have had catastrophic consequences in Nepal through the direct impacts of flooding and secondary impacts such as landslides, erosion, and sedimentation in river valleys. Damages caused by GLOFs in Nepal are immense, with each outburst resulting in the potential loss of human lives, destruction of houses and whole villages and loss of critical infrastructure such as roads, bridges and hydropower plants. Often, damages are irreparable for years or even decades, with considerable costs to the economy and impacts on downstream

[3] A moraine is any glacially formed accumulation of unconsolidated glacial debris that occurs in both currently and formerly glaciated regions on Earth, through geomorphological processes.
[4] Bajracharya et al (2020). Research Report. ICIMOD and UNDP.

populations. A total of 26 GLOF events have been recorded in Nepal since 1977, and the country has been ranked alongside Bhutan as having the overall greatest national-level economic consequences of glacier flood impacts, excluding deaths.

In addition to GLOFs, Nepal is susceptible to floods from extreme rainfall events, which have similar but less intense impacts on the population than GLOFs. During heavy monsoon cloudbursts, flash floods occur in the mountains, while in the southern plains, water breaches riverbanks and inundates large areas. Furthermore, given the steepness of slopes and the swift flow of water bodies, heavy rains and flash floods often trigger landslides that cause extensive loss of life and damage to infrastructure and the environment. Nepal's vulnerability to floods was demonstrated by the tragic floods that struck several districts. In September 2024, extreme rainfall led to flash flooding and landslides that killed at least 224 people and injured 158[5], with at least 5,300 households (approximately 26,500 people) affected. The floods also affected access to basic services such as water, transportation, communication, and electricity services, particularly in rural areas, where such services take time to restore[6].

Climate change impacts on glaciers and GLOFs

Records show an increase in the frequency of GLOFs in recent decades in response to rising temperatures associated with climate change, which accelerates glacial retreat, thereby increasing the volume of glacial lakes. In addition to a general warming trend of 0.6°C1°C per decade in the high mountainous and Himalaya areas, Nepal has experienced significant extreme temperature trends, including increases in extreme temperatures as well as shortening of cold spells in most of the country7. As a result of this warming, most glaciers have lost mass more rapidly since the 1960s, with unprecedented losses over the last decade.

As glaciers retreat, the surface area and volume of glacial lakes at their bases increase, heightening the risk of a GLOF. Future climate projections under RCP4.5 show increases of 1.3°C and 1.72°C projected by 2065 and 2100, respectively, with more extreme increases under the RCP8.5 scenario, reaching 1.07°C by 2045, 1.82°C by 2065, and 3.58°C by 2100[8]. Glacier mass loss is projected to accelerate throughout the 21st century, with a loss of 40 ± 25% to 69 ± 21% of 2015 glacier volume expected by 2100 under RCP 2.6 and RCP 8.5, respectively. This accelerated loss of glacial mass contributes to increasing glacial runoff, which subsequently increases the probability of a GLOF event being triggered by other hazards, such as avalanches, rockfalls, heavy rainfall, and earthquakes.

In addition to accelerating glacial retreat, other climate change-related factors contribute to the increased risk of GLOFs, including: i) more intense and frequent rainfall and rainfall-induced floods, which increase the risk of rainfall-triggered GLOFs; and ii) the degradation of ice-cored moraines as a result of rising temperatures, which destabilizes dam walls and increases the risk of breaching. The climate drivers of increased GLOF risk due to climate change are listed below:

- Increasing temperatures, which accelerate glacial and snow melt, increase the volume of water in glacial lakes, as well as destabilize ice core dam walls and surrounding frozen slopes;
- Increasing rainfall intensity, which increases the likelihood of floods and landslides triggering a GLOF event;
- Increasing water volume of glacial lakes increases the likelihood of a breach as a result of the elevated pressure on moraine and ice dams;
- Reduced amount of 'freeboard.'[9] between the maximum water level and the top of the dam with the increased lake volume, thereby increasing the likelihood of overflow; and
- Increased volume of water in the glacial lake, resulting in more intense floods and posing a greater risk to the populations downstream.

In Nepal, the glacier area decreased by 24% over the 33 years between 1977 and 2010. Much of the resulting meltwater has settled in glacial lakes. Evidence from several glacial lakes in Nepal indicates that they have been expanding as temperatures increase. In particular, Thulagi Glacial Lake in Manang district has increased in area from 0.72 to 0.94 km^2 since 1990, while Lower Barun Glacial Lake in Sankhuwasabha district has increased from 0.64 to 2 km2 over the same period. Similarly, Lumding Tsho Glacial Lake in Solukhumbu district has increased in area from 0.2 to 0.77 km^2 from 1962 to 2000 (See Section 4.4 of Annex 2 of FP for more details on the impacts on these four high-priority glacial lakes). These increases, combined with other characteristics of the lakes, have resulted in their categorization as Rank I on the ICIMOD list of Potentially Dangerous Glacial Lakes (PDGLs). The categorisation of these lakes was confirmed through a joint study

[5] 2024 September Floods and Landslides: Situation Report
[6] Nepal Flood and Landslide Response 2024 - DREF Operational Update
[7] Government of Nepal. Department of Hydrology and Meteorology. 2017. Observed Climate Trend Analysis of Nepal (1971-2014).
[8] MoFE, 2019. Climate change scenarios for Nepal for National Adaptation Plan (NAP). Ministry of Forests and Environment, Kathmandu
[9] the vertical distance between the top of the dam wall and the maximum reservoir water level

between UNDP and ICIMOD in 2020, which identified 47 potentially dangerous glacial lakes (21 of which were in Nepal), based on the following criteria: i) characteristics of the lakes and their dams, such as the area of the lake and the condition of the dam; ii) the characteristics of the source glacier (such as the condition of hanging glaciers, the distance to lakes, the steepness of glacier tongues, etc.); and iii) the physical condition of the surroundings (such as the presence of large snow avalanche sites immediately above the lake and potential rockfall or rock slide sites around the lake). This study informed the selection of target lakes for this project based on whether: i) the lake is large with the possibility of expansion due to calving of glaciers; ii) the lake is retained by the loose moraine end dam; iii) there is an outlet that allows overflow to pass over/through the moraine or if all water is collected within the lake; iv) there is a steep outlet slope; v) there is a hanging source glacier; and vi) there are chances of snow and/or ice avalanches and landslides impacting the lake and dam. The proposed lakes are all located in Nepal's northern Himalayan region and are the only Rank I PDGLs identified in both the 2011 and 2020 studies for Nepal that remain to be mitigated. Three of these lakes are located in the Koshi Basin: Lumding Tsho and Hongu-2 in the Solukhumbu district, which drain into the Dudhkoshi sub-basin, and Lower Barun in the Sankhuwasabha district, which drains into the Arun sub-basin. Thulagi is located in the Manang district and forms part of the Marsyangdi sub-basin in the Gandaki Basin. As temperatures increase with climate change, these lakes will likely expand further, increasing the risk of GLOFs.

Table 1: *Summary of Climate Trends and Projections*[10]

Reference Period: 1981–2010 | Observed Trends: 1971–2014 | Projections: RCP 4.5 & 8.5

Climate Variable	Baseline	Trend	Projection
Average Temperature	• National: 12.1°C • The High Mountains: ○ Summer 5–15°C ○ winter <0°C	• National: ↑ 0.055 °C yr^{-1} • High mountainous areas: ○ ↑ 0.06°C–0.12°C yr^{-1}	• RCP 4.5: ↑ 0.92°C by 2045, 1.3°C by 2065 and 1.72°C by 2100 • RCP 8.5: ↑ 1.07°C by 2045, 1.82°C by 2065 and 3.58°C by 2100 • High Mountain areas ○ RCP 4.5: ↑ 0.95°C by 2045, 1.36°C by 2065 and 1.79°C by 2100 ○ RCP 8.5: ↑ 1.09°C by 2045, 1.86°C by 2065 and 3.69°C by 2100
Average Maximum Temperature	• National: 23.6°C	• National: ↑ 0.04°C yr^{-1} • High mountainous areas: ○ ↑ 0.07°C–0.3°C yr^{-1}	• RCP 4.5: ↑ 1.8°C by 2059 and 2.5°C by 2099 • RCP 8.5: ↑ 2.4°C by 2059 and 5°C by 2099
Average Minimum Temperature	• National: 11.6°C • High mountainous areas: <4°C	• National: ↑ 0.002 °C/yr^{-1}	• RCP 4.5: ↑ 1.7°C by 2059 and 2.5°C by 2099 • RCP 8.5: ↑ 2.4°C by 2059 and 5°C by 2099
Temperature Extremes	• Warm Days: 36.5 days • Warm Nights: 36.5 days • Cold Days: 36.5 days • Cold Nights: 36.5 days • Cold Spell Duration: 20.3 days	• ↑ Number of warm days and nights • ↓ Number of cool days and nights • ↓ Cold spell duration	• ↑ Number of warm days by 87.33% (RCP4.5) and 124.7% (RCP8.5) by 2065 • ↑ Number of warm nights by 115.7% (RCP4.5) and 159.2% (RCP8.5) by 2065 • ↓ Number of cool days and nights • ↓ Cold spell duration by 63.9% (RCP4.5) and 73.3% (RCP8.5)
Average Rainfall	• Annual: 1,830 mm • Monsoon: 250–450 mm per month	• National: ↓ 1.3 mm yr^{-1} • High mountainous areas: ↓ 2-4 mm yr^{-1} • Monsoon Season: -7.5 to +9 mm yr^{-1}	• RCP 4.5: ↑ 2.1% by 2045, 7.9% by 2065 and 10.7% by 2100 • RCP 8.5: ↑ 6.4% by 2045, 12.1% by 2065 and 23% by 2100
Extreme Rainfall	• Rainy days: 166.4 days • Very wet days: 18.1 days • Extremely wet days: 3.5 days	• Number of rainy days increasing significantly in the northwestern districts	• Rainy days: -3 days (RCP4.5) and -1.6 days (RCP8.5) • Very wet days: +0.3 days (RCP4.5) and +2.2 days (RCP8.5)

Adapted from FP- Summary on Climate Trend and Projections (Table 1)

[10] Ministry of Forests and Environment. (2019). *Climate change scenarios for Nepal for the National Adaptation Plan (NAP)*. Government of Nepal. https://www.mofe.gov.np/downloadfile/MOFE_2019_Climate%20change%20scenarios%20for%20Nepal_NAP_1562647620.pdf (or available via ICIMOD: https://lib.icimod.org/records/hhrgd-8m586)
Department of Hydrology and Meteorology. (2017). *Observed climate trend analysis in the districts and physiographic regions of Nepal (1971–2014)*. Government of Nepal. https://www.dhm.gov.np/uploads/dhm/climateService/Observed_Climate_Trend_Analysis_Report_2017.pdf
Government of Nepal. (2021). *Nepal's third national communication to the United Nations Framework Convention on Climate Change*. Ministry of Forests and Environment. https://unfccc.int/sites/default/files/resource/TNC%20Nepal_Final_v2.pdf

Impacts of GLOFs and potential for risk reduction

Given the magnitude of GLOF events, their impacts on settlements, roads, bridges, hydropower projects, and other infrastructure can be severe, causing significant losses of life and livelihoods. Flood models[11] For the breaching of the four highest priority glacial lakes (Thulagi, Lower Barun, Lumding Tsho, and Hongu 2), predict economic losses[12] totalling US$ 67.41million[13]. The specific losses for each lake are summarised in Annex 23 of FP, though these estimates do not include potential losses to hydropower plants and the subsequent economic ramifications of disrupted power supply. Without intervention, these glacial lakes risk breaching, and the risk increases with climate change. However, these risks can be reduced significantly through the implementation of appropriate risk mitigation and adaptation measures such as: i) manually lowering each of the glacial lakes, thereby reducing their total volume and subsequently reducing the GLOF risk/magnitude; ii) constructing check dams and other downstream mitigation measures, such as flood walls, gabions and revetments, as well as Nature-based Solutions (NbS) such as brush layering and reforestation, to reduce residual flood impacts; and iii) establishing and implementing early warning systems (EWS) to reduce damages and prevent loss of life. (See Section 5.1.3 of Annex 2 of FP for more details on options assessed).

It is estimated that, by manually lowering the Thulagi, Lower Barun, and Lumding Tsho Lakes by 3 m, and the Hongu 2 Lake by 1 m, and by installing the proposed downstream GLOF risk reduction measures, the total potential damages associated with a GLOF can be reduced by US$ 45.18 million[14] based on two different probability models of a GLOF occurring at any of the four target glacial lakes. Specifically, the project considered an Annual Probability Scenario (Scenario I), which used historical records from 1980 to 2017 to calculate the percentage chance of a GLOF per year assuming a similar rate of occurrence in the future, and a Return Period-based Probability Scenario (Scenario II) which accounted for the probable magnitude of a GLOF as well as the return period for an event of a given size. Damages were calculated based on modeled flood depth and velocities mapped over at-risk infrastructure and livelihood activities in the potential flood areas, as well as the potential for loss of life. The details of these models and their results are available in Annex 3: Financial and Economic Appraisal of FP. Comparing expected losses and intervention costs with projected benefits (including discount factors), the Net Present Value (NPV) of the project was calculated to be US$ 86,919,219 for the Annual Probability Scenario, and US$ 45,126,562 for the Return Period-based Probability Scenario[15]. Under both scenarios, the interventions save 1,932 lives, 420 houses, 1,201 hectares of cultivated land, and 8,180 GWh of electricity production, resulting in high benefit-to-cost ratios of 4.9 and 8.02 for Scenarios I and II, respectively. Thus, the implementation of these measures will clearly safeguard the lives and livelihoods of vulnerable communities in Nepal in an economically sensible way.

Alignment with National Climate Change Priorities and Commitments

Managing the impacts of GLOFs, climate change-induced flooding, and extreme climate events (such as landslides and heatwaves) is a high priority for the GoN. This is evident in several government policies and strategic plans focused on climate change adaptation, with which the project is strongly aligned. The project's alignment with these priorities and plans is described below.

The GoN's **Climate Change Policy**[16] (2019) is being implemented by numerous sectoral ministries and subnational entities to address the impacts of climate change in the country. Its objectives are to: i) enhance climate change adaptation capacity of communities vulnerable to climate change; ii) increase resilience of vulnerable ecosystems; iii) promote a transition to a green economy; iv) mobilise national and international financial resources for climate change adaptation and mitigation; v) mainstream climate change issues into national and subnational policies, strategies and plans; vi) mainstream gender equality and social inclusion into climate change programs; and vii) increase the use of reliable forecasting in planning for disaster risk reduction. In alignment with these objectives, the project will facilitate adaptation to climate change by reducing the exposure and impacts of GLOFs and floods on vulnerable communities. In particular,

[11] Hydraulic modelling used a 6-step approach: i) Breach Parameter Analysis; ii) Breach Hydraulic Modelling; iii) Froehlich Breach Peak Flow; iv) Breach Hydrograph Adjustment; v) Flood Routing of the Hydrograph; and vi) Flood Hazard Mapping. See Annex 24 for more details.

[12] Damages were assessed based on GLOF downstream flood modelling, with flood velocity and depth as the primary parameters. Damage risks were considered for the projected flood areas, focusing on population performing livelihood activities such as agriculture, housing and settlements and the developed infrastructures (e. g. roads, trail bridges, bridges, etc.). Damage estimates were based on the calculation of the mean impacts of multiple dam breach scenarios. See Annex 23a for more details.

[13] These potential economic benefits are cumulative across all four lakes and are estimated over a 25-year time horizon.

[14] The high value of losses can be attributed to the exposure of hydropower installations to the GLOF impacts and the associated loss of revenue of these installations. The remaining losses are predominantly contributed to by public infrastructure and real estate.

[15] The NPVs are cumulative across all four lakes and are estimated over a 25-year time horizon.

[16] GoN. 2020. Climate Change Policy, 2076.

under Output 2 Early Warning Systems (EWS) will be developed for improved disaster risk reduction (DRR) monitoring, response and information dissemination to communities vulnerable to GLOFs.

Nepal's National Adaptation Programme of Action (NAPA)[17] (2010) identifies the GoN's priority activities towards climate change adaptation. These priority profiles, as related to flood risk reduction, include: i) promoting community-based adaptation through integrated management of the agricultural, water, forest and biodiversity sectors; ii) community-based disaster management for facilitating climate change adaptation; iii) GLOF monitoring and disaster risk reduction; iv) ecosystem management for climate change adaptation; and v) empowering vulnerable communities through sustainable management of water resources and clean energy supply. The project will contribute towards the NAPA's goals of addressing GLOF and flood risk, as well as adaptation and community upliftment by i) directly lowering GLOF and flooding risk through lake lowering and check dam installation (Output 3); ii) improving observation networks for increased monitoring and response capacity (Output 2); iii) supporting institutional knowledge and technical capacity for improved planning and response (Output 1); and iv) developing mechanisms for strengthened policy and fiscal access for GLOF and flood risk information services (Output 1).

The **National Adaptation Plan (NAP)**[18] (2021-2050) comprises 64 priority programmes and sets a framework to reduce vulnerability and build Nepal's resilience to climate change by integrating adaptation across various sectors and levels of government. The process of developing Nepal's NAP included engagement with a wide range of stakeholders to establish a sustainable enabling environment through strategic institutional arrangements across governance levels. In addition, the NAP aligns with other important frameworks, including the Nationally Determined Contributions (NDCs), Sustainable Development Goals (SDGs), United Nations Convention on Biodiversity (CBD), United Nations Convention to Combat Desertification (UNCCD), and the Sendai Framework for Disaster Risk Reduction. Priority sectors relating to flood risk include: i) forest, biodiversity and watershed conservation; ii) water resources and energy; iii) rural and urban settlements; and iv) disaster risk reduction and management. The NAP will be reviewed and updated in 2031 to account for social, economic, political, legal and climate risk changes. The priorities of Nepal's NAP comprise programmes in eight thematic and four cross-cutting sectors, spanning short, medium and long-term time frames. The project is aligned with Nepal's NAP priority to establish GLOF risk reductions and early warning systems in glaciated river basins as this will: i) control climate-induced disasters through lake lowering, GLOF diversion and downstream activities (Output 3); and ii) strengthen monitoring systems by improving the observation network density and implementing early warning systems (Output 2).

Nepal's **Third National Communication (TNC)** to the UNFCCC (2021)**[19]** presents an overview on the projected climate change impacts for Nepal and identifies the national climate change adaptation and mitigation priorities which includes an indication of the country's current greenhouse gas (GHG) inventory. The adaptation priorities in the TNC focus on the need to adapt to the impacts of increasing annual mean temperature and increasingly frequent extreme climate events such as GLOFs and monsoon floodings. The project will contribute to the objectives of the TNC by reducing risk associated with climate change impacts, particularly vulnerability of downstream communities to glacier retreat and GLOFs), including eco-DRR reducing measures and lake lowering (Output 3). The TNC includes a GLOF vulnerability ranking of different districts in Nepal six as very highly vulnerable, six more as highly vulnerable and seven as moderately vulnerable of which the project's intervention sites are aligned with.

In its **Second Nationally Determined Contributions (NDCs) (2020)**[20], Nepal identifies mitigating GHG emissions and undertaking studies and actions for adaptation as critical actions to reduce the impacts of climate change in the country. Nepal's contributions are conditional on bilateral and multilateral grant support to strengthen limited national resources and technical capacities for scaling up climate action. While this project will not directly contribute towards mitigation objectives, it recognises the need for climate change mitigation as global warming is causing the accelerated rate of glacial melt, increasing GLOF risk. The project is aligned with the NDC, which acknowledges DRR and management as an adaptation priority to increase climate resilience in the country.

Nepal Disaster Risk Reduction National Strategic Plan of Action (2018-2030)[21]. This action plan was prepared by the GoN with the endorsement of Nepal's National Disaster Risk Reduction and Management Council. The plan's objectives are in line with the Disaster Risk Reduction and Management Act (2017) as well as the National Strategy on Disaster Risk Management (2009). Accordingly, the plan serves as the policy framework for DRR planning, guidance and management in Nepal. In particular, the action plan focusses on: i) improving understanding of disaster risk through multiple

[17] GoN. 2010. National Adaptation Programme of Action (NAPA) to Climate Change.
[18] GoN. 2021. National Adaptation Plan 2021-2050.
[19] GoN. 2021. Third National Communications to the UNFCCC.
[20] GoN. 2020. Second Nationally Determined Contribution (NDC).
[21] GoN. 2018. Disaster Risk Reduction Strategic Plan of Action.

assessment types; ii) strengthening multi-level disaster risk governance; iii) promoting investment in DRR based on comprehensive risk information; and iv) improving disaster preparedness and integrating "build back better" approaches during recovery from extreme events. Moreover, the plan highlights the following as some of the most pronounced types of disasters experienced by the country: i) road accidents; ii) epidemics; iii) earthquakes; iv) landslides; v) floods; vi) snowstorms and avalanches; and vii) droughts.

The Sendai Framework for Disaster Risk Reduction (2015-2030)[22] of which the GoN is committed to implementing aims to substantially reduce disaster risk and losses in lives, livelihoods and health, as well as in the economic, physical, social, cultural and environmental assets of people, businesses, communities and countries. The framework identifies four priority actions to achieve this goal, namely: i) Priority 1 Understanding disaster risk vulnerability, capacity, exposure of people and assets, hazard characteristics and the environment; ii) Priority 2 Strengthening disaster risk governance at national, regional and global levels to ensure effective and efficient management of disaster risk; iii) Priority 3 Investing in disaster risk prevention and reduction through structural and non-structural measures to enable appropriate resilience; and iv) Priority 4 Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction.

The Environmental Protection Act (2019). The Environmental Protection Act aims to amend and consolidate legislation relating to the natural environment. The act includes, *inter alia*: i) the processes and steps in conducting environment assessments including strategic environmental analyses and EIAs,; ii) necessary legislation to control pollution and hazardous material disposals and their inspections; iii) provision for climate change adaptation and mitigation plans; iv) safeguarding national heritage sites and environmentally protected areas; and v) penalties for environmental transgressions. In addition, the act legislates climate change risk management and the production of technical standards to determine priority areas. Carbon trading for mitigation purposes is also legalised under the act, which subsequently makes provision for the prescribed legislature to regulate the trade.[23]

III. STRATEGY

Preferred adaptation solution

There is an urgent need in Nepal to shift away from a reactive, project-based response to GLOFs towards building sustainable national capacity to respond to an impending GLOF event and implement tangible and cost-effective GLOF risk reduction measures both up- and downstream. This integrated approach to the reduction of GLOF risk and the associated impacts on downstream communities including direct economic loss reduction will comprise: i) physical risk reduction measures at the four glacial lakes in Nepal most at risk of breaching, namely the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes, through the field-tested method of lake lowering; ii) downstream, watershed-level interventions such as reforestation and forest cover maintenance as well as flood defence infrastructures reinforced by bioengineering technologies to complement the physical risk reduction interventions (lake lowering) and reduce the residual impacts of a GLOF event on vulnerable downstream communities; iii) interventions to strengthen technical and institutional capacity at the national level to integrate climate risk and hazard information into planning, policy and response strategies; iv) a GLOF early warning system (GLOF EWS) to generate and disseminate improved GLOF- and climate change-related information to national and local decision-makers; and v) community-level GLOF awareness and early warnings to promote appropriate response strategies and develop long-term adaptive capacity. To ensure the sustainability and scalability of interventions, the project will facilitate strong public-private partnerships, particularly with the energy and tourism sectors which stand to benefit directly from GLOF risk reduction and have the potential to contribute to the operations, maintenance, and scaling of interventions. This integrated approach was co-designed with national stakeholders including government institutions, local authorities, civil society[24] and technical experts through a combination of extensive consultations and technical studies.

Barriers to the preferred solution

Barrier 1 Limited technical knowledge and institutional capacity, including watershed-level approaches to GLOF risk reduction: The GoN has: i) insufficient data and expertise related to GLOF risk reduction and management; ii) limited internal institutional capacities, guidelines and standards for GLOF risk reduction planning and response; iii) unclear institutional arrangements for GLOF risk reduction; and iii) inadequate mechanisms to ensure coordination between national and sub-national governments, including the local level governments and key stakeholders. Insufficient institutional capacity and mechanism for GLOF risk reduction in Nepal has increased reliance on external support for GLOF monitoring and risk reduction hindering establishment of in-country knowledge base for GLOF risk reduction .

[22] UN. Sendai Framework on Disaster Risk Reduction (2015–2030).
[23] GoN. 2019. Environmental Protection Act (2076).
[24] Including indigenous people, women's organisations and other marginalised groups.

Efforts for GLOF risk reduction is further inhibited by the combination of knowledge and capacity gaps to develop and effectively implement watershed-level management plans in the context of GLOF risk reduction. At present, the legal and policy frameworks related to climate change adaptation deals with high-altitude GLOF issues while the watershed management deals with downstream watershed managemnt issues, without a connection between the two. Using broader watershed-level approaches to GLOF risk reduction has been further challenged by limited collaboration and coordination between different GoN agencies, particulalry the DHM responsible for GLOF risk monitoring and DoFSC responsible for watershed management. Moreover, there is limited GLOF monitoring, glacial lake mapping, risk reduction and EWS in Nepal, and to date, most studies on high mountain regions and GLOF risks in Nepal have been project-based, resulting in insufficient data to effectively support watershed-level approaches for climate risk reduction.

Barrier 2 Limited access to current, reliable and timely climate risk information and early warnings technology: There are gaps in Nepal's hydrometeorological monitoring network, which constrain the implementation of integrated watershed-level approaches for catchment management, risk reduction and the dissemination of early warnings to communities. This is particularly evident in the lack of vulnerability maps, technical field surveys, hazard and risk informations and comprehensive climate informations in Nepal. Additionally, research and monitoring in remote areas of the Himalayan region are constrained, resulting in gaps in coverage of the existing hydrometeorological system. This also affect private sector actors in the area, who are vulnerable to the impacts of GLOF and monsoon rainfall, but do not have adequate access to reliable climate risk informations and early warnings. Consequently, the potential contributions from these sectors to the development and maintenance of such systems are being leveraged to their full potential.

Barrier 3 Limited investment in, and investment planning for, long-term climate risk reduction to address GLOF and flood risk: There is a general lack of investment in long-term climate risk reductions in Nepal. Given the high cost of GLOF risk reduction interventions, the country faces financial constraints to invest for sustaining risk reduction approaches in the long-run. Limited capacity to mainstream risk reduction approaches into development planning further hinders the use of public finance for risk reduction and leveraging investments from private sectors through public-private partnerships (PPPs) particular for downstream flood management. Moreover, investment in risk reduction measures is hindered by limited opportunities to generate income or recoup the high costs associated with implementing these measures, which constrains the GoN's ability to attract and secure the necessary investments for GLOF risk reduction, particularly from the private sector. This challenge is compounded by the GoN's limited capacity to systematically identify, plan for and programme financial requirements for risk reduction measures.

Barrier 4 Limited community awareness and skills for GLOF disaster reduction actions: Knowledge of climate change and its impacts including GLOFs and flashfloods is limited among the different groups living in areas exposed to GLOFs and other extreme climate events throughout Nepal. Linked to this is the limited adaptive capacity of these groups to manage the impacts of extreme flooding events. This limited adaptive capacity is further exacerbated by inadequate investment in DRR interventions in the exposed areas, which increases the risk of damage to infrastructures, disruption of livelihoods including agriculture and tourism as well as potential injury and loss of lives in these areas. The youth, women and marginalised Indigenous groups are the most vulnerable to these impacts.

Project Approach

Goal Statement

IF the levels of the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 glacial lakes are reduced and nature-based flood mitigation measures and early warning systems are introduced in downstream catchments, **THEN** the resilience, disaster preparedness and adaptive capacity of downstream communities will be enhanced, **BECAUSE** the likelihood of catastrophic breaches and intensity of Glacial Lake Outburst Floods (GLOFs) will be reduced and communities will be better prepared to avoid and recover from residual flood risks.

Theory of Change

The project seeks to enhance Nepal's resilience to climate-induced hazards, specifically glacial lake outburst floods (GLOFs) and flash floods. This will be achieved by strengthening institutional capacity to integrate climate risk into planning and development, implementing disaster risk reduction measures, and improving early warning systems and community preparedness. By addressing the root causes of vulnerability and reducing exposure to these extreme events, the project aims to safeguard lives, livelihoods, and critical infrastructures while promoting sustainable, climate-resilient development.

A key outcome of the project is ensuring that local and national-level institutions adopt an integrated approach to planning and development that incorporates climate risk and hazard information. Strengthening institutional and technical capacity will enable decision-makers to incorporate climate risk considerations into policies, strategies, and

investment plans, ensuring proactive and informed decision-making (Output 1). The project will facilitate collaboration among key government agencies, the private sector, and local communities to institutionalize climate risk management, creating a foundation for long-term resilience.

At the community level, the second project outcome will be the reduced exposure of vulnerable communities to GLOFs and flash floods while increasing preparedness to respond to residual flood risks. This will be achieved through improved hazard monitoring, the generation and dissemination of early warnings (Output 2), and the implementation of targeted risk reduction measures (Output 3). Communities will benefit from a strengthened early warning system that provides timely and actionable information, allowing for effective preparedness and response. Furthermore, physical interventions, such as lake-lowering activities at high-risk glacial lakes and hybrid Eco-disaster Risk Reduction (EcoDRR) strategies, will mitigate the probability and intensity of GLOFs, reducing downstream flood impacts.

To achieve these outcomes, the project will undertake a range of activities. Institutional capacity will be strengthened through training programs, policy development, and the integration of climate risk considerations into planning processes. Hazard monitoring systems will be enhanced by expanding hydrometeorological observation networks, improving data collection and analysis, and developing user-friendly climate information products. Early warning systems will be upgraded to ensure that communities receive timely and comprehensible alerts, supported by community-based preparedness initiatives, such as drills, awareness campaigns, and response planning. Risk reduction measures will include engineering interventions to lower water levels in high-risk lakes and nature-based solutions to manage residual flood risks, ensuring a comprehensive approach to disaster risk management.

The project also addresses critical barriers that have hindered Nepal's ability to implement effective adaptation measures. Weak early warning systems will be strengthened through an expanded observational network and enhanced coordination among relevant institutions. The lack of tangible risk reduction measures will be addressed by implementing lake-lowering activities and downstream interventions that mitigate flood risks. The project will also catalyse the development of policy and financial mechanisms for GLOF risk reduction, engaging private sector actors such as the hydropower and tourism industries to support long-term sustainability. Additionally, community ownership will be fostered through participatory approaches, ensuring that local populations are actively involved in planning, monitoring, and responding to climate hazards.

The success of the project is contingent on several assumptions. It assumes that government agencies and stakeholders will remain engaged throughout the implementation period, ensuring effective coordination and collaboration. The project is also based on the assumption that lowering glacial lakes will reduce the likelihood and intensity of outburst floods and that early warnings will provide sufficient lead time for communities to take protective action. Additionally, it assumes that communities will understand and adhere to the warnings and response measures designed for their specific locations. Potential risks include financial or institutional constraints that could delay implementation, technological challenges in monitoring systems, and socio-economic barriers that may affect community participation. Downstream flood mitigation measures must also be designed to withstand potential extreme flood events following lake-lowering interventions.

By overcoming these barriers and reinforcing key assumptions, the project will contribute to a transformative shift in how Nepal manages climate risks. The integration of climate risk considerations into institutional decision-making, the enhancement of early warning systems, and the implementation of proactive risk reduction measures will reduce disaster impacts and build long-term resilience. Through these interventions, Nepal will move from a reactive disaster response approach to a proactive, climate-resilient development pathway, safeguarding communities and key economic sectors from the growing risks posed by GLOFs and extreme flooding events.

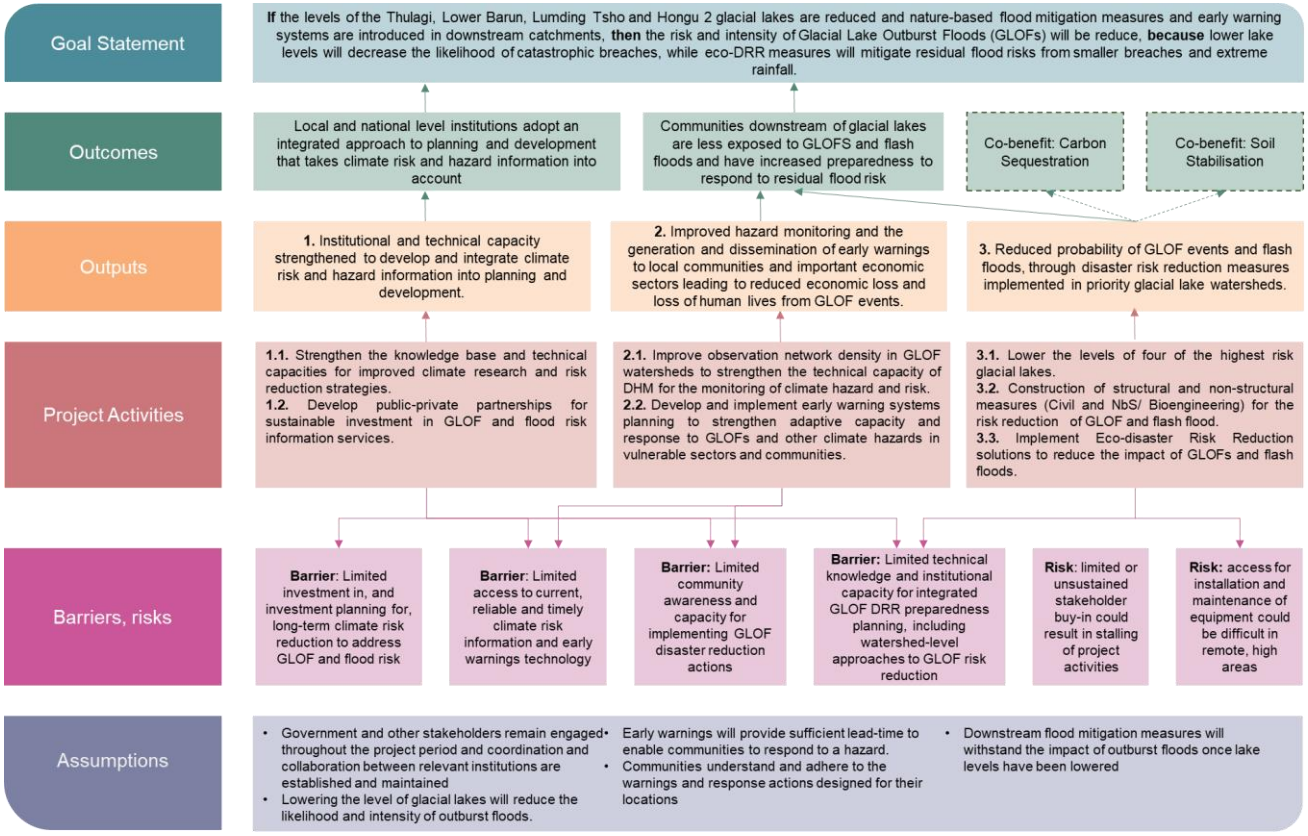


Figure 2. *Theory of Change diagram.*

IV. RESULTS AND PARTNERSHIPS

Expected Results:

The objective of the project is to safeguard the lives and livelihoods of people and their assets by reducing the risk of Glacial Lake Outburst Floods (GLOFs) and related hazards in Nepal. This shift will be achieved by implementing a transformative approach to the way in which the Government of Nepal (GoN) addresses GLOFs and floodings. Specifically, direct investments from the GCF combined with co-financing from DHM, DoFSC, MoEWRI, MOFE, NDRRMA, DNPWC, NTB and IPPAN will be used to: i) reduce the impacts of a GLOF and its residual impacts on vulnerable communities; ii) promote the adoption of GLOF early warning system (EWS) measures among national- and local-level decision-makers to enhance rapid response to an impending GLOF; and iii) strengthen the technical and institutional capacity of the GoN and local communities to implement GLOF risk reduction measures through targeted training and awareness raising. The combined effect of project interventions will result in the adoption and implementation of a climate-resilient, integrated approach to GLOF risk reduction and flood management that can be readily scaled up and replicated nationally and across South Asia. The project will contribute to the GCF's paradigm shift objective of increased climate-resilient sustainable development. Project outputs and activities are described in detail below.

The project will directly benefit 385,956 people of Nepal (55% women and 45% men, 1.3% of the total population of Nepal) by reducing their exposure to GLOFs through glacial lake lowering and EcoDRR. These direct beneficiaries have been selected based on the dam breach modelling results that identify the direct impact area of a potential GLOF event, mapped against the population resident in those areas. The delineation of the direct impact area involved dividing the basins into two categories: i) the main river basin area where flood mitigation and degraded physical environment restoration measures will be implemented; and ii) the downstream area of the main river channel where Early Warning System (EWS) are proposed. Based on these delineations, the estimated direct impact area of Arun and Dudhkosi basin is 5,115km^2, and 4,063km^2, respectively, with an additional 856km^2 and 1,917km^2, respectively, accounted for in the downstream direct impact area. The direct impact area of Thualagi is estimated to be 1,917km^2. There are 29 rural/urban municipalities in the direct impact area of Arun Basin while this is 16 and 19 in Dudhkosi and Marshyangdi basins, respectively. In addition to these direct beneficiaries, 1,912,347 people living in the municipality wards surrounding the direct impact area will indirectly benefit by enabling the population to prepare for and respond to these extreme events accordingly.

Output 1. Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development.

Output 1 will improve DHM's technical and institutional capacity to develop and disseminate tailored climate risk information and establishing public-private sector partnerships to encourage investment into GLOF risk reduction in Nepal. The strengthened regulatory frameworks, combined with capacity building and skills development in the disaster risk reduction sector, will create an enabling environment for the upscaling and replication of project interventions across the country. This upscaling potential will be achieved by: i) improving DHM's capacity for hazard mapping and prioritizing GLOF risk reduction strategies; ii) leveraging investment from the private sector into GLOF risk reduction beyond the conventional project-based approach; and iii) training the relevant staff from DHM on monitoring GLOFs, operating and maintaining existing risk databases and disseminating tailored, user-friendly climate risk information to major productive sectors in Nepal, including the hydropower and tourism sectors. The combined impact of these interventions will create a foundation for ongoing, sustainable glacial monitoring in Nepal, enabling adaptive management of GLOF risk reduction measures not only at the target lakes, but across all PDGLs in the country. These systems will not only assess the condition of the lakes themselves, but will include broader consideration of glacial health and future risk; enabling preventative measures to be adopted as potential risks are identified.

The budget for Output 1 is USD 4,323,878, including a combination of USD 3,206,993 GCF finance and USD 1,116,885 co-finance from DHM and UNDP. GCF finance will be used to cover the additional costs of strengthening DHM's capacity for hazard mapping and prioritizing/designing GLOF risk reduction strategies. This funding will complement DHM's in-kind co-finance, which will cover the equipment and staff costs, ensuring that project interventions are mainstreamed into the day-to-day processes of DHM. Moreover, GCF funds will be used to engage the private sector and foster public-private partnerships (PPPs) with DHM that will catalyze sustainable finance for the maintenance of GLOF and flood risk information services. DHM will support the implementation of this Output, which will assist in the implementation of project activities (Sub-activities 1.1.1, 1.1.2 and 1.2.2).

<u>Activity 1.1. Strengthen the knowledge base and technical capacities for improved climate research and risk reduction strategies.</u>

There is an urgent need within DHM for the development of an in-house monitoring database for glaciers and glacial lakes. While DHM has the hardware and software capabilities, formal Standard Operating Procedures (SOPs) and training are required to catalyse the development and management of this database. To address this need, Activity 1.1 will strengthen DHM's institutional and technical capacity for implementing sustainable GLOF risk reduction strategies in Nepal. This capacity development will enable DHM to regularly monitor and update risk status for each glacier beyond the project period.

First, methods and SOPs for the inventory and development of a spatial digital database (GIS) of glaciers and glacial lakes will be developed and institutionalised in DHM. The development of this GIS database is the first and most important step in the identification and quantification of risks through desk studies and remote sensing analysis. The SOPs for the GIS database should focus on: data acquisition and frequency of data collection; database management; methodologies/standard procedures for analysis and quality control, incorporating hydrodynamic models that account for the cascading hazards (including not only climate hazards, but other natural hazards such as landslides and earthquakes) that impact GLOF risk; reporting and publication formats; and online geoportal management for the dissemination of reports. The establishment of the GIS database will be supported by geophysical investigation, as well as topographic and bathymetric surveys. SOPs for the investigation and surveys should focus on: pre-field planning of logistics, including equipment checks and survey layouts; human resources management; stepwise procedures for conducting field work; Monitoring and Evaluation protocols; and report generation and publication formats for bathymetric, DGPS, GPR, ERT and other surveys.

The risk status of the identified glaciers and glacial lakes using the GIS database, geophysical investigation and surveys will be updated by DHM every five years to account for changes in climate and geophysical conditions. The selection of this time period was informed by international best practice; in India, the usual practice is to update the status annually, while a recent study through ICIMOD reported that updating the status every five years is sufficient. Second, methods and tools will be introduced into DHM's operating procedures for GLOF hazard prioritisation and mapping other extreme events particularly heavy rainfall and flooding. This hazard prioritisation will use the established GIS database, remote-sensing and satellite data, as well as ground-truthing and socio-economic vulnerability assessments. Methodologies and SOPs for implementing integrated GLOF risk reduction in vulnerable watersheds will be developed, informed by the GIS database and hazard mapping that will also be undertaken under this activity. Moreover, the methodologies and SOPs will include clear processes to integrating an investment strategy into the prioritisation process. This strategy will outline the steps needed to replicate risk reduction activities in priority lakes, including the sequencing, roles and responsibilities

of lead agencies, resource requirements and finance strategy for prioritised lakes. The relevant staff[25] in DHM's Urban Hydrology and Remote Sensing Section and Cryosphere section will be trained on regular/operational monitoring for risk prioritisation, as well as how to use the risk information generated to plan for and design GLOF risk reduction strategies in Nepal's high-risk areas. Established methods and tools will be robust and replicable on a national scale for operational monitoring and DHM is committed to continuing to provide training to its staff in the Urban Hydrology and Remote Sensing Section and Cryosphere section on the methods and tools established under this project activity beyond the project lifetime, as well as include training as priority work in its annual programme. Overall, this project activity will contribute to DHM's efficient and effective implementation of Nepal's Disaster Risk Reduction National Strategic Plan of Action 2018-2030[26], and the Disaster Risk Reduction and Management Act, 2074 and Disaster Risk Reduction and Management Rules, 2076 (2019)[27]. These are the main guiding policy documents for disaster response in the country.

- Develop methods and SOPs for inventory and development of spatial digital database (GIS) of glaciers and glacial lakes (including geophysical investigation, as well as topographic and bathymetric surveys).
- Introduce methods and tools for ongoing GLOF hazard prioritization within DHM, and mapping other extreme flood, landslide, mudflow and soil erosion hazards and risks, using a combination of remote-sensing and satellite data, as well as ground-truthing and socio-economic vulnerability assessments.
- Introduce methodology and standard operating procedures (SOPs) for integrated GLOF risk reduction implementation planning in vulnerable watersheds.
- Train technical staff in DHM's Urban Hydrology and Remote Sensing Section and Cryosphere section on regular/operational monitoring for risk prioritisation, as well as how to use the risk information generated.

Activity 1.2. Develop public-private partnerships for sustainable investment in GLOF and flood risk information services.

This project activity will contribute to improving GLOF and flood risk reduction in Nepal by: i) improving DHM's capacity to develop and disseminate climate risk information to major economic sectors, such as tourism and hydropower; and ii) enhancing public-private sector partnerships to encourage future investment into GLOF risk reduction strategies in Nepal. At present, weather- and climate change-related risk information is accessible by the public through the DHM website, phone messaging, radio, television and tailored bulletins. Such platforms are also viable means to disseminate sector-specific information. However, this tailored information is currently limited to specific focus areas and disseminated only when a potential extreme climate event has been identified. While DHM produces sector-specific, user-friendly climate risk information to the aviation, agriculture and tourism sectors, there is a need to expand the provision of tailored climate risk information to the hydropower and tourism sectors which will be done under Activity 1.2. The process of tailoring this information will be supported by training DHM staff on the generation, recording, and maintenance of hydrometeorological databases to disseminate the most updated climate hazard exposure and vulnerability information to key economic sectors, including agriculture, hydropower and tourism which are particularly vulnerable to GLOFs. The use of this information by the targeted sectors will be recorded by registering user statistics on DHM's website and evaluating mobile applications and online databases. Other opportunities to ensure use of the information have been identified, including sharing sector-specific data to appropriate responsible agencies[28] and developing customised telephone applications.

The sustainability of GLOF risk reduction strategies in Nepal will be supported by the establishment of public-private sector partnerships (PPPs) to formalize and institutionalise long-term agreements focused on the sustainable uptake of GLOF risk reduction strategies, particularly with regard to the scaling and maintenance of down-stream EcoDRR measures, as well as the maintenance of EWS systems. Private sector actors in the hydropower, tourism and insurance sectors recognize the potential impact of climate-related hazard on their industries and indicated during consultations their commitment as partners, including Independent Power Producers' Association, Nepal (IPPAN), Trekking Agencies' Association of Nepal (TAAN) and other tourism-sector entities confirmed by co-finance contributions outlined in Section C of FP. The initial co-finance investments from IPPAN and NTB will include the provision of land for hydrometeorological stations, as well as the provision of security services and training support on EWS and climate hazard safety events for trekkers, travel agencies, porters, hoteliers and local businesses. Ongoing engagements with private sector partners have also indicated that the reduced risk resulting from project interventions including the physical lake lowering and Eco-DRR measures, as well as the improved climate information services will further incentivize continued private investment in the target landscapes. This will likely include direct investment in EcoDRR measures upstream of hydropower dams,

[25] 9 technical staff from DHM
[26] GoN. 2018. Disaster Risk Reduction Strategic Plan of Action.
[27] GoN. 2019. Disaster Risk Reduction and Management Act, 2074 and Disaster Risk Reduction and Management Rules, 2076.
28 NDRRMA and NEOC at the centre and at province level, Provincial EOCs and at local level, LDMCs have been established in the municipality level chaired by the mayor/chairperson

which serve to not only reduce flood risk, but also provide co-benefits in terms of regulating hydrological flow, creating a win-win situation when the more severe risk from an catastrophic GLOF is reduced through lake lowering.

The development of PPPs during the project's implementation will build on these initial engagements in a longer, broader process to establish long-lasting agreements, including, *inter alia*, annual engagement workshops for the review and expansion of PPPs. This engagement during implementation will be used to identify entry-points for long-term PPPs, which will then be followed by direct engagements to agree on appropriate partnerships. In addition to supporting the uptake of GLOF risk reduction interventions, the project will identify opportunities for PPPs to leverage future investment into similar impactful lake-lowering and downstream interventions. This process will include sensitising private partners to the financial and economic benefits of GLOF risk reduction, as well as linking in engagements with various regional entities working in the GLOF risk reduction space to manage potential geopolitical risks linked to private investment. It is anticipated that these partnerships will have the potential catalyse significant additional investments in DRR strategies downstream of the project, particularly as the understanding of the risks faced and the benefits of adaptation interventions are demonstrated (see Output 3). Through the proposed engagement process, the project will identify suitable modalities for engaging in PPPs for similar risk reduction projects in the future. It should be noted that no land acquisition or displacement of local communities will be considered in the establishment of PPPs and their associated interventions under this activity.

The production of customized and targeted risk information for pre-project adaptation planning and early warnings will identify potential risks and provide strong incentives for private sector investment in future disaster risk reduction initiatives where necessary, with the PPPs mobilising resources[29] to address climate change threats, including heavy rainfall and flood risks, as well as GLOF risk. Risk analysis and requirements relating to climate change as stipulated in national policies and plans will be integrated into the established PPPs. In particular, arrangements for cost recovery from the private sector through fee-based climate risk information services tailored for the hydropower sector will be made as part of PPP, as well as engaging the private sector in the operation and maintenance of the observational network for EWSs[30]. Several private and government agencies have been identified as potential target for these partnerships, including: i) the Ministry of Energy, Water, Resources and Irrigation: The Department of Electricity Development; ii) Nepal Electricity Authority; iii) the Department of Water Resources and Irrigation; and iv) Private Hydropower Developers. Under this project activity, policy provisions will be made and extensive stakeholder consultations will be held with representatives from the target sectors in particular the independent power producers and tourism industries that are highly vulnerable to flooding impacts including GLOFS to formalise and institutionalise long-term agreements to support the sustainable uptake of GLOF risk reduction in Nepal. Risk information for adaptation planning and early warnings is considered critical for investors in downstream areas. While this information is broadly accessible to the public, customised information targeted at investment partners could serve as an incentive for cost sharing on monitoring systems. Moreover, the use of data generated by the system to develop marketable, targeted information products could incentivise additional investment/contributions to the long-term operation and maintenance of the investments. Consultations during the establishment of PPPs will identify the specific information products required by different members of the private sector. For example, specific long-term forecasts that include avalanche, landslide and flood risks will be developed for members of the tourism and/or trekking industries. Other incentives include providing evacuation plans, adaptation planning and knowledge dissemination workshops for decision-makers. Sub-activities include the followings:

- Develop climate-induced hazard event recording and management database systems.
- Develop climate risk information products and tailor them for use by productive sectors (tourism and hydropower).
- Establish public-private sector partnerships to generate long-term buy-in and economic benefits for investment in GLOF risk reduction.

Output 2. Improved hazard monitoring and the generation of early warnings, including the dissemination of early warnings to local communities and important economic sectors leading to reduced economic loss and loss of human lives from GLOF events.

Project interventions under Output 2 strengthen Nepal's GLOF early warning system (EWS) as well as the capacity of Nepal's Department of Hydrology and Meteorology (DHM) to facilitate rapid information sharing and early action preceding a GLOF. At present, DHM has limited technical and institutional capacity to detect, monitor and respond to GLOFs and other extreme climate events. Current EWS coverage in the Gandaki Basin, and Dudhkoshi and Arun Sub-basins does not extend far enough to reach all downstream communities that will be affected should the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes breach. This places these mostly Indigenous communities at increased risk of

[29] Economic analyses have demonstrated the cost-effectiveness of EcoDRR measures in relation to the potential losses resulting from the risk, indicating a strong financial case for such investment.
[30] Co-finance investments from IPPAN and NTB demonstrate the buy-in from private sector to this concept.

being impacted by a GLOF and the residual flooding. To address these constraints, a study was recently commissioned by UNDP for the *"Identification of required optimum number of Hydrological and Meteorological Stations for the proposed GCF-funded project"*. This study identified gaps in the existing EWS network in terms of number of stations required to detect and monitor hydrological and meteorological changes that contribute to GLOFs. In addition, the study identified limitations in the generation and dissemination of early warnings to downstream communities to enable them to respond timeously to impending GLOFs.

Output 2 of the project will fill these gaps in two ways. First, hydrological and meteorological stations will be installed across the prioritised GLOF watersheds to improve monitoring capacity and coverage in higher altitude areas. This will be complemented by training workshops targeting DHM staff to strengthen their capacity to: i) collect, process and manage climate data from the new and existing stations; and ii) use the generated data to develop early warning information products, including easily interpretable infographics for local communities. This will enable DHM to reliably and timeously forecast GLOFs and other extreme climate events using data from the country's new and existing hydrological and meteorological stations. The data from these stations will be housed on DHM's existing servers. Second, the adaptive capacity and response among vulnerable communities in the target districts of Manang, Sankhuwasabha and Solukhumbu to GLOFs will be enhanced through a combination of capacity-building and awareness-raising interventions. Specific details on the project activities that will be implemented under Output 2 are presented below. Further details on these activities, including the associated sub-activities and deliverables, are presented in Section E.6 in the Funding Proposal. The sustainability of interventions under Output 1 will be ensured through their alignment with key government priorities laid out in the GoN's 'Fifteenth Plan' (2019/2020-2023/24)[31], which includes specific focus on improved hydrometeorological services.

Support for the implementation of this Output will be provided by: i) DHM, through the PIU and DHM Field Office, assisting in the implementation of the project activities (Sub-activity 2.1.1) and supporting Operation and Maintenance (O&M); ii) IPPAN by providing land for the installation of weather stations (Sub-activity 2.1.2); iii) UNDP through the provision of communication, data processing and EWS software to strengthen the technical capacity of early warning systems (Sub-activity 2.1.2); iv) Nepal Tourism Board (NTB) by assisting capacity development (Sub-activity 2.2.2); and v) NDRRMA by assisting with disaster preparedness and response training (Sub-activity 2.2.4) and supporting O&M.

The budget for Output 2 is USD 10,386,991 including a combination of USD 8,532,609 GCF finance and USD 1,854,382 co-finance from NDRRMA, DHM, NTB, IPPAN and UNDP. GCF finance will be used to cover the additional costs of extending the hydro-met observation network to increase the reliability of early warnings, and to strengthen the technical capacity of DHM staff to produce and disseminate early warnings, as well as institutionalizing GLOF EWS into local DRR processes, including through the development of local response plans. DHM co-finance will cover staff costs and provide the necessary processing equipment for the EWS. The NDRRMA will provide logistical support for disaster preparedness and response as well as staff costs for processing household data for effective disaster preparedness. Finally, private sector co-finance from IPPAN and NTB will cover the cost of land as well as O&M for hydro-met equipment, with further O&M support from NDRRMA.

Activity 2.1. Improve observation network density in GLOF watersheds to strengthen the technical capacity of DHM for the monitoring of climate hazard and risk.

Under this activity, hydrological and meteorological stations will be installed across high-risk GLOF watersheds to fill gaps in the current observational network. These gaps include inoperative monitoring stations, poor coverage in higher altitude areas and low-resolution temporal and spatial coverage. In response to the existing gap in Nepal's observational network, hydromet stations will be expanded as described below. The real-time data acquired from this critical infrastructure will be used by DHM to: i) observe and monitor GLOF risk; ii) support EWS; and iii) assist with glacier modelling. Additionally, the real-time data acquisition system will integrate data from new and existing hydrology stations. Increasing the density of the observation network is critical to enable effective EWS in the target areas under increasing GLOF threat because of climate change driven accelerated warming and glacier retreat. EWS coverage, and the dissemination of warnings, will be expanded throughout Nepal to support real-time contact with communities vulnerable to GLOFs, through the use of mobile phones, as well as to supplement insufficient coverage of vulnerable communities (although coverage will be nationwide, warmings will only be distributed to targeted groups who are located in likely affected areas). To achieve this, all new meteorological and hydrological equipment installed under the project will be integrated into the existing EWS network and will use GPRS/GSM technologies provided by service providers under Nepal Telecom Authority[32]. Furthermore, the observation of basic meteorological variables by the AWS will enable these stations to be included in the Global Basic Observing Network (GBON). The EWS system will be made more robust with

[31] https://npc.gov.np/images/category/15th_plan_English_Version.pdf
[32] A list of appropriate service providers that use GCM technologies is available at: https://www.nta.gov.np/en/.

the installation of a central low-cost tower using a 'free to air' satellite mode system, accompanied by the installation of 9 siren towers across the target GLOF watersheds (4 towers in the Marsyangdi Basin, 2 in the Dudhkoshi Sub-basin and 3 in the Arun Sub-basin). The cost, operation and maintenance of the EWS equipment will be the responsibility of DHM as part of their co-finance contribution to ensuring the sustainability of the system (see Annex 21 of FP for further details). This Activity contributes to Strategy 2 (to transform the hydrological and meteorological stations into modern automated stations with the latest technology and expand them as needed) of the Hydrology and Meteorology Sectoral priorities of the Fifteenth Plan. The technical design and location of the hydrometeorological monitoring equipment under this project will consider the work done under the 'Developing Climate Resilient Livelihoods in the Vulnerable Watershed in Nepal' GEF project, ensuring that there is no overlap and that stations are optimally positioned to maximise coverage over the target areas. [33] Sub-activities include the following:

- Install 6 Base Stations at Pangboche, Jayaram Ghat Middle Hill, Tumlingtar (Turkighat), Chatara, Dharapani and Muglin (2 in the Marsyangdi Basin, 2 in the Dudhkoshi Sub-basin and 2 in the Arun Sub-basin).
- Install 24 automatic weather stations (AWS) at key locations in GLOF watersheds (7 AWS in the Marsyangdi Basin, 5 in the Dudhkoshi Sub-basin and 12 in the Arun Sub-basin).
- Install 9 Precipitation gauges (PCP) at key locations in GLOF watersheds (2 in the Marsyangdi Basin and 7 in the Dudhkoshi Sub-basin).
- Integrate new and existing hydrology stations into a real-time data acquisition system.
- Install 27 radar-based water level sensors (RLS) at key locations in GLOF watersheds (11 in the Marsyangdi Basin, 8 in the Dudhkoshi Sub-basin and 8 in the Arun Sub-basin).
- Install a low-cost tower with a free air satellite mode system and 9 accompanying siren towers at Rabuwa, Jayaram and other locations in GLOF watersheds to be determined through site validations (4 towers in the Marsyangdi Basin, 2 in the Dudhkoshi Sub-basin and 3 in the Arun Sub-basin).

Activity 2.2. Develop and implement early warning systems planning to strengthen adaptive capacity and response to GLOFs and other climate hazards in vulnerable sectors and communities.

Activity 2.2 will improve Nepal's EWS to strengthen adaptive capacity and response among vulnerable communities in the target districts of Manang, Sankhuwasabha and Solukhumbu to GLOFs, rain-induced floods and other climate hazards. First, the technical and institutional capacity of DHM will be strengthened to enhance the rapid dissemination of early warnings to: i) critical national and local entities involved in disaster response (including the National Emergency Operation Centre (NEOC), District Emergency Operation Centre (DEOC),), national stakeholders, district and local stakeholders, Local Emergency Operation Centre (LEOC), Community Disaster Management Committee (CDMC)/Task Force, and local communities); ii) key actors in productive sector networks; and iii) vulnerable communities in the target districts and throughout Nepal. This will be achieved by training relevant technical staff at DHM in efficient and effective ways to generate and disseminate early warnings to improve community response to GLOFs. To ensure that the observation network remains operational, training will also be provided to the relevant staff on operating and maintaining the existing and newly installed hydrological and meteorological stations in the target basins. In so doing, DHM will have the required capacity to generate and disseminate accurate forecasts and early warnings of impending GLOFs.

To ensure sufficient understanding among target communities of how to access and respond to early warnings, community-based disaster response plans will be developed for selected municipalities of 11 districts in the target watersheds, namely Bhojpur, Dhankuta, Khotang, Okhaldhunga, Sankhuwasabha, Manang, Lamjung, Sindhuli, Solukhumbu, Sunsari and Udayapur. These plans will be developed in a participatory way with communities and ward leaders[34] in the target districts and provide step-by-step guidance on how to access early warning and what actions to take once an early warning is received, in line with CDMC protocols ensuring inclusivity and accessibility in both the preparation and design of the response plans. The co-development of these plans will be conducted in a gender responsive manner, in line with actions identified in the Gender Action Plan (Annex 8b of FP). Training will then be delivered by representatives from NEOC, LEOC and CDMC on how to implement the actions contained in the response plans and response drills will be organised by these entities to practice what actions to take in the event of a GLOF, flood or another climate hazard. NDRRMA will support the delivery of the training under this activity, assist with logistics arrangements and the mobilisation of youth networks and volunteer corps, and ensuring that the capacity building interventions reach Indigenous Peoples groups and are gender responsive.

GLOF EWS will be fully institutionalised by developing multi-hazard-based risk assessments which integrate community knowledge and science-based assessments and holding annual training workshop for communities on disaster risk

[33] Proposed locations for each of the types of monitoring stations- https://www.google.com/maps/d/viewer?mid=1O9atidsKvf5EqmaMJ05pidNW8Q2Arth3&ll=27.765268424180118%2C84.81280566406248&z=7 here

[34] A ward is the smallest unit of local government in Nepal.

management (DRM), first aid and search and rescue. This process will start with a comprehensive stocktaking exercise to include existing methods and tools for understanding climate risks and prepare corresponding specific measures at the local level. NDRRMA will lead this institutionalisation process, supported by local government actors. Engagement workshops with *inter alia* the mayor, chairperson, technical officers on GLOF EWS, updates to the observational network, safety, operation and maintenance will also be conducted to ensure the establishment and uptake of knowledge and early warning processes at the national, local and community levels.

Effective collaboration between Local Emergency Operation Centres and DHM will be ensured through engagement workshops and meetings that will strengthen vertical and horizontal linkages between these entities, strengthening existing ICT systems to facilitate effective sharing and dissemination of information. This collaboration will facilitate integration of DHM's dissemination mechanism into the LEOC, with specialist(s) contracted to import household data to the BIPAD Portal for the application of DSS and CAP cleaning; processing; importing; and verifying. This will also allow for localising and rolling out of the digital DIMS/BIPAD Portal, supported by awareness raising that targets local government and communities, for effective disaster preparedness.

To ensure that target districts are able to access and respond to early warnings effectively, knowledge and awareness will be improved with training workshops and materials for vulnerable communities in the four target glacial basins. This process will be supported by the establishment and mobilising of youth groups as well as volunteer's corps, increasing community involvement in the early warning processes including through the capture, validation and application of traditional knowledge in local monitoring and response plans.

Climate-responsive Municipal Disaster Preparedness and Response Plans will be developed with effective collaboration at the municipal level through engagement workshops for the preparation and completion of these plans. Local-level Climate-resilient Action Plans will also be developed through this method, with validation workshops held and action plans developed for the implementation of these plans, ensuring local-level stakeholder participation[35], as well as ownership and uptake by the target communities and local government. The project will establish the appropriate structures to ensure the Plans are implemented and followed beyond project completion by acknowledging linkages between Local Emergency Operation Centres and DHM, developing these Plans in close collaboration with local municipalities and raising awareness on early warning response and access. Sub-activities include the following:

- Strengthen the technical and institutional capacity of DHM to produce early warnings and disseminate them to government agencies and productive sectors.
- Co-develop community-based response plans for 10 districts, namely Bhojpur, Dhankuta, Khotang, Okhaldhunga, Sankhuwasabha, Saptari, Sindhuli, Solukhumbu, Sunsari and Udayapur.
- Institutionalise GLOF EWS by developing multi-hazard-based risk assessments (integrating community knowledge and science-based assessments), and train communities on disaster risk management, first aid and search and rescue.
- Strengthen vertical and horizontal linkages between Local Emergency Operation Centres and DHM to integrate DHM's dissemination mechanism, import household data[36] to the BIPAD Portal for the application of DSS and CAP (cleaning; processing; import; verification), and localise and roll out the DIMS/BIPAD Portal for effective disaster preparedness.
- Improve the knowledge and awareness of target districts of how to access and respond to early warnings by establishing and mobilising youth groups and volunteer's corps.
- Develop climate-responsive Municipal Disaster Preparedness and Response Plans, as well as Local-level Climate-resilient Action Plans.

Output 3. Reduced probability of GLOF events and flash floods, through disaster risk reduction measures implemented in priority glacial lake watersheds.

Output 3 will reduce the risk of GLOFs in the Gandaki Basin, and Dudhkoshi and Arun Sub-basins. A joint assessment was undertaken by UNDP and ICIMOD in 2020[37] of the glacial lakes in the Himalayas to identify Potentially Dangerous Glacial Lakes (PDGLs)[38]. From this, the glacial lakes were ranked based on their respective hazard levels, determined by the characteristics of the lakes and their dams, the activity of the source glacier and morphology of the surroundings. The critical lakes were classed under Rank 1, and these warrant the immediate implementation of potential measures for GLOF mitigation. Lakes classed under Ranks 2 and 3 require regular monitoring. Several Rank 1 glacial lakes were

[35] Including meaningful participation of women, people with disabilities and other vulnerable groups.
[36] Data on demography – family details – age group, whether need special support with their contact numbers for quick rescue and relief- and will be linked with https://bipadportal.gov.np/
[37] Bajracharya, et al. 2020. *ICIMOD; UNDP.*
[38] ICIMOD. 2020. Research Report.

identified within Nepal, and while all pose a serious risk, 4 of the lakes at the highest risk of breaching have been selected for interventions under the project to reduce the risk they pose to the population of Nepal. These are the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes (Figure 3). Further details on the selection of these lakes for urgent intervention are provided in Section 4 of Funding Proposal's Annex 2: Feasibility Study.

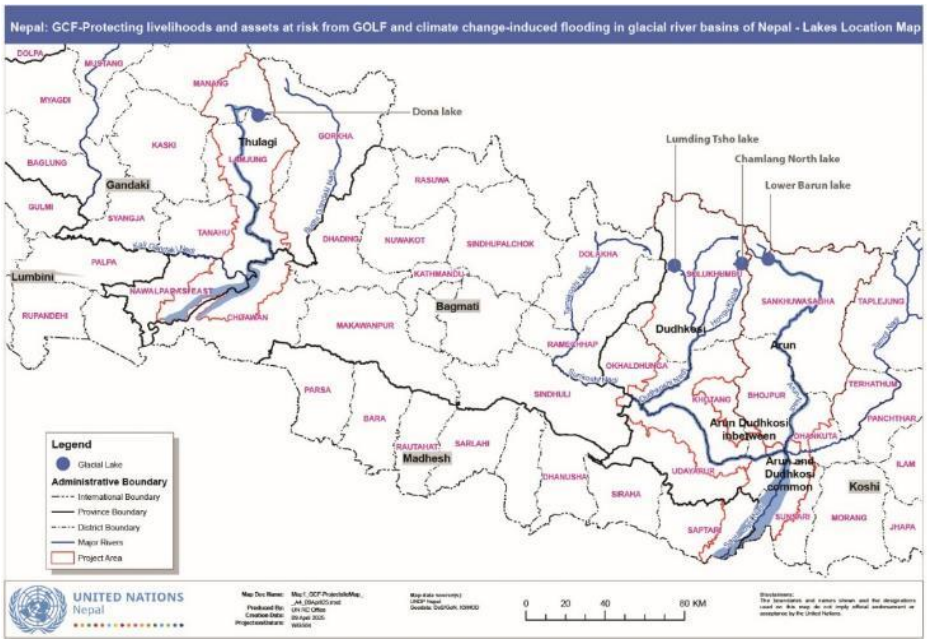


Figure 3. *Locations of each of the target glacial lakes, relative to one another and their respective districts.*

To reduce the primary risk of a GLOF, the water levels will be lowered at the four priority lakes (Thulagi, Lower Barun, Lumding Tsho and Hongu 2). Lowering the water level of the lakes will reduce the potential of triggering a GLOF, as well as reducing the magnitude of a GLOF when one is triggered. In so doing, lake lowering will avoid US$ 67.4 million in potential damages and losses to vulnerable communities that are located within the potential flood-affected area. Furthermore, Eco-Disaster Risk Reduction (Eco-DRR) measures that adopt a hybrid approach of nature-based and grey infrastructure will be implemented downstream of the lakes to reduce the residual impacts of a GLOF after lake lowering. These downstream interventions will include a combination of conservation ponds and flood walls to divert GLOF and flash flood flow and nature-based eco-engineering solutions for riverbank stabilization and flood mitigation. Implementing these downstream interventions will reduce the damages to agricultural land and other infrastructure, which included modelling for four different scenarios of GLOF impacts at the Lower Barun, Hongu 2 and Lumding Tsho Glacial Lakes.

The budget for Output 3 is USD 31,736,872 including a combination of USD 22,697,118 GCF finance and USD 9,039,754 co-finance from DHM, DoFSC, DNPWC and UNDP. For lake lowering interventions, GCF finance will be used to cover the technical design and construction costs, while DHM will provide co-finance towards staff costs for lake lowering designs, as well as for the construction of an access trail to all project sites. For downstream interventions, GCF finance will be used to fund the construction of flood walls, revetments and conservation ponds, as well as the implementation of EcoDRR measures to reduce the potential impact of residual GLOF flood waters, with DoFSC providing co-finance for supporting equipment and staff costs. DNPWC will co-finance staff costs for the development and implementation of integrated, climate- and gender-responsive watershed and national park management plans. Finally, UNDP co-finance will be used to cover the costs of necessary support staff for the implementation of downstream measures, including technical advisors, as well as GESI, M&E and safeguards experts. The project activities that will be implemented under Output 3 are described below. Support for the implementation of this output will be provided by: DHM through the DHM PIU and Field Office, assisting in the implementation of project activities, the provision of programme M&E costs and the construction of access trails to project sites (Sub-activities 3.1.1 and 3.1.2); ii) DoFSC through the provision staff time, the use of machinery and the implementation of construction works relating to the planting of trees (Sub-activity 3.3.1); and iii) DNPWC through the DNPWC PIU and Field Office to assist in the implementation of project activities (Sub-activity 3.3.10).

<u>Activity 3.1. Lower the levels of four of the highest risk glacial lakes.</u>

Under this activity, the levels of the four highest-priority lakes will be physically lowered to reduce the volume of the lakes. This will involve several steps. First, detailed site-specific engineering designs will be undertaken for the lowering

of the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes. These designs will be informed by several on-the-ground assessments and validated by engineers and the AE before construction starts. The required assessments include: topographical surveys of the site and the moraine dam to inform detailed analysis and precise design; a bathymetric investigation to determine the most recent lake volume, depth and topography, extension, and end moraines change; hydrometeorology assessments to determine the current discharge of the glacier outlet; and geophysical investigations using a GPR survey, and electric resistivity tomography assessments of the sites to determine the stability of the moraine dam and the intensity of the geophysical environment.

Once the designs have been validated, construction will commence in Year 2 of project implementation to lower the Thulagi, Lower Barun and Lumding Tsho by 3 m and the Hongu 2 Lake by 1 m. The optimal level of lake lowering for each site was determined during the initial lake assessments and options analysis, considering the physical aspects of the lakes and the cost-benefit ratio of the risk reduction potential (Annex 26 of Funding Proposal: Technical Lake Lowering Design report). The conceptual design for lowering the water levels of the four target lakes are summarised below. Technical concept designs of the lake lowering interventions and further details on the engineering required to lower the four lakes are presented in Annex 26 of FP: Technical Lake Lowering Design report. DHM will be responsible for the implementation of this activity and will determine whether to mobilise its own expert resources or outsource consultancy services. This activity will support institutional capacity for systematic lake lowering in the future as it is embedded within and will develop the capacity of DHM. DHM will also address the ongoing, in-house Operation and Maintenance (O&M) of the structures built under this activity.

The lowering of the Thulagi, Lumding Tsho, and Lower Barun Lakes will be undertaken through a 4-step process. First, the outlet channel will be blocked by a cofferdam. Second, a diversion channel will be constructed to divert flow while the construction for the permanent lake lowering is undertaken. The effluent from this diversion channel will be discharged at 165 m, 70 m, and 55 m for Thulagi, Lumding Tsho, and Lower Barun Lakes, respectively, downstream of the proposed structure. Third, once the flow is diverted, a sluice gate will be constructed at an optimal location to be determined based on the studies above, with a trapezoidal shaped channel downstream of the original outlet channel where the temporary cofferdam is in place. Fourth, once the channel and sluice gate are in place, the cofferdam will be removed and the discharge channel reopened, reinforced with boulder impact gabion walls to protect it against bank erosion when the water is released after removing the cofferdam. After the completion of the main channel, the cofferdam (which is blocking the flow of water to the main channel) will be removed. The diversion channel (which is at higher elevation from the main channel) will be left as it is and water will flow from the main channel. It will act as the alternative channel only at the time of high discharge maintaining the smooth flow in the main channel. An example of this process is presented below in the extracts of concept drawing for lowering the Thulagi Lake (Figure 4, Figure 5, Figure 6, and Figure 7). Full, detailed concept drawings for the lowering of all four lakes are presented in Section 12 of Annex 2 of FP (included in the Annex S of ProDoc): Feasibility Study and Annex 26 of FP : Technical Lake Lowering Design report.

For Hongu 2, only the main channel is proposed. Since there is no outlet discharge of the lake, the end moraine itself will act as a sluice gate and no diversion canals are required. Once the main channels are built, the end moraine will be excavated to lower the glacial lake.

Considering lessons learn from previous lake lowering exercises, all interventions targeting the glacial lakes will take special consideration of cultural connections between local people and the lakes. This will include respecting local customs and worship practices, as well as organizing forgiveness worship with local groups prior to commencing structural work. All waste generated during the lake lowering activities will also be carried back to Kathmandu. In addition, considering remoteness of the locations and access restrictions, detail planning will be done on workers' health and safety. During implementation/construction phase, the project will follow strict OHS standards, including ensuring use of safety gears, provision for first aid facilities, emergency response protocols including evacuation procedures in case of serious injury and overnight stay facilities in temporary housing made on onsite for this purpose.

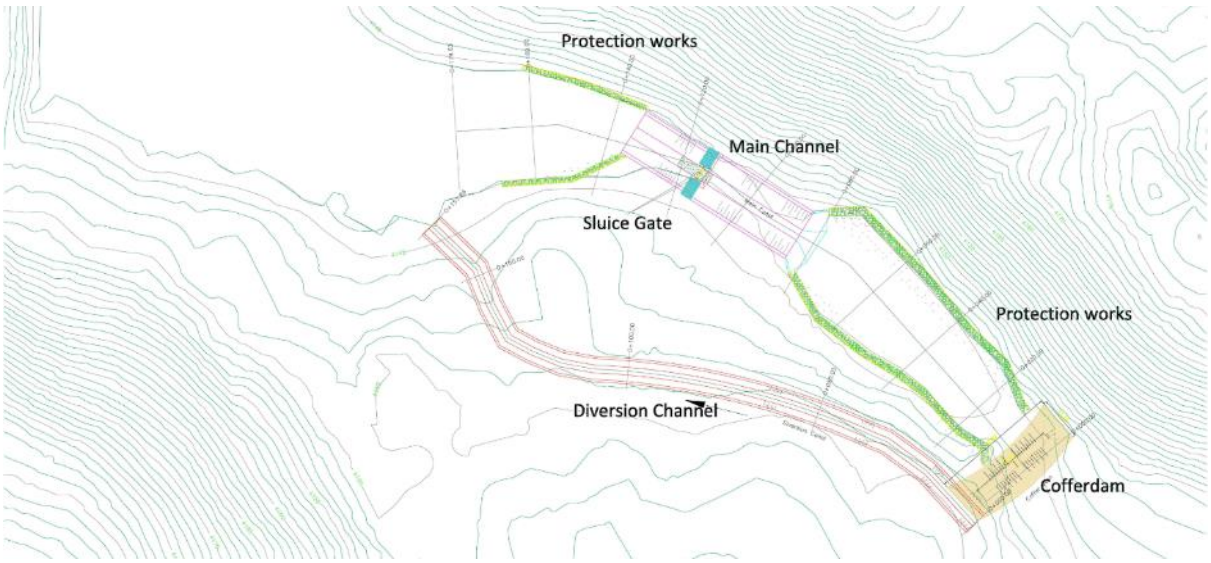


Figure 4. *Schematic design of Thulagi Glacial Lake, adapted after full illustration in Annex 26 of FP: Technical Lake Lowering Design report.*

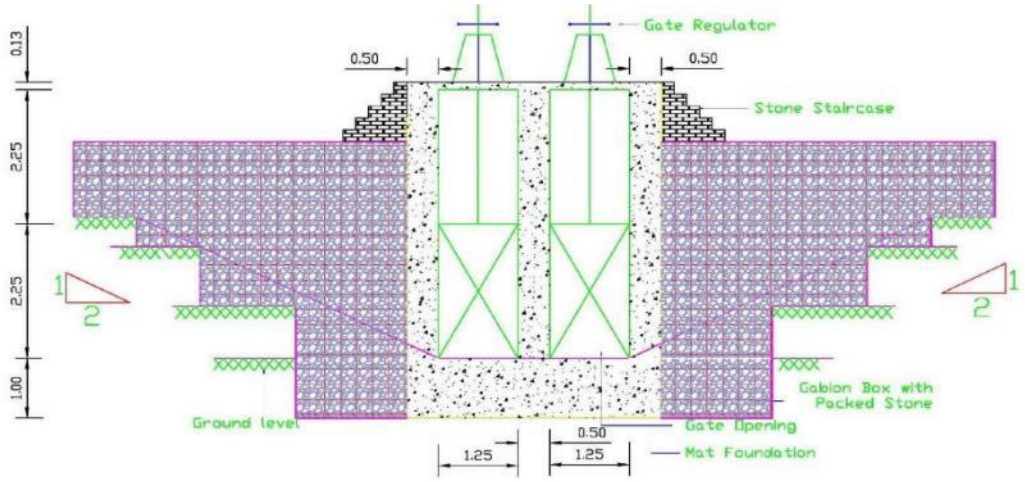


Figure 5. *Schematic design of Thulagi vertical sluice gate, adapted after full illustration available in Annex 26 of FP: Technical Lake Lowering Design report. Measurements to scale have been provided in meters (m).*

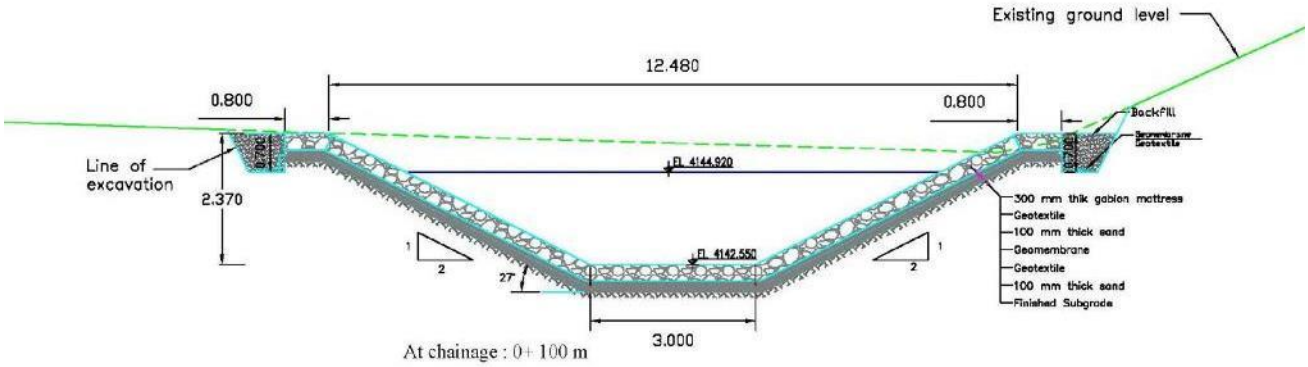


Figure 6. *Schematic design of Thulagi main channel cross section, adapted after full illustration available in Annex 26 of FP: Technical Lake Lowering Design report. Measurements to scale have been provided in meters (m).*

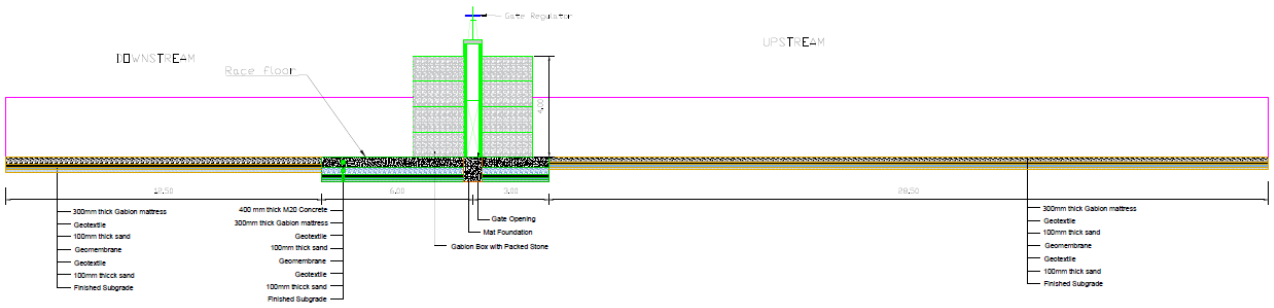


Figure 7. *Schematic design of Thulagi main channel profile with gated structure, adapted after full illustration available in the Technical Lake Lowering Design report.*

Activity 3.2. Construction of structural and non-structural measures (Civil and NbS/ Bioengineering) for the risk reduction of GLOF and flash flood.

After lake lowering, while the risk of GLOFs triggering will be significantly reduced, there will still be potential for GLOFs to occur, but with a lower magnitude. Under this activity, check dams and other protective infrastructure will be established at strategic locations in the Dudhkoshi and Arun Sub-basins to address the residual flood risk after lake lowering. The purpose of this infrastructure will be to attenuate and divert the intense flow of water caused by GLOFs and flash floods from the Lower Barun, Lumding Tsho and Hongu 2 glacial lakes[39]. The specific infrastructure that will be constructed under Activity 3.2 is described below. For each sub-activity, detailed site-specific engineering designs will be developed and validated prior to construction.

- 3,102 m^3 of flood walls and RCC revetments will be built along stretches of riverbank where a high possibility of bank undercutting and inundation was identified. Suitable locations were identified using flood models, accounting for the velocity of river flow along with the embankment material, topographical, morphological, and geological conditions of the riverbank and river flow direction. The height of revetments was set considering the 'Design Flood Level' (see Annex 23a of FP, also Annex S of ProDoc for more detail on the site selection and design considerations).
- 67 conservation ponds will be established (38 in the Arun Sub-basin and 29 in the Dudhkoshi Sub-basin) to reduce concentrated surface flow following a GLOF or during a monsoon or other extreme rainfall event and consequently prevent the formation of gullies and the triggering of shallow landslides.

The infrastructure installed under this activity will provide immediate benefits to complement the long-term Eco-disaster Risk Reduction and nature-based solutions implemented under Activity 3.3. Initial concept drawings and costing information for the downstream interventions are presented in Annex 23b of FP also Annex S of ProDoc: Concept drawings and bill of quantities for downstream interventions.

Department of Forests and Soil Conservation (DoFSC) is responsible for the operation and maintenance of check dams and other infrastructure for the diversion of residual GLOF and flash floods. DoFSC will provide the required budget and human resources for the O&M and deploy the workforce as required. The institutional and financial sustainability of this and future investments will be ensured by embedding activities within the existing structure of DoFSC.

Activity 3.3. Implement Eco-disaster Risk Reduction solutions to reduce the impact of GLOFs and flash floods.

Under Activity 3.3., Eco-disaster Risk Reduction (Eco-DRR) solutions will be implemented at strategic locations in the mountain ecosystems of Dudhkoshi and Arun Sub-basins to reduce the impacts of residual flooding from GLOFs on vulnerable communities in the basins, while simultaneously contributing to the restoration and rehabilitation of degraded ecosystems in floodplain areas. The interventions that will be implemented under this project activity were identified using a modelling approach that assessed residual flood risk after lake lowering (Annex 23a of FP). Potential flood risk areas were identified over a stretch of 100 km along downstream of the target lakes in the target river basins to identify the most vulnerable locations. The flood model (depth and velocity) was overlaid with data on physical assets such as settlements, households, agricultural land, and transport infrastructure to assess potential impact and damages. A flood depth-damage model was then used to identify priority areas for intervention under various flood scenarios. These areas were given a priority ranking on a three-point scale, and interventions were considered for all Priority One (P1) areas. Interventions were considered along three categories, namely green, grey and hybrid solutions, and the potential benefits of each was considered. The results of the study showed that hybrid interventions that fit under the Eco-DRR umbrella would be most effective in reducing the impacts of residual flood. Specific interventions were then identified for each

[39] Downstream interventions at Thulagi are being implemented under an IUCN project and are therefore not included in the design of this project.

site (Arun River Basin: 108 sites; Dudhkois River Basin: 124 Sites; shown in detail in Annex 23b), which include: i) planting trees along 153.5 ha of vulnerable riverbanks[40], sub-watershed areas and floodplains of four river systems; ii) constructing 17,744 m^3 of vegetative gabion walls; iii) building 978,436 m of live check dams; iv) constructing 15,298.94 m^3 of vegetative gabion revetments; v) installing 7,246 m^3 of vegetative gabion spurs; vi) installing 29,685 m^3 of vegetative gabion check dams and 15,010 m^3 of vegetative dry stone check dams; vii) establishing 3,194 m^2 of vegetative stone rip-rap; viii) undertaking 45,188 m of brush layering; and ix) planting 29.8 ha of grass seedlings. This activity will be implemented by DoFSC which will also oversee the operations and maintenance and associated costs in partnership with local governments and community forest user groups (CFUGs). To this end, the project will engage organisations such as the Federation of Community Forestry Users Nepal (FECOFUN)[41], which work with communities on natural resource management and use rights. This engagement will promote community ownership of ecological infrastructure and support the long-term sustainability of interventions. Such approaches where communities are adequately engaged and given control over the maintenance of natural resources that benefit them have yielded positive results in Nepal.

The specific species chosen for tree planting and vegetative hybrid infrastructure will follow local guidelines developed by Ministry of Forests and Environment, and will be conducted on government owned land. Such protocols are based on best practices through past projects and are currently being used on extensive government planting programmes across the country. The project will complement these initiatives, building on existing operational mechanisms under DoFSC while specifically targeting flood vulnerable areas. The lessons learned from the project, specifically around the theme of Eco-DRR, will be captured through the watershed management plans and the climate-resilient agricultural management and information system. The involvement of DoFSC in the implementation of the project will ensure that the capacity developed through this activity translate across the country to facilitate the scaling of Eco-DRR interventions. Design examples for these interventions are shown in Figure 8, Figure 9, Figure 10 and Figure 11 below. These Eco-DRR and nature-based solutions will reduce soil erosion and increase the infiltration capacity of the soil in floodplain areas. This, in turn, will decrease surface runoff and reduce the sedimentation of tributaries caused by flooding in the project areas. Concept drawings and cost information for the interventions proposed under this activity are presented in Annex 23b of FP, also in the Annex S of ProDoc: Concept drawings and bill of quantities for downstream interventions.

It is anticipated that the direct involvement of local governments will leverage additional investment in local adaptation measures downstream of the project, extending their contribution beyond the initial commitments made through co-finance to the project. This potential to leverage additional finance, bolstered by the capacity development of local institutions, contributes to the upscaling potential and sustainability of project interventions. Furthermore, the engagement of key private stakeholders who stand to benefit from risk reduction measures, including the Nepal Tourism Board (NTB) and the Independent Power Producers' Association of Nepal (IPPAN), provides additional potential for leveraging finance for the scaling of interventions downstream of the project. Both organisations have already indicated their support for the project through co-finance commitments. While the values of these commitments are modest, they demonstrate the willingness of the organisations to engage in risk-reduction and a recognition of the potential value/benefits of the project. The potential for leveraging additional finance is particularly strong for IPPAN, which has recognised the important role of watershed management for sustainable power production and risk reduction bolstered by the information services provided through Output 1.

Physical adaptation interventions under this activity will be supported by developing Integrated Watershed Management and National Park Management plans to create the regulatory framework for sustainable land management and climate change adaptation. Training and capacity building interventions targeting community members, community-based organisations (CBOs), non-governmental organisations (NGOs) and local government officials will ensure the effective implementation of these plans. The capacity development of these groups will be delivered under thematic training modules, including: i) capacity development of community members and local government on climate change induced hazards and disasters, and adaptation measures; ii) curriculum for climate change related education and trainings for secondary level school teachers and students; and iii) capacity development of trainings for CBOs, including mothers groups, women-lead cooperatives, Indigenous Peoples organisations and local eco- and youth-clubs. Training participants will be identified according to the Gender Equality and Social Inclusion (GESI) Action Plan (Annex K), including Indigenous Peoples, Dalits, and women representatives.

The training modules will be designed to engage government officials in the implementation of Multi-Hazard Risk Reduction Measures (MHRRM). The training will enhance their capacity with tools and techniques used in the MHRA and implementation techniques in Climate Change Adaptation (CCA), Ecosystem-based Disaster Risks Reduction (Eco-DRR), and the use of Agriculture Management Information Systems (AMIS). Capacity development of the relevant stakeholders

[40] 1x1m planting density creating a green belt of 20m along the riverbank.
[41] FECOFUN represents 8.5 million forest users across Nepal

and local and regional levels will support the development of multi-hazard assessment, and integrated, climate- and gender-responsive watershed and national park management plans in the Arun and Dudhkoshi Sub-basins, as well as on the effective integration of these measures into federal and municipal level budgets. Sub-activities including the following:

- Plant 153.3 ha of trees along vulnerable riverbanks, sub-watershed areas and flood plains of 4 river systems (81.6 ha in the Arun Sub-basin and 71.6 ha in the Dudhkoshi Sub-basin).
- Establish 17,744 m^3 of vegetative gabion walls (10,796 m3 in the Arun Sub-basin and 6,948 m3 in the Dudhkoshi Sub-basin).
- Install 978,436 m of live check dams (955,396 m in the Arun Sub-basin and 23,040 m in the Dudhkoshi Sub-basin).
- Install 15,298.94 m^3 of vegetative gabion revetments (3,447.5 m^3 in the Arun Sub-basin and 11,851.44 m^3 in the Dudhkoshi Sub-basin).
- Install 7,246 m^3 of vegetative gabion spurs (4,608 m^3 in the Arun Sub-basin and 2,638 m^3 in the Dudhkoshi Sub-basin).
- Install a total of 29,685 m^3 of vegetative gabion check dams (21,960 m^3 in the Arun Sub-basin and 7,725 m^3 in the Dudhkoshi Sub-basin) and a total of 15,009.8 m^3 of vegetative dry stone check dams (9,371.25 m^3 in the Arun Sub-basin and 5,638.5 m^3 in the Dudhkoshi Sub-basin).
- Install a total of 3,194 m^2 of vegetative stone rip-rap (1,582.5 m^2 in the Arun Sub-basin and 1,611.5 m^2 in the Dudhkoshi Sub-basin).
- Implement a total of 45,188 m of brush layering (36,750 m in the Arun Sub-basin and 8,438 m in the Dudhkoshi Sub-basin).
- Plant a total of 298,162 m^2 of grass seedlings (155,419 m^2 in the Arun Sub-basin and 142,743 m^2 in the Dudhkoshi Sub-basin).
- Develop and implement integrated, climate- and gender-responsive watershed and national park management plans, including the integration of these plans into local and national level budgets.
- Develop and implement a climate-resilient agricultural management and information system.
- Strengthen the technical and institutional capacity of community members, government officials and CBOs to understand and implement multi-hazard risk assessments, use climate-resilient agricultural management and information system, implement climate-resilient GLOF and flood risk reduction strategies, and integrate Eco-DRR into government budgets.

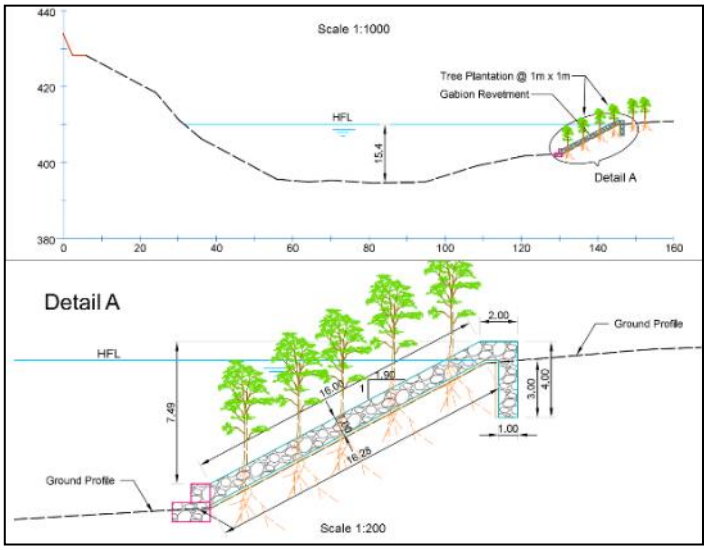


Figure 8. *Design example for the vegetative gabions that will be constructed.*

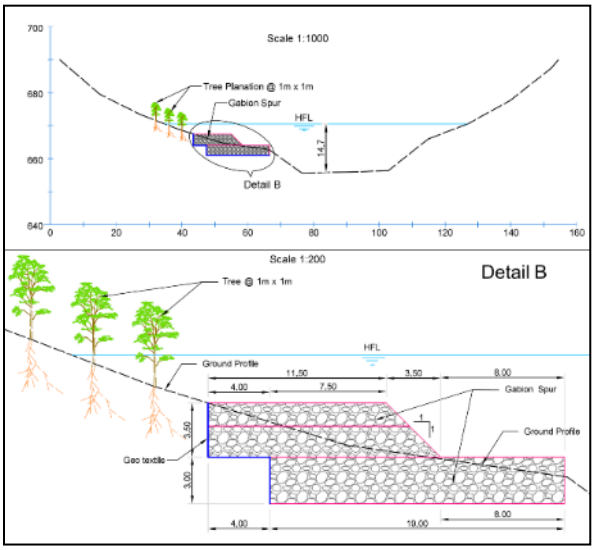


Figure 9. *Design example for the gabion spurs that will be constructed.*

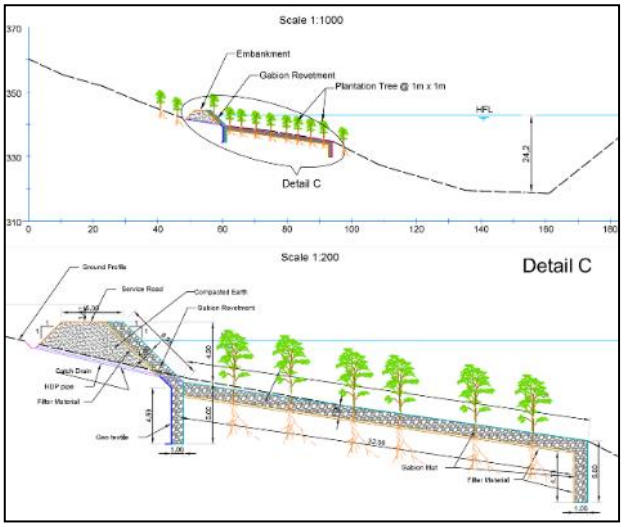


Figure 10. *Design example for the gabion revetments that will be constructed.*

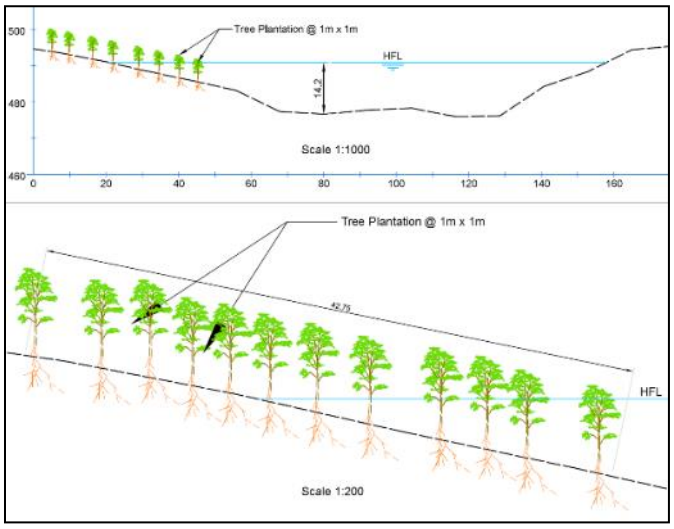


Figure 11. *Design example for the tree plantations along the riverbanks*

Reporting Obligations

UNDP is required to report on the co-financing amounts disbursed and applied towards the implementation of the Funded Activity (i) in each Annual Performance Report (APR), (ii) in the Interim Evaluation, (iii) in the Terminal Evaluation, (iv) in the Project Completion Report, (v) as a condition precedent for all requests for disbursement, within the timeframe to ensure timely requests for disbursements and in form and substance satisfactory to the GCF, and (vi) upon the request of GCF. To this end, all co-financiers (including the Implementing Partner, if applicable) will be requested to provide to UNDP the relevant information in the form of co-financing materialization letters during each of the above project milestones.

Agreement on intellectual property rights and use of logo on the project's deliverables and disclosure of information

To accord proper acknowledgement to the GCF for providing grant funding, the GCF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GCF will also accord proper acknowledgement to the GCF. Information will be disclosed by UNDP in accordance with relevant policies notably the UNDP Disclosure Policy[42] . In addition GCF may further disclose project information under its own GCF Disclosure Policy[43], in line with the terms and conditions set out in the AMA. See also GCF Branding Guidelines.

Carbon offsets or units

As outlined in the AMA agreement between UNDP and the GCF, to the extent permitted by applicable laws and regulations, the Implementing Partner will ensure that any greenhouse gas emission reductions (e.g. in emissions by sources or an enhancement of removal by sinks) achieved by this project shall not be converted into any offset credits or units generated thereby, or if so converted, will be retired without allowing any other emissions of greenhouse gases to be offset.

Partnerships

Co-finance and direct project support

The project will partner with a number of local organisation including both public and private sector to deliver on the project results. These partners include: Department of Meteorology and Hydrology (DHM); Department of Forest and Soil Conservation (DoFSC); National Disaster Risk Reduction and Management Authority (NDRRMA); Department of National Park and Wildlife Conservation (DNPWC); Ministry of Forest and Environment (MoFE); Ministry of Energy, Water Resources and Irrigation (MoEWRI); Nepal Tourism Board (NTB); and the Independent Power Producers' Association, Nepal (IPPAN).

[43] See GCF Comprehensive Information Disclosure Policy of the Fund

Output 1: DHM's in-kind co-finance will cover the furnitures and staff costs, ensuring that project interventions are mainstreamed into the day-to-day processes of DHM. DHM will implement the project activities (Sub-activities 1.1.1, 1.1.2 and 1.2.2).

Output 2: DHM co-finance will cover staff costs and provide the necessary processing furnitures and staff costs for the EWS. The NDRRMA will provide logistical support for disaster preparedness and response as well as staff costs for processing household data for effective disaster preparedness. Finally, private sector co-finance from IPPAN and NTB will cover the cost of land as well as O&M for hydro-met equipment and capacity building training with further O&M support from NDRRMA.

Output 3: DHM will provide co-finance towards staff costs for lake lowering designs, as well as for the construction of an access trail to all project sites. For downstream interventions, DoFSC co-finance will support equipment and staff costs. DNPWC will co-finance staff costs for the development and implementation of integrated, climate- and gender-responsive watershed and national park management plans. Finally, UNDP co-finance will be used to cover the costs of necessary support staff for the implementation of downstream measures, including technical advisors, as well as GESI, M&E and safeguards experts. Support for the implementation of this output will be provided by: DHM through the DHM PIU and Field Office, assisting in the implementation of project activities, the provision of programme M&E costs and the construction of access trails to project sites (Sub-activities 3.1.1 and 3.1.2); ii) DoFSC through the provision staff time, the use of machinery and the implementation of construction works relating to the planting of trees (Sub-activity 3.3.1); and iii) DNPWC through the DNPWC PIU and Field Office to assist in the implementation of project activities (Sub-activity 3.3.10).

Parallel and downstream co-financing

The following parallel financing has been identified for the project. These are existing funds earmarked for complementary outcomes that consistent with general adaptation measures under the project, but will not form part of the project results or activities.

- US$ 3,066,440 from DHM.
- US$ 1,525,424 from DoFSC.
- US$ 816,301 from DNPWC.
- US$ 962,477 from IPPAN
- US$ 24.33 Million from 15 Municipalities in Dudhkoshi Watershed
- US$ 24.8 Million from 15 Municipalities in Arun Watershed
- US$ 1.05 Million from Nasong Rural Municipality in Thulagi Watershed

An additional US$4,056,019 in long-term finance for O&M will be provided by DHM, DNPWC and DoFSC, which will flow after the project implementation period and is an addition to the O&M finance provided during the seven-year implementation period.

Public-private partnerships to promote GLOF risk reduction

Investment in long-term capacity building under Output 1 will be complemented by the establishment of public-private partnerships to formalise and institutionalise long-term agreements focused on the sustainable uptake of GLOF risk reduction in Nepal. In particular, partnerships will be developed between entities such as NTB, IPPAN, TAAN and the Ministry of Energy, Water, Resources and Irrigation: Department of Electricity Development, Nepal Electricity Authority, Department of Water Resources and Irrigation, and Private Hydropower Developers. The production of customised and targeted risk information for pre-project adaptation planning and early warnings will provide strong incentives for private-sector investment in future disaster risk reduction initiatives. Country-wide uptake of GLOF risk reduction interventions will be promoted by the establishment of public-private partnerships, and introducing the model to leverage future investment in similar impactful lake lowering and downstream interventions. Initial co-finance investments from IPPAN and NTB demonstrate the willingness of the private sector to engage with the project and a general buy in to the benefits of the proposed approach. It is anticipated that the improved understanding of GLOF risks and agreements facilitated by the project, combined by on-the-ground interventions, will have potential to leverage significant additional finance downstream sites of the project, particularly for eco-DRR interventions that align with watershed management investments of the hydropower producers.

The mechanisms for establishing and expanding these public-private partnerships will be developed under Activity 1.2 and supported by strengthening DHM's institutional and regulatory systems for climate-responsive planning and development. The public-private partnerships will support the sustainability of GLOF risk reduction strategies by engaging

private sector actors in the hydropower, tourism and insurance sectors to produce customised and targeted risk informations for pre-project adaptation plannings and early warnings. Opportunities to engage with the health sector will also be explored, linked to the expected reduction in the spread of water- and vector-borne diseases after flood events. The production of customised and targeted risk information will incentivise disaster risk reduction initiatives and adaptation planning in private sectors, with the PPPs enabling long-term mobilisation of resources to directly address climate change issues. By engaging these partners throughout the process from project design and throughout the implementation the project is instilling a sense of ownership in the approach, creating a platform for continued, sustainable investment in the long term.

Complementarity with existing projects, programmes and initiatives

Project	Description	Alignment
The Nepal Climate Change Support Programme II (NCCSP II) 2019-2024 UK Aid US$3.1 million	NCCSP II is the third instalment of a programme that has been implemented by the Ministry of Forest and Environment (MoFE) and 26 local governments in 14 districts in Nepal, with support from UNDP. In the first phase (NCCSP I), UNDP provided technical assistance to the MoPE and GoN to implement the NAPA. The focus was 80% on local level actions to implement local adaptation programmes of action (LAPA) and 20% on strengthening institutional capacity and national-level coordination of Nepal's efforts to alleviate the impacts of climate change. These efforts will be expanded in the forthcoming second phase (NCCSP II) of the project. Phase I and Phase II of the project are bridged by the NCCSP I-Transition Extension (TE), which provides support and technical assistance to 26 local governments across 14 districts to implement multiple Climate Resilient Development Projects (CRDPs). The NCCSP I-TE supported 78 CRDPs between 2018-2019 and is currently engaging with the abovementioned local governments to expand on this number.	The project will complement this initiative by addressing community resilience through the co-development of community response mechanisms (Activity 2.2) and expanding on protecting wetlands and settlements (Output 3). Expanding these initiatives from districts located in neighbouring provinces to those targeted by the NCCSP II will enable the project to fill gaps in community coverage and complement the activities implemented under NCCSP II.
Improving Climate Resilience of Vulnerable Communities and Ecosystems in the Gandaki River Basin, Nepal 2020-2026 IUCN US$27.4 million	This IUCN project aims to improve the resilience of vulnerable communities and ecosystems in the Gandaki River Basin by working across traditional political and administrative boundaries to plan and implement climate change adaptation measures. There is strong complementarity with the project in that the project area overlaps with the Thulagi Lake area, thereby providing a foundational entry point for implementation in the region. The high risk of the area necessitates further adaptation action to complement the adaptation measures supported by the ongoing IUCN-supported project.	The project will build on this existing initiative's knowledge management, technical capacity and ecosystem restoration efforts by expanding similar approaches into the other target areas. Additionally, the project will work in synergy with the IUCN-supported project implementation unit to incorporate ecosystem-based climate change adaptation approaches into government policies and plans. The GLOF and flash flood risk and impact reduction measures under Output 3 of the project will complement the capacity building- and knowledge management-based interventions of this IUCN project to elevate the impact of GCF resources.
Developing Climate Resilient Livelihoods in the Vulnerable Watershed in Nepal 2020-2024	The objective of this project is to develop climate-resilient community livelihoods through integrated watershed management practices by establishing the necessary policies and institutional frameworks. The project will introduce and scale-up integrated	The design of the proposed additions to the hydrometeorological monitoring equipment under this project and the associated EWS will consider the work done under the GEF project, ensuring that there is no overlap and

GEF LDCF US$42.9 million	watershed management practices and climate-smart agriculture in four major watersheds: Dudhkoshi, Molung, Llkhu and Sunkoshi Canyon within the lower Sunkoshi basin. An additional focus of this project is to strengthen hydrometeorological monitoring, which will be complemented by the hydrometeorological monitoring systems developed and strengthened by the project in neighbouring areas, creating a more comprehensive network.	that stations are optimally positioned to maximise coverage over the target areas.
Saptakoshi High Dam Project Ongoing Government of Nepal US$ 23.8 million	The Saptakoshi High Dam is a multipurpose project on the Saptakoshi River of Nepal. The project's primary focus is to generate hydropower and control floods in southeast Nepal and neighbouring India. Catastrophic flooding resulting from the erosion of the river's embankments in 2008 catalysed this project's efforts, including the development of a 296 m-high multipurpose dam that will help control downstream flooding and provide 3300 MW of electricity and irrigation potential.	The improved control of downstream flooding under this project will complement the residual flood risk and impact reduction measures under Output 3 of the project.
Building a Resilient Churia Region in Nepal (BRCRN) 2020-2027 GCF US$47.3 million	The BRCRN project aims to confront climate change challenges in Nepal by enhancing the resilience of ecosystems and vulnerable communities in the Churia region. This GCF-funded project will promote widespread adoption of climate-resilient land use practices, confront the challenges of deforestation and forest degradation and build resilience to climate-induced hazards in the region, contributing to Nepal's nationally determined contribution (NDC).	The BRCRN project will support CBOs in adopting and investing in climate-resilient, sustainable natural resource management approaches, complementing CBO capacity-building activities under Output 3 of the project. In addition, the BRCRN project will support integrated river system-level planning on various government, CBO and other partner levels, which will further complement the climate risk and hazard information planning interventions under Output 1 of the project.

Risks and Assumptions

Implementation Risks

Risk Factor 1		
Category: Technical and operational	Probability: Low	Impact: Medium
Description: Turnover of key project personnel, as well as relevant staff from provincial and local governments, could delay project implementation and negatively impact the retention and transfer of institutional knowledge gained under the project. Staff in key government institutions may lack the capacity to implement effectively and on time. Staffing challenges may be further compounded by remote locations and short windows of opportunity for work in high altitudes.		
Mitigation Measure(s): Regular stakeholder consultations will be held with all project partners involved in project implementation to ensure that institutional capacity is retained in the event of turnover of key project personnel. In addition, the PSC will be responsible for ensuring coordination between relevant project stakeholders during the implementation phase. The PSC will identify personnel whose primary responsibilities will be to act as a focal point for facilitating stakeholder engagements undertaken during the implementation of the project. Moreover, project operational handbooks will be developed to provide project staff with standardised training on project interventions. UNDP, as AE, will provide close oversight on project implementation, supporting government staff where needed to avoid delays related to capacity shortfalls. For remote location access: drawing on past experience, the project will engage in advanced planning to ensure timely mobilization of human resources not to miss the working season in harsh remote locations (in such locations, working season is only a few month-window during the year for hard work). The project will also use the local work force who are accustomed to the conditions and are capable of doing hard work in such locations. UNDP Nepal and Govt. of		

Nepal has prior experience implemented a GLOF project in Imja lake and a similar approach will be employed in this project, including capturing lessons and best practices. In addition, lessons from similar projects implemented in Bhutan and Nepal can also be employed for this project.		
Risk Factor 2		
Category: Technical and operational	Probability: Medium	Impact: Medium
Description: The occurrence of a GLOF, other flooding event, earthquake or other natural disaster or climate change-related event during project implementation could delay the implementation of project interventions and negatively impact project areas and target communities.		
Mitigation Measure(s): Project interventions will be continuously monitored to identify potential extreme events for appropriate measures to be enacted should such an event occur. Operational manuals will also be developed to identify the necessary measures to be enacted for different extreme events and hazards (Activity 1.1). To ensure as minimal disruption as possible to project interventions, disaster mitigation and response activities will be prioritised at the target communities while the project interventions are being established. In addition, project implementation schedules will consider historical trends regarding the frequency of extreme climate events and will plan around these periods accordingly. All available information from DHM will be used to assess the GLOF risk prior to and during implementation. Where possible, downstream risk reduction interventions will be conducted after lake lowering and EWS interventions, when the risk is already reduced. Workers will be briefed on the potential risks, signs to be aware of, and actions to take in the event of an emergency.		
Risk Factor 3		
Category: Technical and operational	Probability: Low	Impact: Medium
Description: Delays during the procurement process could disrupt the efficient implementation of project interventions.		
Mitigation Measure(s): UNDP will assist DHM with the procurement process to ensure that the process proceeds according to international standards and to ensure that any delays or problems that arise are resolved quickly and efficiently. Moreover, UNDP's experience in the adaptation field will enable them to directly approach potential partners should the initial rounds of the procurement process prove unsuccessful. Additional mitigation actions identified to avoid procurement delay include: i) advance procurement planning and approval of procurement plan at the time of approval of annual work plan of the project; and ii) directly working with the entities who have gone through competitive process and the government or UNDP has long-term agreements signed. Fair pricing and transparency is mandatory for both the government and UNDP to ensure a competitive process has been adopted in procurement as set by standard procurement rules of the government and UNDP. All procurement notices are made public and given sufficient time to seek quotations or bids, which are evaluated based on pre-set criteria, which is part of procurement notice. All project transactions are mandatory audited by the government and UNDP as per set audit rules every year which also includes financial management Given the relevance of EWS, weather stations and measuring equipment and civil works among the projected procurement needs for this project, a dedicated meeting will be scheduled between UNDP Nepal and Bureau of Management/Office of Procurement/Crises, Climate and Infrastructure Team soon after signing the Pro Doc. UNDP also has the option to channel high-value procurement actions through existing corporate LTAs. In addition, UNDP can also provide specialized support for infrastructure/civil works and lessons learnt through other GCF projects of a similar nature.		
Risk Factor 4		
Category: Governance	Probability: Low	Impact: Medium
Description: The Government of Nepal's transition from a unitary governance system to a federal democratic republic over the past decade could alter political priorities. This shift could lead to project stakeholders diverting their efforts away from project implementation. Similar risks may emerge following elections, when key government stakeholders might change.		
Mitigation Measure(s): The Government of Nepal's transition from a unitary governance system to a federal democratic republic means that the mandates, capacities and interagency relationships of governmental institutions and mechanisms are still being established. While Nepal's Constitution and its Local Government Operation Act (2017) both provide detailed information on the roles, responsibilities and coordination mechanisms of government operations, the project will be developed with the lessons learned from previous and existing projects in Nepal to ensure that project activities incorporate, but are not solely reliant on, government agencies. This approach aims to minimise the impact of any potential shifts in the political landscape. The PSC will engage directly with the NDA to ensure close communication with government officials and to identify and address potential delays or changes to project management or interventions.		

Risk Factor 5		
Category: Technical and operational	Probability: Medium	Impact: Medium
Description: Potential risks related to the implementation of project interventions in the remote project target areas include: i) difficulty accessing project areas for installation and maintenance of equipment; ii) ESS risks related to altering river channels/check dams; and iii) the risk of project staff and community members suffering from acute mountain sickness or being affected by adverse weather conditions. In addition, community members have limited capacity for the maintenance of equipment related to project interventions.		
Mitigation Measure(s): An assessment of project areas prior to implementation and installation of equipment and/or infrastructure will ensure that the correct measures are established to enable the effective installation, and later maintenance, of that equipment/infrastructure (Activities 2.1, 2.2, 3.1 and 3.2). Continuous monitoring from local government officials and community-based organisations (CBOs) in the project areas, to inform the PSC, will ensure the safety of contractors and workers during project implementation, and will serve as the institutional mechanism to ensure effective maintenance of project interventions. In addition, this monitoring will serve to identify potential ESS risks to ensure they are addressed quickly and efficiently.		
Risk Factor 6		
Category: Technical and operational	Probability: Medium	Impact: Medium
Description: Check dams constructed as part of project interventions may not sufficiently mitigate extreme flood events, resulting in continued impacts on target communities.		
Mitigation Measure(s): Prior to construction, all infrastructure will be designed based on site evaluations, with specifications relevant to each target site (Activities 3.1 and 3.2). The construction of these infrastructure will occur during periods when extreme climate events are less likely -according to historical trends- to minimise the potential risks during construction. All infrastructure will be designed and built to be consistent with international engineering standards, to ensure that they are resilient to extreme climate events and natural disasters.		
Risk Factor 7		
Category: Governance	Probability: Low	Impact: Medium
Description: A lack of buy-in or commitment from communities where project interventions are intended to be implemented will undermine the effectiveness of these activities.		
Mitigation Measure(s): The project will actively seek to create community ownership of the project through community consultations and trainings and will accordingly encourage community participation in project activities. These community consultations and trainings will ensure that community members understand the importance of the project interventions, in addition to enabling them to effectively maintain, monitor and report on these interventions.		
Risk Factor 8		
Category: Governance	Probability: Low	Impact: Medium
Description: Limited collaboration and coordination between project stakeholders, including relevant government departments, ministries and the private sector will reduce the timely delivery and effectiveness of the project.		
Mitigation Measure(s): Extensive stakeholder consultations will ensure that the roles and responsibilities of project stakeholders are well defined, while also developing and strengthening existing interagency collaboration and coordination. The PSC will be responsible for ensuring coordination between all relevant project stakeholders during project implementation. This responsibility also includes facilitating stakeholder engagements during the project implementation to ensure continued collaboration and to mediate potential disputes.		
Risk Factor 9		
Category: Technical and operational	Probability: Low	Impact: High
Description: Risks may arise related to Government procurement and management of construction/civil works related to lake lowering and EWS equipment. These include: i) potential for unfair procurement process and price manipulation; ii) contractors lack capacity/experience to deliver on time and in budget; and iii) contractors not following the procedures laid out in the ESMP.		
Mitigation Measure(s): UNDP, as the accredited entity, will provide oversight to ensure that fair and transparent procurement processes are followed, and that a detailed vendor selection process is carried out to assess the experience and credentials of potential vendors. The quality assurance process for the procurement of technical suppliers will include inputs from a suitably qualified chief technical specialist , who will sit on the PMU, with support from members of the TAG. This includes screening proposals against the project's ESMP to ensure that all provisions for environmental and social safeguards are strictly adhered to. Should suitably experienced firms not be identified for the glacial lake lowering, the Nepal Army, who has experience implementing similar activities from previous GLOF risk reduction projects, may be brought in to support.		

Risk Factor 10		
Category: Governance	Probability: Low	Impact: Medium
Description: The project may face challenges in maintaining financial sustainability and ensuring compliance with evolving environmental regulations, and protect infrastructure against natural hazards given Nepal's economic situation and the challenges faces related to adapting to changing political priorities during federal transition.		
Mitigation Measure(s): a) Nepal's priorities to build resilience against risks including from GLOFs prevails all other priorities, including economic development, which will continue despite changes in political landscape, as risk reduction remains at the top of political parties agenda, b) as the transition towards federal system of governance will be expedited in the near future, empowering sub-national governments who will be expected to play more stronger role in risk mitigation as per constitutional mandates c) project sites mainly include protected areas of Nepal, governed under strict environment conservation regulations supported by protected area laws, which has remained stable in comparison to other environment conservation related regulations d) at national level monitoring of GLOF risks and sharing risk information with concerned authorities has been embedded in the regular work stream of DHM funded from the government budget.		
Risk Factor 11		
Category: ML/FT	Probability: Low	Impact: Medium
Description: Risks related to money laundering (ML), terrorist financing (TF), and prohibited practices (PP) could undermine the integrity of project financing, leading to misallocation of funds, reputational damage, and potential legal repercussions. Weak financial oversight in remote or high-risk areas may also expose the project to illicit financial flows, impacting effective implementation and stakeholder trust.		
Mitigation Measure(s): UNDP has robust processes in place to safeguard against money laundering, terrorist financing, and prohibited practices, clearly articulated in the stand-alone AML-CFT policy. The project will strictly follow the processes and procedures defined in this policy, including related to due diligence and partnership assessment criteria for all partners it engages. Each entity will be screened against the criteria set out in this policy and other policies referenced herein. Core project partners have already been screened, with the overall PCAT risk rating for all partners to be engaged in the project assessed as “Low risk” or “Very Low Risk”.		
Risk Factor 12		
Category: Reputational	Probability: Low	Impact: Medium
Description: Given the complex nature of the engineering activities under the project, there is a potential reputation risk for UNDP should the project experience significant delays related to procurement issues or logistical challenges for works in remote and high-altitude glacial lakes, or more seriously should the works not meet international technical standards.		
Mitigation Measure(s): The project has been designed in close consultation with technical experts both locally and globally. This includes detailed assessments during the design of the project’s lake lowering interventions, with technical experts to ensure that designs are fully in line with international standards. The implementation plan, including disbursement schedule, logistical support and procurement actions are also prepared based on the narrow working season under difficult/remote conditions. During implementation, the project will continue to engage technical experts to bolster Project’s internal capacity for meeting engineering standards. This will include ensuring that the full-time Project Coordination Specialist has considerable experience in managing complex engineering projects (including experience related to GLOF risk reduction), as well as the establishment of a Technical Advisory Group (TAG) that will bring together local and international expertise to provide technical oversight and guidance for the implementation of all technical engineering works. Furthermore, approaches to avoid reputational damage include the mitigation measures linked to procurement detailed in Risks 3 and 9 above, as well as mitigation measures related to works happening in remote locations and high altitudes described under Risk 5. UNDP Communication unit and Project communication and Reporting Analyst will closely monitor media coverage of the project, and pro-actively engage with the media to ensure fact-based reporting.		

Safeguard Risks

In accordance with the UNDP Social and Environmental Screening Procedure (SESP) and the Environmental and Social Management Framework (ESMF), the project has been classified as Substantial Risk (Category B under GCF rating).

The screening identified a range of potential environmental and social risks primarily associated with construction works and installation activities (to be conducted by the IP) in high-altitude glacial environments and downstream river corridors, including glacial lake lowering interventions, Eco-DRR measures, and the establishment of hydrometeorological and early warning infrastructure. These risks are largely site-specific, temporary or reversible in nature which can be mitigated with recommended measures. A detailed risk rating analysis in line with the approved GCF’s Funding Proposal is presented in the table below, outlining the identified risks, assessed likelihood and potential impacts, and corresponding mitigation measures. Risk mitigation will be undertaken through the application of the ESMF and associated instruments, including

catchment based ESMPs/ESIAs, the Stakeholder Engagement Plan, Indigenous Peoples Planning Framework and Plan, Gender Action Plan, and Occupational Health and Safety procedures and applicable government policy and regulations. These measures, together with continuous monitoring and oversight by UNDP, are expected to reduce residual risks to acceptable levels in line with UNDP safeguard policies and national regulatory requirements.

Risk Description	Impact and Likelihood	Significance	Comments	Description of assessment and management measures
Risk 1: There a risk that rights-holders may not have the capacity to claim their rights, particularly as the project will be operating in areas where villages are remote, literacy skills may be lacking, and indigenous peoples exist. Risks include information not reaching all stakeholders; culturally inappropriate practices or messaging, grievances being raised and/or reprisals etc. Related to risks: P3, P13, P.15, 4.4, 6.1, 6.2	I = 2 L = 4	Moderate	This relates primarily to physical activities where land will be required, particularly Activity 3.2 and 3.3. Land is required for the installation of EWS and eco-DRR/nature-based solutions. All sites selected are public land.	Confirmation of land tenure at all project sites as part of detailed site survey during implementation (all sites identified are public) Stakeholder Engagement Plan (SEP) completed Apply lessons learnt from Imja Lake project - planned ESMF - completed Gender Action Plan - completed IPPF completed IPP (including FPIC protocol(s)) - planned GRM Three scoped ESIAs/ESMPs (on a catchment basis) to be made public and comments invited planned
Risk 2. There is a risk that the project could replicate historical/structural exclusion of some groups leading to reduced employment opportunities, inequitable access to information or representation. Related to risks: P8, P9, P10, P13	I = 3 L = 2	Moderate	There has been historical/structural exclusion against certain groups based on gender, caste, ethnicity, language, or location While risk applies across the project, it is particularly relevant for Activity 2.2 and Activity 3.3.	Stakeholder Engagement Plan - completed Grievance Redress Mechanism - completed Gender Action Plan - Completed Indigenous Peoples Planning Framework completed Indigenous Peoples Plan - planned Capacity building activities as part of Activities 2.2 and 3.3

Risk 3: The project involves construction activities within natural ecosystems, therefore there are risks associated with habitat modification, particularly associated with the lake lowering and flood diversion structures. Related to risks: 3.1, 3.6, 4.4	I = 3 L = 5	Substantial	Works are proposed in and around waterways, therefore potential modification of hydrologic characteristics. Lake lowering will have a visual impact. Sourcing of construction materials could also have adverse impacts if not managed.	Hydrology and modelling - completed ESMF - completed Apply lessons learnt from Imja Lake project - planned Scoped ESIAs (to meet UNDP SES and Nepalese law) three planned (one for each catchment) Scoped ESMPs three planned, one for each catchment IPPF completed IPP planned
Risk 4: There is a risk that the project could impact sensitive areas and/or species. Related to risks: S1.2, 3.1, 3.6, 4.4	I = 2 L = 5	Moderate	Activities are proposed within or adjacent to environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park). Endangered species are known from the areas around project sites, including with the National Parks Two of the lake lowering sites are within National Parks.	National Parks Management Plan (including existing biodiversity plans) to be amended through the addition of a new chapter to specifically permit carrying out activities in Output 3 within the National Park areas - planned SEP National Parks will be a key stakeholder. IPPF ensure involvement of IPs who place cultural values on the lakes of the Himalayas. IPP - planned ESMF - completed ESIAs (to meet UNDP SES and Nepalese law) three (one for each watershed) - planned ESMPs based on findings of ESIAs. Three ESMPs one for each catchment - planned

Risk 5: Eco-based solutions are proposed which include revegetation/reforestation, therefore there is a risk that inappropriate species are selected for revegetation or that there is future harvesting of areas revegetated by the project. Related to risks: P3, S1,8	I = 3 L=3	Moderate	Activity 3.3 includes the use of vegetation (trees, shrubs and grasses) to help stabilize soil and form flood defenses. The species have yet to be selected and should be non-invasive, native species.	Appropriate local species to be selected for use in revegetation - planned SEP completed Capacity building to enhance engagement and ownership of interventions by local communities - planned Operation and Maintenance Plan for the vegetative structures and forests - planned Application of Nepal forestry laws and policies - planned
Risk 6. The lowering of the glacial lakes and the construction of flood structures may result in the diversion of surface or water that could be destructive. Related to risks: S1.11	I = 4 L = 2	Moderate	Activities 3.1 and 3.2 involve physical structures to help mitigate flooding, including diversion of flood waters. Flood structures must not result in destructive diversion.	Design assessment, including hydrologic modelling - completed ESMF completed Apply lessons learnt from Imja Lake project - planned Operation and Maintenance Plan for lowering and flood structures - planned
Risk 7: The project interventions will be sensitive or vulnerable to potential impacts of climate change there is a risk that accelerated melting could result in increased flows and/or damage to project and downstream infrastructure. Related to risks: 2.1, 2.2, 3.1,	I = 4 L = 3	Substantial	Lowering the lakes will not completely remove the risks of GLOFs. Similarly, design effectiveness of flood reduction structures could be exceeded in very extreme events.	Design to take account of likely climate change parameters - completed Modelling to test effectiveness of interventions under different scenarios completed Apply lessons learnt from Imja Lake project planned Capacity building for EWS included as part of Activity 2.2 - planned Operation and Maintenance Plan planned Information from Output 3 to be provided to agencies to allow update of existing DRR plans.

Risk 8: The project involves construction of relatively large-scale infrastructure development ie the lake lowering structures and diversion structures, which will involve significant manual labour. The project may pose risks and vulnerabilities related to occupational health and safety eg OHS risks associated with collecting field data, construction and O&M; social risks associated with influx of temporary workers. Related to risks: 3.1, 3.2, 3.3, 3.5, 3.7, 7.1	I = 3 L = 3	Moderate	Output 3 includes construction works in various locations. Construction brings OHS risks both to workers and communities. Impacts associated with installation of equipment ie construction impacts: Physical issues: air, water, noise pollution, sed/erosion Biological issues: impacts on flora and fauna Socio-economic: GESI, labour force etc. Use of local workers will be favoured	Capacity building and use of PPE for construction workers to be done as part of project implementation. Apply lessons learnt from Imja Lake project - planned ESMF completed ESIAs (one for each catchment) ESMP/s (catchment basis) planned Gender Action Plan - completed Labour Management Procedure and an OHS plan (to be included in contracts with construction companies) planned Construction Emergency Medical Pan contractor to prepare
Risk 9: Reducing GLOF risk includes structural works within natural terminal moraines. Failure of lake lowering structures or moraine itself may pose destructive flooding risks to communities. Related to risks: 2.1, 3.1, 3.3	I = 5 L = 2	Substantial	Moraines and proposed structures could be vulnerable to earthquakes, subsidence, landslides, erosion, flooding or extreme climatic conditions. GLOFs may still occur despite project (although magnitude will be reduced). Modelling undertaken as part of the design process for Output 3 has helped identify the downstream flood scenarios	Engineering modelling and design (use of experts) Dam break modelling to determine areas of impact and assist in identifying mitigation measure designs and identify 'safe zones'/escape ways as part of EWS. Provision of information to disaster agencies to support/update existing DRR plans.

Risk 10: Project could result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values due to construction of diversion structures and/or installation of EWS equipment. Related to risks: 4.4, 6.1	I = 4 L =2	Moderate	There are numerous mani walls, small shrines and prayer wheels along the trails between villages these are often close to rivers. The as yet unselected sites for diversion structures and EWS equipment need to consider these cultural items. Importantly, it should be recognized that the project itself, by reducing the risk of natural hazards, will protect cultural heritage. Through reducing the risk of GLOFs, the devastating floods that would otherwise destroy the cultural heritage proximate to the rivers downstream will be avoided.	IPPF - completed IPP - planned SEP - completed Design assessment and discussions with communities Scoped ESIAs to consider risk to heritage as part of scope planned Chance Finds Procedure (to be included in ESMPs) planned
Risk 11: There are indigenous peoples present in the Project area. It is likely that portions of the Project will be located on lands and territories claimed by or important to indigenous peoples. Related to risks: 6.1, 6.2, 6.3	I = 2 L = 4	Moderate	There are areas where elements of the project will occur that are important to IPs eg the lakes which are of cultural importance. There are also culturally important elements that are common throughout the area eg mani walls and stupas these are often found along waterways as well as high points of trails, entries to villages etc. The majority (more than 95%) of the construction related activities will be carried out on public land eg Lake Lowering, Flood Risk Reduction measures, installation of Radar Level Sensors etc. Similarly, public land will be prioritised by DHM for the installation of AWS/Met Stations. These sites are small ie 25mX25m or 10mX10m or 6mX4m depending on the site. However, if for technical reasons it is identified that the identified site is unsuitable, then alternate public land sites will be sought. If no public land is suitable, then negotiations conducted by the PMU following DHM processes, to use private land may be entered into with the landholder, including any IP interests (through application of the IPPF/IPP).	SEP - completed IPPF - completed IPP FPIC if determined to be required (for activities that require land ie Activity 3.2 and 3.3) planned Scoped ESIAs to incorporate outputs of IPP Land Aquisition Plan – planned.

Risk 12: The project will require considerable natural resources (stone, gravel etc) and other materials/goods and services and could potentially be labour and natural resource risks associated with supply chains, as well as potentially result in the generation of waste as a result of construction activities. Related to risks: P14, 1.1, 1.2, 3.2, 7.1, 7.6, 8.2, 8.6	I = 3 L = 3	Moderate	Construction activities, including installation of early warning equipment etc, will result in the generation of waste. The high Himalayas are susceptible to pollution, therefore waste management will be important. Most of the bulk materials eg rock, gravel and sand, required will be available onsite through balance of cut and fil ie reuse of materials. Labour will generally be drawn from local populations. Procurement will comply with Nepal Public Procurement Act 2063 (2007). PPMO provides independent auditing of government procurement.	Scoped ESIAs to include consideration of sources of materials. Scoped ESIAs to include consideration of waste and pollution risks. Scoped ESMPs to include Waste management plan Procurement of construction materials to consider source impacts and any waste that could be generated as well as supply chains Labour Management Procedure and an OHS plan (to be included in contracts with construction companies) planned GRM - completed
Risk 13: Additional workers from outside the local community may be required; an influx of workers could increase the risk of GBV/SEAH. Related to risks: P12	I = 3 L = 3	Moderate	Work forces will generally be drawn from local populations, but not all the skills required or possibly sufficient labourers be able to be sourced locally, therefore outside workers may be required.	ESMF completed SEP completed GRM - completed Gender Action Plan completed Labour Management Plan planned OHS Plan to include GBV/SEAH planned

Risk 14: Where existing stations do not exist land will be required. There is a risk that there is no public land at the preferred locations. Relates to risk: P14, S5.4, S6.1, S6.2	I = 3 L= 2	Moderate	Public land is proposed to be used and will be prioritized ie the majority of construction activities will be undertaken on public land. Stations require very small areas eg 4x6 m or 10 x10m, therefore there is a high degree of flexibility in locating infrastructure DHM will assess the details about identification of the location, types of land (public/government and private) and priories public land. Where preferred site is not public land, then site will be relocated to nearest suitable public land, if that is not possible, then negotiations with landholder will be undertaken by the PMU to obtain legal right to use land and agree on acceptable compensation. Note that any IP interests in the land would also be considered through the implementation of the IPP. There will be no compulsory land acquisition	LAP to define process of tenure confirmation and obtaining legal land use rights - planned IPP planned GRM - completed

Stakeholder Engagement

The project was developed following an extensive stakeholder engagement process, beginning with initial institutional and community consultations held during the first phase of project design. These engagements included two separate workshops as well as numerous individual consultations that were held in May 2017. The focus of these engagements was on identifying the broad needs and vulnerabilities within the project's target areas, which were incorporated into early project design. In August 2017 in Kathmandu, further stakeholder engagements were conducted focusing on defining priorities for project formulation. Similar to the initial phase, stakeholders consulted in these engagements included relevant government ministries and departments, CSOs, and private sector entities to validate the design of the project and ensure alignment with national priorities. More than 450 representatives were consulted to ensure local ownership of the project and to adequately capture the needs of communities. In this context, stakeholder engagement was primarily intended to:

- ensure that expectations and concerns of local stakeholders were incorporated into project design and implementation;
- establish rapport with beneficiary communities to encourage local buy-in for the project;
- identify a range of desired gender-related development impacts of climate change projects in the target sites and to ensure that such impacts are incorporated into the design framework;
- support responsible parties in preparing gender assessments and action plans; and
- ensure that all stakeholders, especially women, are effectively involved and equally represented throughout the project design and implementation process.

In addition to these consultations, UNDP is working with two national organisations specialising in Indigenous Peoples (IPs) and rural stakeholder engagement to ensure appropriate consultation occurs at the local level throughout the project area. This includes a three-day Consultation Workshop with indigenous peoples from January 16-18, 2018 organized in Pokhara, followed by community visits to conduct key informant interviews and collect additional information. Detailed consultations were also held as part of the gender assessment process. These included key informant interviews (KIIs), Focus Group Discussions (FGDs), and observations with key GLOF/CC/DRR-related personnel/members, partners and community people (government, NGOs, federations/networks/groups, diverse community people) at federal, district and local community levels. Field level consultation were carried out with women and men from diverse groups, with efforts to target individuals who were not included in community groups represented at other community meetings. Further details on these consultations are provided in the relevant IP and Gender annexes. More recently, several further engagements were held in August 2023 and again in January 2024 in partnership with the Nepal Federation of Indigenous Nationalities (NEFIN). During these consultations, support was shown for the general project design, while stressing the need for urgent action. In addition to validating the design, indigenous communities highlighted some of the specific actions that should be followed during implementation including continued engagement and FPIC processes, as well as guaranteeing the long-term preservation of cultural, religious and tourism sites in project areas. Several recommendations were made to ensure inclusive involvement of indigenous communities in the project, including creating employment opportunities for indigenous households.

Stakeholders are defined as actors within the following groups of actors: government (all 3 tiers), local communities, community-based organizations, CSOs/NGOs, private sector, international development cooperation and international organizations, academic institutions. Key project stakeholders were initially identified through discussions with the NDA, DHM, MoFE, DoFSC, and DNPWC. A detailed list of stakeholders is presented in Annex J of ProDoc.

While Stakeholder identification started from concept design phase, the stakeholder engagement strategy for this project is considered dynamic. During the project implementation period new stakeholders or beneficiaries may emerge and will be added to the stakeholder engagement process planned for the implementation phase, as per the Stakeholder Engagement Plan of Pro Doc (Annex J).

South-South and Triangular Cooperation (SSC/TrC)

The project will generate practical knowledge on technically challenging interventions such as lake lowering, Eco-DRR measures, and integrated early warning systems, which will be systematically documented and shared with regional and global partners. Lessons will be disseminated through South-South and triangular cooperation platforms to inform similar risk reduction efforts across the Hindu Kush Himalaya and other mountain regions facing GLOF threats. Collaboration with neighbouring countries e.g Pakistan, Bhutan and global partners will promote mutual learning, strengthen technical capacity, and support replication of innovative approaches, while alignment with international initiatives such as the Sendai Framework and EW4All ensures that Nepal's experience contributes to and benefits from wider global knowledge-sharing mechanisms

To further promote SSC, opportunities will be sought during project inception for engaging with the International Centre for Integrated Mountain Development (ICIMOD) to support the knowledge generation and management components of the project. Overall, the role of ICIMOD is primarily advisory and will be implemented through ongoing relationships with the government of Nepal, as well as existing MoU between ICIMOD and UNDP in region which seeks to explore opportunities for future partnerships. UNDP has an existing MoU for such collaboration with ICIMOD which will be used as the foundation for such engagement. Beyond their technical advisories, ICIMOD may be engaged as service providers for specific activities in line with their expertise. In such instances, standard procurement processes would be followed. UNDP also has the foundation in place to work directly with ICIMOD through the signing of Letter of Agreement should this be required.

In addition, to bring the voice of Nepal to global and regional fora, the project will explore opportunities for meaningful participation in specific events where UNDP could support engagement with the global development discourse on GLOF risk reduction. The project will provide regional cooperation opportunities with countries implementing initiatives on GLOF risk reduciton in geopolitical, social and environmental contexts relevant to the project in Nepal.

Gender equality and Women's Empowerment

A Gender Equality and Social Inclusion Assessment in line with the objectives of the GCF's Gender Policy and gender guidelines has been developed by UNDP to inform the design of the project (Annex K). The document was based on field consultations including 30 key informant interviews, nine focus group discussions (FGDs) and two multi-stakeholder national level workshops as well as available data from studies conducted by the GoN, UN agencies, civil society organisations (CSOs), donor agencies and multilateral development banks.

The gender assessment indicates the extent to which gender inequality exists in Nepal. The country has a medium Gender Development Index (GDI), ranking 147 out of 189 countries in 2018. Gender inequalities, vulnerability and risk is exacerbated by climate change in multiple, nuanced and overlapping ways in Nepal. Gender norms, imbalanced division of labour, unequal wages, and less access to and control over land and other productive assets for women result in fewer livelihood options available to women, making them more vulnerable to climate change. Women are particularly vulnerable because of a lack of gender sensitivity in planning, development and post-disaster relief.

Other key vulnerable groups identified in the GESI assessment include Dalits and Indigenous groups. Dalits members of the lowest caste according to the Hindu social structure residing in the Terai and Pahad region are considered to be the most excluded and vulnerable group in the target areas. Indigenous groups, particularly those living in the disaster prone and remote areas of Majhi, Kumal, and Botes were also found to be extremely vulnerable. Within these different marginalised groups, women, women-headed households, the elderly, people with disabilities (PWD), pregnant and lactating mothers and children are considered to be even more vulnerable to climate change and extreme climate events. Other groups vulnerable to climate change and natural disasters are poor women, elderly people, people living with disabilities across all caste and ethnic groups living in geographically remote and disaster-prone areas. These groups are particularly vulnerable because of, inter alia, both historical and recent inadequate consideration and integration of Indigenous groups in resilience efforts.

In line with the GCF's gender priorities, and the recommendations put forward by the GESI experts following consultations, the project will integrate the following key areas in the Gender Action Plan (GAP):

- intersectional mapping and defining of primary stakeholders and their different and overlapping exclusions, vulnerabilities, roles and contributions in terms of climate change and disaster risks;
- partnerships with specialised government and non-governmental institutions to support climate-smart technology at household and commercial level that is accessible to women;
- systematic and formal linkages of new or existing entities for improved networking and participation, through: i) women and marginalised people's groups ii) local wards and municipalities; and iii) Disaster Risk Reduction and climate change-related committees' planning structures;
- improved accessibility to established institutions with experience of value chains (VCs) and micro-enterprises in the Koshi Basin areas for women and men from poor and marginalised groups;
- timely, accurate and accessible communication with poor women and marginalised groups about the project and local government resources;
- gender outcomes captured in the Monitoring Information System (MIS) of the project for feedback and improved upscaling purposes;
- climate change and DRR management strategies with systematic integration of GESI for the project cycle; and
- capacity building packages for project staff and key partners with a GESI focus.

These measures will ensure equal participation and maximise benefits from investment in this project. The key results regarding gender expected from this project include enabling poor and marginalised women and men to lead and manage at least 35% of the GLOF/DRR, Integrated Watershed Management and Eco-system based related committees in the project areas, providing opportunities for women to hold 50% of key decision-making positions, training 60% of women technical staffs in DHM in regular/operational monitoring for risk prioritization, providing employment and training to 60% marginalised people and ensuring that 35% women's groups in five watershed/sub-watershed areas are leading and implementing project activities (see Annex K of Prodoc for further details). The AE, EE and project PMU will ensure the implementation of activities and expected outcomes will be achieved, monitored and evaluated.

Knowledge

The project includes numerous activities that will contribute to knowledge management and learning. First, the project will contribute substantially to the body of knowledge on how to approach and undertake the highly technical task of lake lowering to reduce the risk of GLOF events occurring. Lake lowering is technically difficult and has only been done a handful of times in the Himalayas. The involvement of government institutions and the Nepal Army in implementing the lake lowering interventions for the project will help to ensure that learning is held in institutional memory to benefit future GLOF risk reduction efforts. Second, Activity 1.1 will strengthen technical capacity for hazard mapping and creating systems for databasing climate-induced hazard, which will contribute to the longevity of technical flood risk reduction knowledge by making that information more widely accessible. Third, the design of the project accounts for mutual learning and knowledge sharing by working with communities in the implementation, operation and maintenance of lake-lowering, downstream residual risk reduction interventions and EWS. Additionally, capacity development and training workshops will strengthen knowledge management and learning among government stakeholders, CBOs, NGOs and vulnerable communities. Similarly, evacuation plans, adaptation planning and knowledge dissemination workshops for decision-makers will be initiated under Output 1. In particular, mechanisms for collaboration will be fostered under Activity 1.1, which will involve the strengthening of knowledge bases, and Activity 1.2, which will involve knowledge dissemination workshops, with decision-makers to facilitate knowledge sharing, networking and risk informed planning. During implementation, opportunities for local and indigenous knowledge to be continually incorporated into DRR strategies will be sought.

The project will promote knowledge sharing (discussed above) by facilitating collaboration between GoN agencies, thereby catalysing integrated approaches to GLOF monitoring and knowledge management. The dissemination of sector-specific weather- and climate change-related risk information by DHM will be expanded to include the hydropower and tourism sectors via several platforms, including the DHM website, phone messaging, radio, television and tailored bulletins.

The knowledge and lessons generated under the project will be properly archived within DHM, GoN, the Nepal Army, UNDP as well as the communities in the project areas. Additionally, relevant knowledge products and lessons will be widely disseminated through national and internal media and communications events. Cross-institutional ties established under the project will support effective dissemination and utilisation of information for future GLOF risk reduction interventions beyond the project timeframe. Accordingly, the knowledge and learning gained from the project, along with the strengthened regulatory and institutional mechanisms, will help maintain an enabling environment for proactive approaches to GLOF risk management, thereby increasing the sustainability of the paradigm shift catalysed under the project.

Innovativeness, Sustainability and Potential for Scaling Up

With the increasing intensity and risk of GLOF events, the Government of Nepal (GoN) has identified the existing model of reactive response to these extreme events as no longer appropriate and initiated a shift to proactive risk management measures that reduce GLOF risk before an event occurs. A shift towards this preventative and prepared model will better equip Nepal to manage and respond to GLOFs and associated flooding and other extreme events, such as landslides. Initial steps towards GLOF risk reduction involved lowering two priority lakes: Tsho Rolpa and Imja Glacial Lake. While these initial efforts were effective and had important demonstrative value, their implementation elucidated the need for further action to catalyse sustainable investment at scale and instituting GLOF risk reduction practice. The project will propel the paradigm shift by establishing an enabling environment to catalyse investment into lowering other at-risk glacial lakes across Nepal. While this approach will facilitate public-private partnerships to promote investment, it will also enable the advancement in GLOF risk reduction in Nepal through the introduced capacities (tools, methods, technologies and institutional processes). Specifically, the project will introduce an integrated approach that combines upstream risk reduction measures with downstream interventions and upgraded early warning systems (EWS) to address residual flood risks that remain after lake lowering. These proposed actions will be complemented by establishing an improved policy environment, demonstrating the complementarity between GLOF risk reduction and private-sector

interests and leveraging further private investment. Importantly, this paradigm shift in GLOF risk reduction will go beyond the status quo of meeting immediate needs through project-based, externally funded disaster recovery towards comprehensive management that will break the current cycle of reactive, precarious and often expensive measures.

The principles of sustainability underpin all three project outputs. The physical risk reduction measures introduced under Output 3 are designed to deliver long-term adaptation benefits to the target communities, through a combined grey and green infrastructure approach. The combination of grey and green infrastructure will ensure the long-term sustainability of Output 3 as the green infrastructure interventions will contribute to the restoration and rehabilitation of degraded ecosystems in the target areas these ecosystems will provide additional protective services once restored while the grey infrastructure will provide immediate protection to both vulnerable communities and the green infrastructure, which will take longer to provide the expected benefits. Involvement and training of community members in the construction of the lake lowering systems will ensure that technical skills and knowledge are retained within the communities, allowing them to take responsibility for the implementation and management of similar interventions in the future. The integration of Outputs 2 and 3 will also lead to strengthened adaptive capacity in these communities, by enabling long term climate-resilient planning that is not contingent on extensive periods of recovery from extreme events.

Investment in long-term capacity building under Output 1 will be complemented by the establishment of public-private partnerships to formalise and institutionalise long-term agreements focused on the sustainable uptake of GLOF risk reduction in Nepal. The improved understanding of GLOF risk and agreements facilitated by the project will support the country-wide uptake of GLOF risk reduction interventions, leveraging future investment downstream of the project, particularly for in similar impactful lake lowering and eco-DRR interventions that align with watershed management investments of the hydropower producers.

Furthermore, the focus on knowledge management, under Output 1, will enable DHM to monitor the effectiveness of project interventions and develop an evidence base that can be used to further develop capacity, as well as inform future disaster risk reduction in Nepal. As a result, DHM will be fully equipped to undertake the required hazard mapping and design and implement GLOF risk reduction interventions in-house, as opposed to being dependent on external entities and other nationally-driven initiatives for their disaster preparedness. In addition to the establishment of public-private partnerships with IPPAN, TAAN and other tourism-sector entities, the sharing of institutional and technical knowledge generated under the project and stored within existing ministries will support the long-term sustainability of project interventions by providing a knowledge base for GLOF risk reduction in Nepal. The provision of this knowledge base will be achieved by developing methods and SOPs for the inventory and development of a spatial digital database (GIS) of glaciers and glacial lakes along with methods, tools and operating procedures for GLOF hazard prioritisation, and methodologies and SOPs for implementing integrated GLOF risk reduction in vulnerable watersheds.

Moreover, the design of the project accounts for mutual learning and knowledge-sharing opportunities for all involved stakeholders. Establishing public-private partnerships and facilitating knowledge sharing among stakeholders will ensure that there is a strong sense of country ownership around project interventions. This sense of ownership will be important in ensuring the long-term sustainability, as well as the scalability and replicability, of project interventions.

The project's sustainability is further enhanced by its alignment with the priorities laid out in the GoN's 'Fifteenth Plan' 5-year development plan (2019/2020 - 2023/24) , which prioritises sustainable use of natural resources alongside climate adaptation, green economies and improved hydro-meteorological services. This alignment will ensure that the strategies introduced in this project are effectively mainstreamed into development planning at all levels from national through to community with the resulting knowledge and decision-making procedures fully embedded within national systems. Moreover, this country-driven approach will promote a sense of ownership, ensuring that risk reduction measures continue to be prioritized beyond the scope of the project.

Regular Operations and Maintenance (O&M) of the lake lowering interventions, EWS installations and downstream Eco-DRR measures will be undertaken during and after the project to guarantee the sustainability and optimal functioning of these interventions. Specific roles and responsibilities for O&M will consider the technical aspects of the interventions and be held by various stakeholders, including DHM, NDRRMA and DoFSC.

DHM will be responsible for the operations and maintenance of lake lowering interventions under Activity 3.1. The O&M for interventions introduced as part of the lake lowering process will commence in Year 7 after the target lakes are lowered in Year 6 and continue for 15 years. DHM will decide whether to mobilise its own expert resources or contract any consultancy services. O&M will be enforced by a local enumerator. This local enumerator will be recruited and trained for a period of time by the DHM or a professional consultant, after which they will perform their responsibilities to ensure the safety and operation of the structures. These responsibilities will include regular gate operation, timely inspection of

hydromechanical and civil structures and reporting of any faults to DHM. Maintenance work necessitates minor civil projects, which will be coordinated with the local authorities. DHM will recruit contractors to perform O&M depending on the scope of work necessary. Minor civil works and maintenance will be carried out on a regular basis according to specific structures, while major maintenance will be expected every 8-10 years.

In addition to the lake lowering interventions, DHM will also be responsible for O&M of the new hydrological and meteorology stations installed as part of the EWS interventions. Operations and maintenance of the meteorological and hydrological stations installed under Output 2 of the project will commence in Year 5 after the new stations are installed in Year 4 and continue for 15 years. The prior experience that DHM has with monitoring stations will provide guidance on maintaining the hydrological and meteorological stations for efficient operation. The different types of maintenance required will include, inter alia: i) emptying precipitation gauge buckets regularly, with the frequency depending on the monsoon precipitations; ii) ensuring the replacement of batteries and solar panels to prevent missed data; and iii) regular maintenance to remove any encroaching vegetation and upkeep of fences and cable connections. Over and above the O&M required for the project, DHM has proposed to upgrade existing stations during the project period as co-financing which will enhance overall monitoring and early warning capabilities. Moreover, by co-developing climate-responsive Municipal Disaster Preparedness and Response Plans, and Local-level Climate-resilient Action Plans with vulnerable communities, the project will fully integrate these systems into local governance structures, ensuring local ownership sustain these systems beyond the scope of the project. This will be further enhanced by the strengthening of vertical and horizontal linkages between Local Emergency Operation Centres and DHM, enabling the long-term flow of information for effective disaster preparedness at local levels.

DoFSC will be responsible for the operation and maintenance of all downstream flood risk reduction (EcoDRR) and watershed and sub-watershed restoration initiatives implemented under Output 3. O&M measures for the downstream flood reduction interventions will begin after Year 2 of the project, and continue for 15 years. The different types of maintenance required for these interventions will include: i) routine annual maintenance; ii) maintenance during high flood season or after monsoons; and iii) special maintenance during extreme weather events. Proper and regular maintenance will be especially important until the planted species have established proposely. Maintenance is also required in the case of early damage to structures for which resources are to be allocated regularly.

The long-term sustainability of the downstream measures is set on the foundation of robust government priorities for reforestation. The Government of Nepal has given high priority to plantation programmes, which are reflected in several strategic plans and policies. This includes targets of planting at least 5,000 ha of trees per year to counter deforestation and restore degraded forests; linked to government ambitions toward the achievement of the Sustainable Development Goals, particularly SDG 15 Life of Land: protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. Similarly, the fifteenth-development plan of Nepal (2019-2024) aimed to increase annual plantation area targets from 4,000 ha to 30,000 by end of the plan period, as well as to produce at least 22-30 million seedlings annually. Moreover, the plan aims to expand private/family forests by 30,000 ha, agroforestry practices by 100,000 ha, and public-land plantations by 20,000 ha. National priorities for forest restoration are also reflected in the Nationally Determined Contribution (NDC), which emphasizes the enhancement of carbon sequestration and forest carbon storage for combating climate change impacts by planting trees, while maintaining 45% of the total area of the country under forest cover by 2030. Given this strong prioritization, the project will work with government to leverage the allocation of public funds to the ongoing implementation of Eco-DRR measures beyond the scope of the project.

Potential for scaling up and replication

Twenty-one of the 47 potentially dangerous glacial lakes (PDGLs) identified in a 2020 report prepared by ICIMOD and UNDP, in collaboration with the government of Nepal (GoN), are located in Nepal. Of these 21 PDGLs, the project focuses on reducing the risk of a GLOF at the 4 most at-risk glacial lakes in Nepal, namely the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes. Under the project, the water levels of these four lakes will be lowered (Activity 3.1), supported by the implementation of Eco-DRR interventions involving a combination of engineering (Activity 3.2) and nature-based solutions (Activity 3.3) to reduce the residual impacts of a GLOF event on vulnerable downstream communities. Such interventions have already proven to be successful in Nepal (as evidenced under the GEF-funded project, entitled Community Based Flood and Glacial Lake Outburst Risk Reduction (2013-2017) and by further demonstrating the tangible benefits from these interventions, the project will promote their use at the remaining 17 PDGLs in Nepal and across the Himalayan region. While not all of these lakes have been deemed to need specific, urgent intervention and others are currently not considered technically or economically feasible, climate change is continually altering the risk level of each lake. The risk monitoring systems under Output 1 will enable DHM to continually monitor the risk at each lake, and prioritise interventions as needed, ensuring that risks are identified and mitigated as they develop around each lake. Potential risk reduction measures identified for each PDGL are categorized as structural measures and non-structural

measures, with varying levels of input required. This will create a national framework for ongoing action, ensuring that government funds available for GLOF are optimized, and external sources including private sector partnerships are sought to bridge finance gaps as the needs arise. While lake lowering is considered one of the more extreme measures for those most dangerous lakes, earlier interventions will begin with the scaling of non-structural measures such as EcoDRR and the expansion of GLOF EWS. The National Planning Commission's Mid-term Expenditure Framework (MTEF) already includes direct consideration of hydromet observation networks and EWS, providing the platform for DHM to expand these networks (for example through the establishment of new stations or upgrading of manual stations in other basins) as well as to carry out studies in high altitudes using regular government funding sources. Moreover, through DHM's close engagements and close relationships with various regional entities working in the GLOF risk reduction space, the lessons learned from the project implementation in the four target lakes will be shared broadly, ensuring that regional mechanisms currently under development consider and learn from the experiences in Nepal. The strong focus on knowledge and learning, as detailed in "Potential for knowledge management and learning" sub-section below will create the foundation for attracting and sensitizing potential donors and financial partners to support in scaling of project interventions to remaining PDGLs.

In addition to the interventions implemented under Output 3, the project will improve Nepal's EWS to strengthen adaptive capacity and response among vulnerable communities in the target districts of Manang, Sankhuwasabha and Solukhumbu. Training included under this activity will strengthen the capacity of DHM and NDRRMA and will support the upscaling of improved EWS beyond the target districts. In addition, this training will support the upscaling of multi-hazard assessments and integrated, climate- and gender-responsive watershed and national park management plans beyond the target districts and communities. The contribution of the project to the growing evidence base demonstrating best practices related to GLOF risk reduction, both within Nepal and internationally, will further support and enable project interventions to be upscaled and replicated. For example, the production of customised and targeted risk information will provide strong incentives for private-sector investment in future disaster risk reduction initiatives including through public-private partnerships (PPPs) which will facilitate cost-recovery for climate information services as well as direct support for the expansion and maintenance of observational networks. This work in developing the foundation for ongoing PPPs will include a strong focus on demonstrating these benefits, alongside sensitising the private sector to the broader financial and economic benefits from the avoided loss and damage from GLOF risk reduction for example the potential ~USD10-23M in prevented losses in the hydropower sector from the proposed risk reduction measures. The successful implementation of PPPs will provide a proof of concept to leverage future investment in similar impactful lake lowering and downstream interventions, while the partnerships created on the international stage through the close engagements with various regional entities working in the GLOF risk reduction space will help navigate the geopolitics of private investment in GLOF risk reduction in the region. Although the initial co-finance investments from IPPAN and NTB are limited, they demonstrate the willingness of the private sector to engage in partnerships that de-risk their businesses, including early warnings and flood risk mitigation. Both sectors have already indicated general buy-in to the benefits of the proposed approach and interest in continued engagement beyond the project. It is anticipated that the improved understanding of GLOF risk and agreements facilitated by the project, combined with on-the-ground interventions, will have potential to leverage significant additional finance downstream of the project, particularly for eco-DRR interventions that align with watershed management investments of the hydropower producers.

The potential for scaling project interventions is boosted by the strong alignment with Nepal's 15th Five-year Development Plan. In particular, the project falls within the ambitions of Nepal's National Strategy 7 which prioritises the protection of land, forest and water resources, including a focus on strategies for climate change adaptability and disaster risk reduction.

Digital Solutions

The project integrates digital solutions to strengthen climate risk monitoring, early warning, and knowledge sharing. This includes the establishment of a GIS-based digital database of glaciers and glacial lakes, supported by remote sensing, topographic and bathymetric surveys, and hazard modelling to track changes and prioritize interventions. Hydrometeorological data from expanded monitoring stations will be processed through digital platforms to generate real-time early warnings, disseminated via mobile applications, SMS, radio, and online portals tailored for communities and key sectors such as hydropower and tourism. These digital systems enhance accessibility to climate risk information, enable faster decision-making, and create scalable tools that can be shared with regional partners.

V. PROJECT MANAGEMENT

Cost Efficiency and Effectiveness

The economic viability of the programme was assessed by making a cost benefit analysis model that attempted to analyse the quantified value of the benefits flowing to the affected communities and compared them to the costs of mounting the interventions under the programme. The economic analysis mainly considered the following benefits of the programme:

- loss of lives averted;
- damage to buildings / houses averted;
- loss of agricultural produce averted;
- damage to hydropower projects averted; and
- loss of tourism income averted.

This decrease in damages was calculated by comparing the expected amount of damage or losses in the no-intervention scenario, to the expected amount of damage in the post-intervention scenario. The damage numbers were taken from experts' report titled: 'Residual Risk Modelling & Watershed/Sub-watershed Vulnerability Assessment'.[44] To design optimal interventions downstream of the four glacial lakes, experts modelled the expected peak flood flow from GLOFs on the four lakes, in a number of scenarios. They utilized Hydrologic Engineering Center's River Analysis System (HEC-RAS) for the modelling, and reported on the expected damages sustained in the case of no-intervention on the lakes and a complete breach of the moraine dam; only lake-lowering done on the lakes to the recommended depth of 1-3 meters and a complete breach of the moraine dam; a partial breach of the moraine dam after lake lowering has been done; and a partial breach after lake lowering but with suggested downstream measures in place, to assess the effectiveness of the suggested risk reduction measures.

This data on damages in different scenarios was used to work out the expected benefit, in terms of loss avoided, due to the implementation of the programme. Values also had to be assigned to lives, buildings, agricultural land and hydropower projects. The value of lives was taken as the value of a statistical life in the US proportional to the GDP per capita ratio between the two countries.

It isn't known when a GLOF event would occur with any certainty, therefore the benefit was normalised by factoring in the probability of a GLOF event occurring at any point in time during the appraisal time horizon of 25 years. Two different methods were used to assign probability to the risk of a GLOF. One of the ways was by reviewing published papers, and ICIMOD documents for recorded GLOFs that had the potential of causing damages in 37 years from 1980 to 2017. Assuming that such events could only have occurred from lakes which at that time would have been classified as 'Potentially Dangerous Glacial Lakes (PDGLs)' if an inventory had been taken at that time, a simple proportion of the number of events that occurred versus the number of lakes in existence in the number of years was worked out. Considering there are 21 identified PDGLs, and nine recorded GLOFs that were significant enough to cause some damage occurred in the past 37 years, the annual probability of a GLOF on any one lake worked out to 1.16%.

The probability was also calculated from return period data from a paper published in the journal: 'Proceedings of the National Academy of Sciences of the United States of America' (PNAS). The researchers have used statistical methods to infer lake volumes from lake areas known through satellite data and used that in simulated scenarios to predict the sizes and frequency of future GLOF events in the entire Himalayas. Since the four intervention lakes are all located in Eastern Himalayas, the return period on flood volumes was matched with the expected flood volume from the four intervention lakes. The return period was then made into the annual probability[45].

By multiplying the annual probability with the value of expected losses in case a GLOF event occurs in the absence of an intervention and comparing that with the expected losses after the intervention, a value was assigned to the benefits of

[44] The GLOF intensity and potential damages were based on HEC-RAS modelling, underpinned by assumptions that a breach would reach all the way to the bottom of the lake, resulting in a large flood flow simulation. This assumption leads to high damage estimates, even in the post-lake lowering scenario, and consequently, suggests only marginal improvements in reducing damage. While the model's use of a full breach scenario was based on available data, it is important to note that a breach all the way to the bottom of the lake is highly unlikely. As such, the actual risk and potential benefits of lake lowering may be more significant if a partial breach scenario were considered, as experts have indicated that a breach in the range of 5 to 8 meters is much more plausible. However, due to the unavailability of specific data for partial breach scenarios, the model has had to rely on the extreme breach assumption, which limits our ability to fully assess the real-world effectiveness of lake lowering.

[45] Note: These probabilities are based off of historical data, and not specific future climate scenarios. There is currently no established literature directly assessing how different climate change scenarios will impact GLOF probabilities. However, given that climate change is expected to increase GLOF risk, these probabilities are considered conservative under future climate scenarios.

pursing the interventions under this proposed programme. This was compared with costs and the time value of money factored in using a discount factor to work out the Net Present Value of the Programme. The summary of base case results is given below in Table 2.

Table 2. *Calculated Net Present Values (NPV) for each of the four target glacial lakes for Scenario I and Scenario II.*

Scenario	BCR	NPV (USD)	NPV Lake Lowering (USD)	NPV Downstream (USD)
Scenario I (1.16% Annual Probability)	4.90	86,919,219	13,678,594	77,474,084
GL21		47,832,223	18,591,035	30,299,553
GL24		10,786,354	-2,423,237	14,267,956
GL45		16,814,961	-3,077,784	20,951,110
GL30		11,485,681	588,581	11,955,465
Scenario II (Return period based Probability)	3.75	45,126,562	-236,142	49,596,163
GL21		16,666,744	6,344,492	11,380,616
GL24		13,255,431	-2,392,207	16,706,003
GL45		12,090,478	-3,099,537	16,248,380
GL30		3,113,910	-1,088,890	5,261,165

Lake lowering alone appears, from the data we have, not to be beneficial because the HEC RAS modelling showed only a minor improvement in damages between the do-nothing scenario and the post lake lowering scenario. This could be because the HEC RAS modelling was done for a breach all the way to the bottom of the lake for the no intervention and post lake lowering scenarios. Both cases modelled a large peak flood flow, and therefore damages are high. The authors of the report note that 'these scenarios are not expected to occur'. In the absence of damages data for a scenario where a GLOF occurs with a breach at this likely depth, a conclusion cannot be drawn from the negative NPV result about the lack of economic viability of lake lowering as an intervention.

Overall, both the base-case scenarios show a positive overall NPV and high benefit cost ratio. In these two scenarios, the investment pays off well. The planned programme interventions have the potential in case a GLOF event happens to save 1932 lives, 420 houses, 1201 hectares of cultivated land and 8180 GWh of electrical production.

Best practices from several other past and ongoing initiatives were used to inform the design of GLOF risk reduction interventions to be implemented under the project. Lessons learned from numerous baseline investments into climate change adaptation in Nepal were also used to guide the design of all project interventions. Such lessons include appropriate mechanisms for ensuring that project activities are implemented in a participatory, gender-inclusive and sustainable way. The specific international best practices and lessons learned that were applied to the design of the project and that will contribute to the efficiency and effectiveness of project interventions are summarised below.

International best practices and lessons learned identified for the project include:

- drawing on the technical capacity of the Nepalese Army and DHM to undertake the planning and implementation of lake lowering activities;
- constructing check and detention dams to manage high volumes of water in high flood risk areas by detaining the increased volume of water in the dams and gradually releasing it at a controlled rate;
- installing protective transverse and longitudinal structures (including gabion spurs, flood walls, RCC revetments, conservation ponds and live check dams) to stabilise riverbanks, and direct water away from high-risk communities, infrastructure and land;
- implementing relevant nature-based solutions such as tree planting along vulnerable riverbanks, vegetative gabion walls, vegetative gabion revetments, vegetative gabion check dams, vegetative stone rip-rap, bush layering and planting grass seedlings;
- ensuring effective operations and maintenance (O&M) by establishing SOPs for GLOF risk reducing systems and equipment, including lakes lowered under the project, observation networks for hazard monitoring, community-based early warning systems, nature-based solutions and the database for climate-induced hazards;
- using remote sensing via satellite tracking to trace interannual changes in glacial lakes;
- installing climatological stations and high-altitude meteorological stations and integrating existing hydrology stations into a real-time data acquisition system to expand the reach and usability of monitoring systems;

- developing SOPs and methods for relevant assessments to inform effective project implementation, including for hazard prioritization and mapping, and geophysical, topographic and bathymetric surveys;
- ensuring Indigenous and local knowledge is included, and community-based response mechanisms are co-developed to increase the adaptive capacity of vulnerable communities;
- enhancing cross-level coordination, operation and maintenance of dissemination mechanisms to deliver EWS to key stakeholders by establishing multi-hazard early warning systems that include centralised and community-based mechanisms;
- supporting the development of institutional memory by establishing systems for recording and managing climate-induced hazards; and
- developing climate risk knowledge products from public and private sector staff to support disaster management and capacity development.

Project Management

Implementation and Operational Arrangements

The project will be operationalized across selected high-risk glacial lake watersheds and downstream river basins in Nepal, specifically the Dudhkoshi sub-basin (Solukhumbu District), Arun sub-basin (Sankhuwasabha District), and Marsyangdi sub-basin (Manang District), with downstream interventions extending to vulnerable communities and infrastructure along these river corridors.

The Project Management Unit (PMU) will be established in Kathmandu, co-located with the Department of Hydrology and Meteorology (DHM), acting as the central co-ordination and implementation hub. No separate field offices will be established; instead, project implementation at site level will be carried out by DHM through DHM PIU, DHM field offices, DoFSC PIU and it's Basin Management Offices in collaboration with designated officials from the partner agencies, and close collaboration with concerned provincial and local governments, including Municipal and Local Emergency Operation Centres (LEOCs).

In addition, the Government of Nepal has requested UNDP to provide direct project execution support services to the project. UNDP will provide such support as agreed in the letter of agreement (LOA) signed between MoEWRI/DHM and UNDP. UNDP and GoN acknowledge and agree that those execution services are not mandatory, and will be provided only upon the request of the Government as specified in the Letter of Agreement (LoA). When requested, as is the case for this project, the direct project services follow UNDP policies on the recovery of direct project costs relating to GCF funded projects. The full accountability of execution of these support services will remain solely with UNDP under the guidance of the Project Board.

Under execution support services, UNDP will provide operational and programmatic support including procurement, financial management, human resources, GESI, IPs , Social and Environment safeguards oversight, and reporting in accordance with the CO Support to National Implementation Modality (COSNIM) and as per the approved direct project costing provisions.

The project will be implemented in close coordination with related national and UNDP-supported initiatives on watershed management, hydrometeorological services, disaster risk reduction, and early warning systems to ensure complementarity, avoid duplication, and maximize impact, including collaboration with projects supported by GCF, GEF, and other development partners.

The IP will conduct the annual audit of the project fund under it's management following government audit procedures as long as this doesnot contravene with the principles of UNDP's Financial Regulations and Rules, with additional oversight through UNDP's assurance and monitoring mechanisms as per HACT procedures.

The project will ensure strong institutional coordination with DoFSC, NDRRMA, DHM, DNPWC line ministries, and local governments, enabling integration of project investments into national systems and ensuring sustainability beyond the project period.

VI. PROJECT RESULTS FRAMEWORK

Contribution to the Sustainable Development Goal (s): 1. No poverty, 11. Sustainable Cities and Communities, 13. Climate action				
Intended Outcome as stated in the UNSDCF/Country [or Regional] Programme Results and Resource Framework: Outcome 3: By 2027, more people, especially women, youth, children, and the most marginalized and poor, increasingly benefit from and contribute to building an inclusive, sustainable, climate-resilient and green society and reduced impacts of disasters at federal, provincial, and local levels.				
Applicable Output(s) from the UNDP Strategic Plan: A.4.2, B.3.1, C.1, C.5				
Project title and Quantum Project Number: Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal 01004519				
GCF Project/Programme Focus:				
☐ Reduced emissions (mitigation) ☒ Increased resilience (adaptation)				
GCF IMPACT LEVEL Paradigm shift potential:				
	Current state (Baseline)		**Potential target scenario (Description)**	**How the project/programme will contribute (Description)**
	Description	**Rating**		
Scale	The Government of Nepal has identified that the existing model of reactive response to GLOFs is no longer appropriate and initiated a shift to proactive risk management measures that reduce GLOF risks before an event occurs. Some DRR interventions are being implemented in Nepal, but not at the scale required to adequately protect vulnerable communities. While these initial efforts were effective, their implementation elucidated the need for further action to catalyse sustainable investment at scale.	Low	The number of people with reduced GLOF risk is substantially increased in the targeted watersheds. An enabling environment exists for private sector investment in further risk reduction measures, including the availability of customised and targeted risk information and the establishment of public-private partnerships.	• Regulatory structures for improving watershed management and incorporating climate risk information into planning and decision-making will be developed, supported by the establishment of mechanisms for private sector involvement in flood risk information services to enable ongoing partnerships between the private sector and the DHM. • DHM's capacity to fulfil its mandate will be strengthened by expanding the existing hydrometeorological monitoring network and improving its in-house capacity to undertake hazard mapping, climate research and risk reduction strategy development. • The implementation of downstream measures will be supported by capacity development and training for stakeholders to enable the development and implementation of multi-hazard assessments, and integrated, climate- and gender-responsive watershed and national park management plans.
Replicability	Initial steps towards GLOF risk reduction involved lowering two priority lakes: Tsho Rolpa and Imja Glacial Lake. While interventions under this initiative were considered successful, they did not catalyse the replication of interventions	Low	By reducing the risk of a GLOF at the 4 most at-risk glacial lakes in Nepal namely the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes and addressing downstream residual flood impacts and response strategies, the project will further	• Strengthening the capacity of DHM and NDRRMA and support the upscaling of improved EWS beyond the target districts • Contributing to the growing evidence base demonstrating best practices related to GLOF risk reduction, both within Nepal and internationally

	needed to fully address the scope of risk in Nepal. A 2020 report by UNDP and ICIMOD identified 21 potentially dangerous glacial lakes (PDGLs) in Nepal which are suitable for intervention, plus an additional 26 PDGLs in the across the Himalayas. Initial co-finance investments from IPPAN and NTB demonstrate the willingness of the private sector to engage with the project and a general buy in to the benefits of the proposed approach.		demonstrate the tangible benefits from these interventions, thereby promoting their use at the remaining 17 PDGLs in Nepal and across the Himalayan region. This will be supported by the upscaling of multi-hazard assessments and integrated, climate- and gender-responsive watershed and national park management plans beyond the target districts and communities.	• Production of customised and targeted risk information will provide strong incentives for private-sector investment in future disaster risk reduction initiatives, further promoted by the establishment of public-private partnerships, using the project as proof of concept to leverage future investment in similar impactful lake lowering and downstream interventions.
Sustainability	Some investments have been made into GLOF risk reduction measures in Nepal, but have generally lacked the long-term engagement strategies and incentives needed to catalyse broader investment for sustainable risk reduction at scale. For example, there has been a lack of engagement with the private sector to mobilize further investment in risk reduction measures needed to achieve sustainability of existing and future interventions not only for lake lowering, but also for risk monitoring, early warning and downstream flood mitigation.	Low	Regularly updated knowledge on lake-lowering and other GLOF risk reduction measures are integrated into the decision-making processes of national and sub-national institutions. Public-private partnerships are established to formalize and institutionalize long-term agreements and mobilize investment focused on the sustainable uptake of GLOF risk reduction in Nepal to complement the investment in long-term capacity building. Communities are actively engaged in down-stream risk reduction measures and take ownership of long-term operation and maintenance of interventions.	The involvement of government institutions and Nepalese army in implementing the lake lowering interventions will help to ensure that learning is held in institutional memory to benefit future GLOF risk reduction efforts. Beyond the retention of knowledge and experience, the project will actively invest in improved risk knowledge systems related to GLOFs, enabling the prioritisation of risk reduction interventions in Nepal. This will include institutionalising spatial digital database of glaciers and glacial lakes within DHM, with processes for regularly updating risk status of glacial lakes to ensure decisions are based on the latest data. Creating systems for databasing climate-induced hazard will contribute to the longevity of technical flood risk reduction knowledge by making that information more widely accessible. Broadening private sector engagement will be facilitated by improving DHM's capacity to develop and disseminate climate risk information to major economic sectors while enhancing public-private sector partnerships. This will include making policy provisions underpinned by an extensive stakeholder consultations with the relevant representatives from key economic sectors to formalise and institutionalise long-term agreements to support the sustainable uptake of GLOF risk reductions in Nepal. Mutual learning and knowledge sharing with communities in the implementation, operation and maintenance of lake-lowering, downstream residual risk reduction interventions and EWS will further enhance the role of knowledge in long-term sustainability.

	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
SDG indicators	*1.5.1; 11.5.1; 13.1.1: Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population*	2,282 potential lives lost	The expected reduction in losses of lives can only be determined at the end of Year 6 once all four lakes have been lowered.	A decrease of 2,208 in lives lost because of a GLOF.	Expected loss of life calculated using the # of households affected by a GLOF under different modelled scenarios. Potential loss of lives in the baseline considers a full breach without any intervention. Target scenarios consider lower lake levels, leading to only a partial breach, with down-stream mitigation measures addressing residual flood risk.

GCF OUTCOME LEVEL: Reduced emissions and increased resilience (IRMF Core Indicators, quantitative indicators)						
GCF Results Area	**IRMF Indicator**	**Means of Verification (MOV)**	**Baseline**	**Mid-term Target**	**End of Project Target**	**Assumptions**
Total Adaptation Beneficiaries	Core 2: Direct and indirect beneficiaries reached	**1. DHM/MoEWRI** a. Annual Progress Report (Reports - MOEWRI) **2. MOFE/DOFSC/DNPWC** a. Annual Progress Report (https://www.mofe.gov.np/resources/progress-reports-6128b. Annual Progress Report (Report | Department of National Park and Wildlife Conservation) **3. NDRRMA/MoHA** (https://bipad.gov.np/np/report) a. Annual Progress Report b. Nepal Disaster Report c. 5 W Dashboard (https://bipad.gov.np/np/5w-	No beneficiaries prior to project implementation Direct: 0 (Male: 0, Female: 0) Indirect: 0 (Male: 0, Female: 0)	Direct[46]: 192,978 total Women: 100,614 Men: 92,364	Direct: 385,956 total Women: 201,228 Men: 184,728 Indirect: 1,986,980 Women: 1,036,658 Men: 950,322	Local communities and major productive sectors commit to adopting climate-resilient interventions. Benefits incur for people reached by early warnings and who are protected from GLOFs and flooding by implementing infrastructural and Eco-DRR solutions in the four most vulnerable glacial basins in Nepal. Indirect benefits incur through increased preparedness for extreme events.

[46] Detailed explanation on beneficiary numbers are provided in Annex 2 , Section 13, and summarised in Section D.1 of FP.

		dashboard-flood-and-landslide-september-2024) **4. Project Specific** a. Quarterly Monitoring Report b. Third party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report				
ARA1 Most vulnerable people and communities	Core 2: Direct and indirect beneficiaries reached	**1. DHM/MoEWRI** a. Annual Progress Report (Reports - MOEWRI) **2. MOFE/DOFSC/DNPWC** a. Annual Progress Report (https://www.mofe.gov.np/resources/progress-reports-6128 c. Annual Progress Report (Report | Department of National Park and Wildlife Conservation) **3. NDRRMA/MoHA** (https://bipad.gov.np/np/report) a. Annual Progress Report b. Nepal Disaster Report c. 5 W Dashboard (https://bipad.gov.np/np/5w-dashboard-flood-and-landslide-september-2024)	No beneficiaries prior to project implementation Direct: 0 (Male: 0, Female: 0) Indirect: 0 (Male: 0, Female: 0)	Direct[47]: 192,978 total Women: 100,614 Men: 92,364	Direct: 385,956 total Women: 201,228 Men: 184,728 Indirect: 1,986,980 Women: 1,036,658 Men: 950,322	Local communities and major productive sectors commit to adopting climate-resilient interventions. Benefits incur for people reached by early warnings and who are protected from GLOFs and flooding by implementing infrastructural and Eco-DRR solutions in the four most vulnerable glacial basins in Nepal. Indirect benefits incur through increased preparedness for extreme events.

[47] Detailed explanation on beneficiary numbers are provided in Annex 2 , Section 13, and summarised in Section D.1 of FP.

		4. Project Specific a. Quarterly Monitoring Report b. Third party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report				
	Supplementary 2.4: Beneficiaries (female/male) covered by new or improved early warning systems	**1. DHM/MoEWRI** a. Annual Progress Report (Reports - MOEWRI) **2. NDRRMA/MoHA** (https://bipad.gov.np/np/report) a. Annual Progress Report b. Nepal Disaster Report c. 5 W Dashboard (https://bipad.gov.np/np/5w-dashboard-flood-and-landslide-september-2024) **3. Project Specific** a. Quarterly Monitoring Report b. Third party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report	Populations living downstream of glacial lakes are highly exposed to GLOF hazards, with limited adaptive capacity or access to early warnings to reduce to the impacts of extreme climate events. Direct: 0 (Male: 0, Female: 0) Indirect: 0 (Male: 0, Female: 0)	Direct[48]: 192,978 total Women: 100,614 Men: 92,364	Direct: 385,956 total Women: 201,228 Men: 184,728	Early warnings are effectively disseminated through the entities responsible for the coordination of disaster response, including the NEOC, LEOC, Community Disaster Management Committee (CDMC)/Task Force. Communities take the ownership of and adopt Climate-responsive Municipal Disaster Preparedness and Response Plans as well as Local-level Climate-resilient Action Plans All people living in targeted GLOF risk areas are reached by the EWS
	Supplementary 2.7: Change in expected losses of lives due to the impact of	**Ministry of Home Affairs/NDRRMA** a. BIPAD Portal- Real time loss and damage report (https://bipadportal.gov.np/damage-and-loss/)	2,282 potential lives lost	The expected reduction in losses of lives can only be determined at the end of Year 6 once	A decrease of 2,208 in lives lost because of a GLOF.	Expected loss of life was calculated using the number of households affected by a GLOF under different modelled scenarios. Average

[48] Detailed explanation on beneficiary numbers are provided in Annex 2 , Section 13, and summarised in Section D.1 of FP.

	extreme climate-related disasters in the geographic area of the GCF intervention	b. Post Disaster Assessment Report if disaster happens c. Nepal Disaster Report (NDRRMA)		all four lakes have been lowered.		household size was considered as 4.6 people. Potential loss of lives in the baseline considers a full breach without any intervention. Target scenarios consider lower lake levels, leading to only a partial breach, with down-stream mitigation measures addressing residual flood risk.
ARA3 Intrastructure and built environment	Supplementary 3.1: Change in expected losses of economic assets due to the impact of extreme climate-related disasters in te geographic area of the GCF intervention	**Ministry of Home Affairs/NDRRMA** a. BIPAD Portal- Real time loss and damage report (https://bipadportal.gov.np/damage-and-loss/) b. Post Disaster Assessment Report if disaster happens c. Nepal Disaster Report (NDRRMA)	The baseline estimated physical asset damages[49] that could result from GLOFs at the four most vulnerable glacial lakes to a GLOF are: Thulagi: US$ 12,090,478 16,814,961 Lower Barun: US$ 16,666,744 47,832,223 Lumding Tsho: US$ 3,113,910 11,485,681 Hongu 2: US$ 10,786,354 13,255,431 Total estimated damages from a GLOF at all four lakes: US$ 45,126,562 86,919,219	The change in expected losses (in US$) can only be determined at the end of Year 6 once all four lakes have been lowered.	Expected losses reduced by US$ 45,126,562 86,919,219 through avoided damages.	Two different methods were used for the cost-benefit analysis conducted for the project, namely a scenario assessing annual probability of a GLOF and another scenario assessing the return period-based probability. Scenario I: Annual Probability determined the annual probability of a GLOF at any one lake to be 1.16%. Scenario II: Return Period based Probability calculated GLOF probability using return period data from a published paper titled 'Hazard from Himalayan glacier lake outburst floods'. This method

[49] The baseline values of losses at the four target glacial lakes are presented as a range of values based on the two different Probability Scenarios of GLOF occurrence ate the glacial lakes, based on Annual Probability and Return Period based Probability. The lower probability has a lower associated baseline loss amount and thus becomes the minimum value of the range presented, while the higher probability scenario has higher associated baseline loss and so this value is the upper limit of the range presented. As GLOF occurrence is difficult to predict, these two probabilities are given equal consideration in estimating losses and benefits. The details of the derivation of these probabilities as well as the models used to calculate losses and benefits are presented in Annex 3 of FP: Financial and Economic Appraisal.

						used statistical models to infer lake volumes from lake areas known through satellite data and subsequently simulated scenarios to predict the sizes and frequency of future GLOF events. The probability from this study that was applicable to the four target lakes was used to derive return periods as an annual probability. The full details of the probability models and calculations are presented in Annex 3: Financial and Economic Appraisal.
ARA4 Ecosystems and ecosystem services	Supplementary 4.1: Hectares of terrestrial forest, terrestrial non-forest, freshwater and coastal marine areas brought under resoration and/or improved ecosystems	**1. MOFE/DOFSC/DNPWC**a. Annual Progress Report (https://www.mofe.gov.np/resources/progress-reports-6128) c. Annual Progress Report (Report | Department of National Park and Wildlife Conservation) **2. Project Specific** a. Quarterly Monitoring Report b. Third party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report	0	98 ha of improved terrestrial ecosystems *51 ha in Arun* *47 ha in Dudkoshi*	200 ha of improved terrestrial ecosystems *109 ha in Arun* *91 ha in Dudkoshi*	Communities maintain the downstream adaptation interventions implemented in the Dudhkoshi and Arun Sub-basins. Interventions listed by volume or length converted to area according to average values as follows: • Vegetative gabion walls with average height of ~2.25m • Living check dams with average width of ~2m • Vegetative gabion revetments with average height of ~3.15m • Vegetative gabion spurs with average height of ~3.5m • Vegetative gabion or dry-stone check dams with average height of ~2.25m

						Brush layering with average width of ~2m

GCF OUTCOME LEVEL: Enabling environment (IRMF Core Indicators, qualitative indicators).					
Core Indicators	**Baseline context (description)**	**Rating for current state (baseline)**	**Target scenario (description)**	**How the project will contribute**	**Coverage**
Core Indicator 5: Degree to which GCF investments contribute to strengthening institutional and regulatory frameworks for low emission climate-resilient development pathways in a country-driven manner	DHM has a division and a section as an institutional mechanism and regulatory system for determining GLOF risk and hazard prioritisation. However, DHM is not equipped to produce tailored warnings and strong public-private sector partnerships that incentivise/encourage investment into GLOF risk reduction do not currently exist.	medium	The strengthened regulatory frameworks, combined with capacity building and skills development in the disaster risk reduction sector, will create an enabling environment for the upscaling and replication of project interventions across the country. The project will contribute to the efficient and effective implementation of Nepal's Disaster Risk Reduction National Strategic Plan of Action 2018-2030 , and the Disaster Risk Reduction and Management Act, 2074 and Disaster Risk Reduction and Management Rules, 2076 (2019).	Climate risk information products produced and tailored for use by productive sectors (hydropower, tourism and agriculture). Public-private sector partnerships established with productive sectors (hydropower, tourism and agriculture) for long-term buy-in/incentives for investment in GLOF risk reduction and climate risk information products produced and used by the entities in these partnerships	Multiple sub-national areas within a country
Core Indicator 6: Degree to which GCF investments contribute to technology deployment, dissemination, development or transfer and innovation	At present, DHM has limited technical capacity to detect, monitor and respond to GLOFs and other extreme climate events. Current EWS coverage in the Gandaki Basin, and Dudhkoshi and Arun Sub-basins does not extend far enough to reach all downstream communities that will be affected should the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes breach. Gaps exist in the EWS network in terms of number of stations required to detect and	low	DHM is equipped to reliably and timeously forecast GLOFs and other extreme climate events using data from the country's new and existing hydrological and meteorological stations.	Hydrological and meteorological stations will be installed across the prioritised GLOF watersheds to improve monitoring capacity and coverage in higher altitude areas. This will be complemented by training workshops targeting DHM staff to strengthen their capacity to: i) collect, process and manage climate data from the new and existing stations; and ii) use the generated data to develop early warning information products, including easily interpretable infographics for local communities. The data from these stations will be housed on DHM's existing servers.	National level (one country)

	monitor hydrological and meteorological changes that contribute to GLOFs.				
Core indicator 8: Degree to which GCF investments contribute to effective knowledge generation and learning processes, and use of good practices, methodologies and standards	There is an urgent need within DHM for the development of an in-house monitoring database for glaciers and glacial lakes. While DHM has the hardware and software capabilities, formal Standard Operating Procedures (SOPs) and training are required to catalyse the development and management of this database.	medium	The production of customised and targeted risk information for pre-project adaptation planning and early warnings will provide strong incentives for private sector investment in future disaster risk reduction initiatives, with the PPPs mobilising resources to address climate change issues. Risk analysis and requirements relating to climate change as stipulated in national policies and plans will be integrated into the established PPPs.	The project will contribute to effective knowledge generation by: • improving DHM's capacity for hazard mapping and prioritising GLOF risk reduction strategies; • establishment of the GIS database will be supported by geophysical investigation, as well as topographic and bathymetric surveys; training the relevant staff from DHM on monitoring GLOFs, operating and maintaining existing risk databases and disseminating tailored, user-friendly climate risk information to major productive sectors in Nepal, including the tourism, hydropower and tourism sectors.	National level (one country)

PROJECT/PROGRAMME SPECIFIC INDICATORS: (Outputs):

Project Results (Outputs)	Indicator	*Means of Verification (MOV)*	Baseline	Mid-term Target	End of Project Target	Assumptions
Output 1: Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development.	1.1. Capacity of DHM to assess risk, prioritise GLOF risk reduction strategies and direct investments towards GLOF risk reduction in Nepal	1. Capacity Assessment Scorecard[50] **2. DHM/ MoEWRI** a. Annual Progress Report (Reports - MOEWRI) **4. Project Specific** a. Quarterly Monitoring Report b. Third party Monitoring Report	Level 1	Level 2	Level 4	Creating SOPs and building capacity within DHM enables them to prioritise glacial lakes for risk reduction interventions without external support.

[50] Capacity Development Scorecard
Level 1: No formal processes, methodologies or SOPs in place for regularly assessing GLOF risk or prioritizing risk reduction measures in Nepal. Prioritisation and investment is undertaken by external entities (e.g. UNDP/ICIMOD) and not by the government
Level 2: Methodologies and SOPs are in place for regularly assessing GLOF risk and producing updated priority list of glacial lakes for GLOF risk reduction interventions, but DHM staff lack the capacity to adequately implement the processes. Risk reduction prioritisation and investment still reliant on external entities.
Level 3: Methodologies and SOPs are in place for regularly assessing GLOF risk and DHM staff are trained on the processes and have updated the priority list of glacial lakes for GLOF risk reduction interventions.
Level 4: Risk knowledge systems related to GLOFS are fully operational and updated priority lists of glacial lakes are being regularly updated using geophysical and geospatial data enabling the prioritisation of risk reduction interventions in Nepal. Project M&E systems are fully integrated into national entities, under DHM leadership.

		c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report				
Output 2: Improved hazard monitoring and the generation of early warnings, including the dissemination of early warnings to local communities and important economic sectors leading to reduced economic loss and loss of human lives from GLOF events	2.1. Number of stations for Nepal's EWS to account for the four most vulnerable glacial basins to GLOFs and rain-induced flooding in Nepal.	**1. DHM/MoEWRI** a. Annual Progress Report (Reports - MOEWRI) **2. Project Specific** a. Quarterly Monitoring Report b. Third party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report	46 meteorological stations[51] servicing the areas downstream of the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Glacial Lakes	A total of 32 pieces of new monitoring equipment installed, comprising: At least 3 Base Stations installed At least 12 automatic weather stations installed At least 3 precipitation gauges installed At least 13 radar-based water level sensors (RLS) installed	A total of 67 pieces of new monitoring equipment installed, comprising: 6 Base Stations installed (2 in the Marsyangdi Basin, 2 in the Dudhkoshi Sub-basin and 2 in the Arun Sub-basin) 24 automatic weather stations installed (7 AWS in the Marsyangdi Basin, 5 in the Dudhkoshi Sub-basin and 12 in the Arun Sub-basin) 9 precipitation gauges (2 in the Marsyangdi Basin and 7 in the Dudhkoshi Sub-basin) 27 radar-based water level sensors (RLS) installed (11 in the Marsyangdi Basin, 8 in the Dudhkoshi Sub-basin	First responders and national- and local-level decision-makers will be the main users of the data. The private sector will also be allowed access to climate data.

[51] specifically climatic and precipitation stations.

				1 low-cost tower with a free air satellite mode system and 4 accompanying siren towers installed	and 8 in the Arun Sub-basin) 1 low-cost tower with a free air satellite mode system and 9 accompanying siren towers (4 towers in the Marsyangdi Basin, 2 in the Dudhkoshi Sub-basin and 3 in the Arun Sub-basin)	
	2.2. Change in lead times for communities from when an early warning received till a GLOF hits	**1. DHM/MoEWRI** a. Annual Progress Report (Reports - MOEWRI) **2. Project Specific** a. Quarterly Monitoring Report b. Third party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report	0	At least 30 minute lead time for four communities in target watersheds	At least 30 minute lead time for all target communities	Lead times were considered to be zero in the absence of an EWS. The targets consider the flood arrival time at the first downstream community from the point of triggering a GLOF based off of flood modelling. The approach assumes that there is sufficient demand for community level uptake and the use of early warning information products among national-level decision-makers, the private sector and the entities responsible for the coordination of disaster response, including the NEOC, LEOC, Community Disaster Management Committee (CDMC)/Task Force, and local communities.
Output 3: Reduced probability of GLOF events and flash floods, through	3.1. Change in the water level of the four most high-risk glacial lakes in Nepal.	**1. DHM/MoEWRI** a. Annual Progress Report (Reports - MOEWRI)	The baseline water levels for the target glacial	All pre-construction actions required in the four locations have been	3 m reduction in water level in the Thulagi, Lower Barun and Lumding Tsho Lakes and	No external factors inhibit the lowering of the four target lakes during the implementation period.

disaster risk reduction measures implemented in priority glacial lake watersheds.		**2. NDRRMA/MoHA** (https://bipad.gov.np/np/report) a. Annual Progress Report b. Nepal Disaster Report c. 5 W Dashboard (https://bipad.gov.np/np/5w-dashboard-flood-and-landslide-september-2024) **3. Project Specific** a. Quarterly Monitoring Report b. Third party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report	lakes are as follows: Lower Barun: 205 m Lumding Tsho: 114 m Hongu 2: 53.4 m Thulagi: 76 m[52]	completed, including topographical surveys, bathymetric investigation, discharge analysis of the Thulagi Glacier Lake outlet, and geographical investigation through a GPR survey[53]. Site-specific engineering designs have been developed and validated for lowering the levels of all four lakes.	1 m reduction in water level in the Hongu 2 Lake. The water levels of the target lakes after lowering will be as follows: Lower Barun: 202 m Lumding Tsho: 111 m Hongu 2: 52.4 m Thulagi: 73 m	Communities maintain the downstream adaptation interventions implemented in the Dudhkoshi and Arun Sub-basins.
	3.2. Number or volume of infrastructural risk reduction measures installed to reduce the impacts of GLOFs and flooding.	1. M**OFE/ DOFSC/DNPWC** a. Annual Progress Report (https://www.mofe.gov.np/resources/progress-reports-6128 b. Annual Progress Report (Report | Department of National Park and Wildlife Conservation) **2. Project Specific** a. Quarterly Monitoring Report b. Third party Monitoring Report c. Annual Progress Report	0	At least 1,500 m^3 of flood walls and RCC revetments in the Arun Sub-basin At least 30 conservation ponds of at least 60m^3 each (15 in each of the Arun and Dudhkoshi Sub-basins)	3,101.61 m^3 of flood walls and RCC revetments in the Arun Sub-basin 67 conservation ponds of at least 60m^3 each (38 in the Arun Sub-basin and 29 in the Dudhkoshi Sub-basin)	

[52] Residual Risk Modelling & Watershed/sub-watershed Environmental Vulnerability Assessment. 2021. UNDP.
[53] This is because the pre-construction period is 2 years and the construction period 3 years, meaning that the full construction works required to lower the water level in the four lakes will be completed by end Year 5/Year 6.

		d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report				
	3.3. Area or volume of Eco-DRR measures implemented in downstream catchments of Arun and Dudhkoshi Sub-basins	1. M**OFE/ DOFSC/DNPWC** a. Annual Progress Report (https://www.mofe.gov.np/resources/progress-reports-6128) b. Annual Progress Report (Report | Department of National Park and Wildlife Conservation) **2. Project Specific** a. Quarterly Monitoring Report b. Third party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report	0	At least 75 ha of trees planted (37.5 ha each in the Arun and Dudhkoshi Sub-basins) At least 8,800 m3 of vegetative gabion walls constructed (5,400 m3 in the Arun Sub-basin and 3,400 m3 in the Dudhkoshi Sub-basin) At least 475,000 m of live check dams constructed (465,000 m in the Arun Sub-basin and 10,000 m in the Dudhkoshi Sub-basin). At least 7,600 m3 of vegetative gabion revetments constructed (1,800 m3 in the Arun Sub-basin and 5,800 m3 in the Dudhkoshi Sub-basin). At least 3,600 m3 of vegetative gabion spurs constructed (2,300 m3 in the	153.3ha of trees planted (81.6 ha in the Arun Sub-basin and 71.6 ha in the Dudhkoshi Sub-basin) 17,744 m3 of vegetative gabion walls constructed (10,796 m3 in the Arun Sub-basin and 6,948 m3 in the Dudhkoshi Sub-basin). 978,436 m of live check dams constructed (955,396 m in the Arun Sub-basin and 23,040 m in the Dudhkoshi Sub-basin). 15,298.94 m3 of vegetative gabion revetments constructed (3,447.5 m3 in the Arun Sub-basin and 11,851.44 m3 in the Dudhkoshi Sub-basin). 7,246 m3 of vegetative gabion spurs constructed (4,608 m3 in the Arun Sub-basin and 2,638 m3	Contractors for restoration activities will source labour and inputs including seeds/seedlings from local suppliers. Seedlings are available at numerous private and public nurseries throughout Nepal. Where local supply of specific species is not readily available, contractors conducting restoration efforts will establish new temporary nurseries and seed replication units to meet supply. Drones are provided by the project for seed sowing. Contractors for construction works (Embankments, gabions, check dams, revetments etc) will supply necessary inputs. Restoration efforts and hybrid infrastructure will follow local guidelines developed by Ministry of Forests and Environment

				Arun Sub-basin and 1,300 m3 in the Dudhkoshi Sub-basin). At least 14,800 m3 of vegetative gabion check dams constructed (11,200 m3 in the Arun Sub-basin and 3,600 m3 in the Dudhkoshi Sub-basin). At least 7,500 m3 of vegetative dry stone check dams constructed (4,700 m3 in the Arun Sub-basin and 2,800 m3 in the Dudhkoshi Sub-basin). At least 1,500 m2 of vegetative stone rip-rap constructed (750 m2 in the Arun Sub-basin and 750 m2 in the Dudhkoshi Sub-basin). At least 22,500 m of brush layering constructed (18,300 m in the Arun Sub-basin and 4,200 m in the Dudhkoshi Sub-basin).	in the Dudhkoshi Sub-basin). 29,685 m3 of vegetative gabion check dams constructed (21,960 m3 in the Arun Sub-basin and 7,725 m3 in the Dudhkoshi Sub-basin). 15,009.8 m3 of vegetative dry stone check dams (9,371.25 m3 in the Arun Sub-basin and 5,638.5 m3 in the Dudhkoshi Sub-basin). 3,194 m2 of vegetative stone rip-rap planted (1,582.5 m2 in the Arun Sub-basin and 1,611.5 m2 in the Dudhkoshi Sub-basin). 45,188 m of brush layering planted (36,750 m in the Arun Sub-basin and 8,438 m in the Dudhkoshi Sub-basin). 298,162 m2 of grass seedlings planted (155,419 m2 in the Arun Sub-basin and 142,743	

				At least 149,000 m2 of grass seedlings planted (77,708 m2 in the Arun Sub-basin and 71,371 m2 in the Dudhkoshi Sub-basin).	m2 in the Dudhkoshi Sub-basin).	

PROJECT/PROGRAMME CO-BENEFIT INDICATORS:					
Co-benefit	**Indicator**	**Baseline**	**Mid-term Target**	**End of Project Target**	**Assumptions**
Co-benefit 1: Carbon Sequestration	*tCO_2-e sequestered*	0	-5,320 *tCO_2-e*	-15,000 *tCO_2-e* *Project Lifespan:* -100,104 *tCO_2-e*	Targets for Carbon sequestration were estimated using the FAO ExACT tool. The estimates considered a 7-year implementation phase and 20-year capitalisation phase. Sequestration benefits were derived from restoration efforts assumed that trees are planted 2 m apart at a density of 2800 trees per hectare fpr 153ha or restoration, and assumed the area of vegetated EcoDRR infrastructure to function as restored grasslands.
Co-benefit 2: Soil stabilisation	Changes in rate of soil erosion in watershed areas	An estimated 1.7 mm of topsoil is lost each year due to soil erosion in Nepal. In the targeted Koshi Basin, soil loss of up to 22 t ha^{-1} $year^{-1}$ in the barren lands were reported.	Erosion rates per hectare reduced by 10% in restored areas	Erosion rates per hectare reduced by 20% in restored areas	Downstream EcoDRR interventions that reduce the impact of residual flooding after lake lowering will stabilize mountain slopes, reducing soil erosion and landslides. Soil erosion baseline was determined from a scientific analysis by the Tribhuvan University in Nepal, which estimated soil loss of Nepal through the application of the Revised Universal Soil Loss Equation (RUSLE) model.[54]

[54] Koirala *et al.* 2019. Estimation of Soil Erosion in Nepal Using a RUSLE Modeling and Geospatial Tool. Geosciences 2019, 9, 147; doi:10.3390/geosciences9040147 and Chalise, D., Kumar, L. and Kristiansen, P., 2019. Land degradation by soil erosion in Nepal: A review. Soil systems, 3(1): 12.

					Targets were set based on expert opinion by Nepalese scientists involved in developing and modelling the impacts of EcoDRR measures.

Modifications to the Project Results Framework: **No modifications to the Project Results Framework shall be allowed**, unless the Implementing Partner (Executing Entity) has sought and obtained prior agreement/approval from UNDP, where pursuant to the terms of the AMA, FAA or GCF policies, UNDP may be required to seek formal prior approval from GCF in relation to proposed modifications to the Funded Activity, in particular where the modifications could reasonably be considered to constitute a Major Change (as defined in the GCF policies). All minor and major modifications shall be duly documented in a Note to File and shall be cleared by UNDP-BPPS in line with UNDP policies and Standard Operating Procedures.

VII. MONITORING AND EVALUATION (M&E) PLAN

Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the UNDP POPP and UNDP Evaluation Policy. **The UNDP Country Office is responsible for ensuring full compliance with all UNDP project M&E requirements including project monitoring, UNDP quality assurance requirements, quarterly risk management, and evaluation requirements.**

Additional M&E requirements will be undertaken in accordance with the GCF Integrated Results Management Framework, GCF Evaluation Policy, and other relevant GCF policies. The costed M&E plans included below, and the Monitoring Activity Plan in Annex Q, will guide the GCF-specific M&E activities to be undertaken by this project.

In addition to these mandatory UNDP and GCF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report.

Project monitoring and reporting requirements as required by the GCF:

Inception Workshop and Report:

A project inception workshop will be held after the Funded Activity Agreement becomes effective, with the aim to:

a. Familiarize key stakeholders with the detailed project strategy and discuss any changes that may have taken place in the overall context since the project idea was initially conceptualized that may influence its strategy and implementation.
b. Discuss the roles and responsibilities of the project team, including reporting lines, stakeholder engagement strategies and conflict resolution mechanisms.
c. Review the results framework and monitoring plan.
d. Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E Plan with budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GCF National Designated Authority and other stakeholders in project-level M&E.
e. Update and review responsibilities for monitoring project strategies, including the risk register; SESP report, Social and Environmental Management Framework and other safeguard requirements; project grievance mechanisms; gender strategy; knowledge management strategy, and other relevant management strategies.
f. Review financial reporting procedures and budget monitoring and other mandatory requirements and agree on the arrangements for the annual audit.
g. Plan and schedule Project Board meetings and finalize the first-year annual work plan.
h. Formally launch the Project.

The inception report is to be submitted to GCF within six months of project start (i.e. Funded Activity Agreement Effectiveness [55]). The inception report will be cleared up by the UNDP Country Office and the UNDP-BPPS Regional Technical Adviser and approved by the Project Board.

GCF Annual Performance Report (APR) (due for submission to the GCF by 1st March each year of project implementation):

The annual GCF APR covering the reporting period January to December will be completed for each year of project implementation. UNDP will undertake quality assurance of the APR before submission to the GCF. The APR process will follow the standard annotated GCF templates and UNDP guidance prepared by BPPS for GCF-financed projects.

The Project Coordination Specialist, the UNDP Country Office, and the BPPS Regional Technical Advisor will provide objective input to the APR. The Project Coordination Specialist will ensure that the indicators included in the project results framework are monitored annually in advance so that progress can be included in the report. The Project Coordination Specialist and CO must complete a high-quality draft APR and financial report for review and input by the BPPS RTA and for an internal quality assurance and clearance process prior to submission of the APR to the GCF.

The UNDP Country Office will coordinate the input of other stakeholders to the APR, as appropriate. The quality rating of the previous year's report will be used to inform the preparation of the subsequent report.

The APR submitted to the GCF shall be shared with the Project Board and disclosed publicly on GCF's website.

[55] See Schedule 4 of the Funded Activity Agreement

All project documents should have an annex that outlines in detail the project results, tracking and verification system as part of the description of the project's M&E framework.

Independent Interim Evaluation Report (IER):

An independent interim evaluation report will be submitted to the GCF within three years and nine months of effective date. *This is a legally binding deadline. If it cannot be met because of extraordinary circumstances, a milestone extension request must be sent to and cleared by BPPS/VF Programme Support, Oversight and Compliance Hub and submitted to the GCF Secretariat at least 2 months prior to the submission deadline.*

In order to meet the submission deadline, the final IER must be completed and sent to BPPS/VF Programme Support, Oversight and Compliance Hub no later than 2 months in advance of the GCF submission deadline to allow sufficient time for internal review/clearance that is required prior to submission. Therefore, the IER process must start no later than 8 months before the expected date of submission to the GCF.

The terms of reference, the review process and the final IER report will follow the standard templates and guidance prepared by UNDP for GCF-financed projects available on the UNDP Evaluation Resource Center (ERC).

The evaluation will be independent, impartial, and rigorous. The evaluator(s) that UNDP will hire to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Equally, the evaluators should not be in a position where there may be the possibility of future contracts regarding the project being evaluated.

The GCF NDA and other stakeholders will be involved and consulted during the evaluation process. Additional quality assurance support is available from the BPPS RTA and BPPS VF Programme Support, Oversight and Compliance Hub.

The final IER will be publicly available in English and will be posted on the UNDP ERC by *11 December 2029*. A management response to IER recommendations will be posted in the ERC within six weeks of the IER's completion and submitted to the GCF Secretariat as per the AMA/FAA requirements.

Project Completion Report (PCR):

The Project Completion Report will cover the project's final calendar year of implementation and will be due for submission to the GCF within [3 months] after the project completion date.[56]

The Project Coordination Specialist, the UNDP Country Office, and the BPPS Regional Technical Advisor will provide objective input to the PCR covering the final calendar year of implementation. The Project Coordination Specialist and CO must complete a high-quality draft PCR and financial file for review and input by BPPS RTA and for an internal quality assurance and clearance process prior to submission of the APR to the GCF.

The UNDP Country Office will coordinate the input of other stakeholders to the PCR, as appropriate.

Independent Final Evaluation Report (FER):

An independent final evaluation report (FER) will take place upon completion of all major project outputs and activities and will be submitted to the GCF within six months after Project Completion Date. *This is a legally binding deadline. If it cannot be met because of extraordinary circumstances, a milestone extension request must be sent to and cleared by BPPS/VF Programme Support, Oversight and Compliance Hub and submitted to the GCF Secretariat at least 2 months prior to the submission deadline.*

In order to meet the submission deadline, the final version of the FER must be completed and sent to BPPS RTA no later than 2 months in advance of the GCF submission deadline to allow sufficient time for internal review/clearance that is required prior to submission. Therefore, the FER process must start no later than 8 months before the expected date of submission to the GCF.

The terms of reference, the evaluation process and the final FER will follow the standard templates and guidance prepared by the UNDP for GCF-financed projects available on the UNDP Evaluation Resource Center.

[56] See Schedule 4 of the Funded Activity Agreement

The evaluation will be independent, impartial and rigorous. The evaluator(s) that UNDP will hire to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Equally, the evaluators should not be in a position where there may be the possibility of future contracts regarding the project being evaluated.

The GCF NDA and other stakeholders will be involved and consulted during the final evaluation process. Additional quality assurance support is available from BPPS RTA and VF Programme Support, Oversight and Compliance Hub.

The final FER will be publicly available in English and posted on the UNDP ERC by *11 September 2033*. A management response to the FER recommendations will be posted to the ERC within six weeks of the FER report's completion and submitted to the GCF Secretariat as per the AMA/FAA requirements.

Final Report:

The project's Project Completion Report, along with the final evaluation report (FER) and corresponding management response, will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lessons learned and opportunities for scaling up.

Reporting Arrangement:

Preparing the progress and financial reports of project is the responsibility of DHM as an Implementing Partner (IP). The Project Management Unit (PMU) provides coordination and technical support to the IP and the RPs in preparation of component-level progress and financial reports. The IP and RPs will inform the respective ministries as required. The respective ministries will be involved in progress monitoring to ensure compliance with GCF requirement as per Government's commitments. The IP with the support of PMU will consolidate quarterly reports to prepare annual progress report and submit the final annual progress report to the Project Board (PB). Following PB review, comments and approval, the IP will finalize, validates the report. IP shares the report about project performance to Steering Committee and submits to UNDP as an Accredited Entity for final submission to Green Climate Fund (GCF) in a prescribed template aligned to GCF's fiduciary, monitoring, and evaluation requirements."

Monitoring and Evaluation Plans:

In accordance with UNDP's programming policies and procedures, the project will be monitored through the following monitoring and evaluation plans**.**

Monitoring Plan**:**

The project results, corresponding indicators and mid-term and end-of-project targets in the project results framework will be monitored by the Project Management Unit annually and will be reported in the GCF APR every year, and will be evaluated periodically during project implementation. If baseline data for some of the results indicators is not yet available, it will be collected during the first year of project implementation. Project risks, as outlined in the risk register, will be monitored quarterly.

See Annex Q for the detailed Monitoring Activity Table.

Activity	Collection Tool	Frequency	Indicator	Indicative Budget
A. Monitoring and Evaluative Activities				
Inception workshop and baseline assessment	Minutes of inception workshop/ meeting and Reports of results of baseline assessment study; government databases, including BIPAD portal and Swata Prakashan	One-time (at project inception)	Completion of inception workshop and Baseline assessment report	$2,250 (UNDP Cofinance)
Risk management (including Quantum Risk Register)	The risk register is actively maintained to keep track of identified risks and actions	Quarterly	Project risks including SES risks	None

Developing M&E framework/database, tracking and presentation tools including GIS, training on M&E methods, and approaches including monitoring visits and annual project audits	GIS; Field observation visits; Government databases, including BIPAD portal Swata Prakashan, etc; UNDP Monitoring and Evaluation Guidelines	Quarterly	Project M&E Framework with clear monitoring and evaluation system in place	$90,000
Project Board Meetings	Minutes of Project Board Meeting	Half Yearly	Signed minutes of Project Board Meetings	$12,600 (UNDP co-finance)
Annual Project Review	Quarterly progress reports; Field monitoring reports; Technical assessment reports; Stakeholder consultation reports; 3rd party monitoring reports	Annual	Submission of APRs	$36,000 (UNDP co-finance)
Field Observation visits (to conduct geophysical, topographic and bathymetric surveys)	Survey/questionnaire; GIS maps, satellite maps and drone footages; Technical assessments	Once in Y2	Technical assessment reports	$50,000
Develop and operationalize DHM Database and NDRRMA-BIPAD Portal (on climate-induced hazard recording and management)	Focus Group discussions and Key Informant Interviews; BIPAD portal; Swata Prakashan Project monitoring reports; Interim project evaluation; 3rd party monitoring reports	Annually from Y2	Functional DHM Database and BIPAD Portal	$27,740
Update and enhancement of EWS (integrate new and existing hydrology stations into a real-time data acquisition system)	Government data/records; Filed surveys and focussed group discussions; Mock drill and evacuation drill reports; Technical assessment reports; BIPAD Portal; Swata Prakashan	Once in Y1	Functional and enhanced ESW in DHM	$138,478 ($58,478 DHM co-finance)
Develop database to track capacity building activities to monitor effectiveness of	BIPAD Portal; Capacity building/training reports;	Annual	1.1. Database on capacity assessment 1.2. Use of new methods, standards and	$18,000

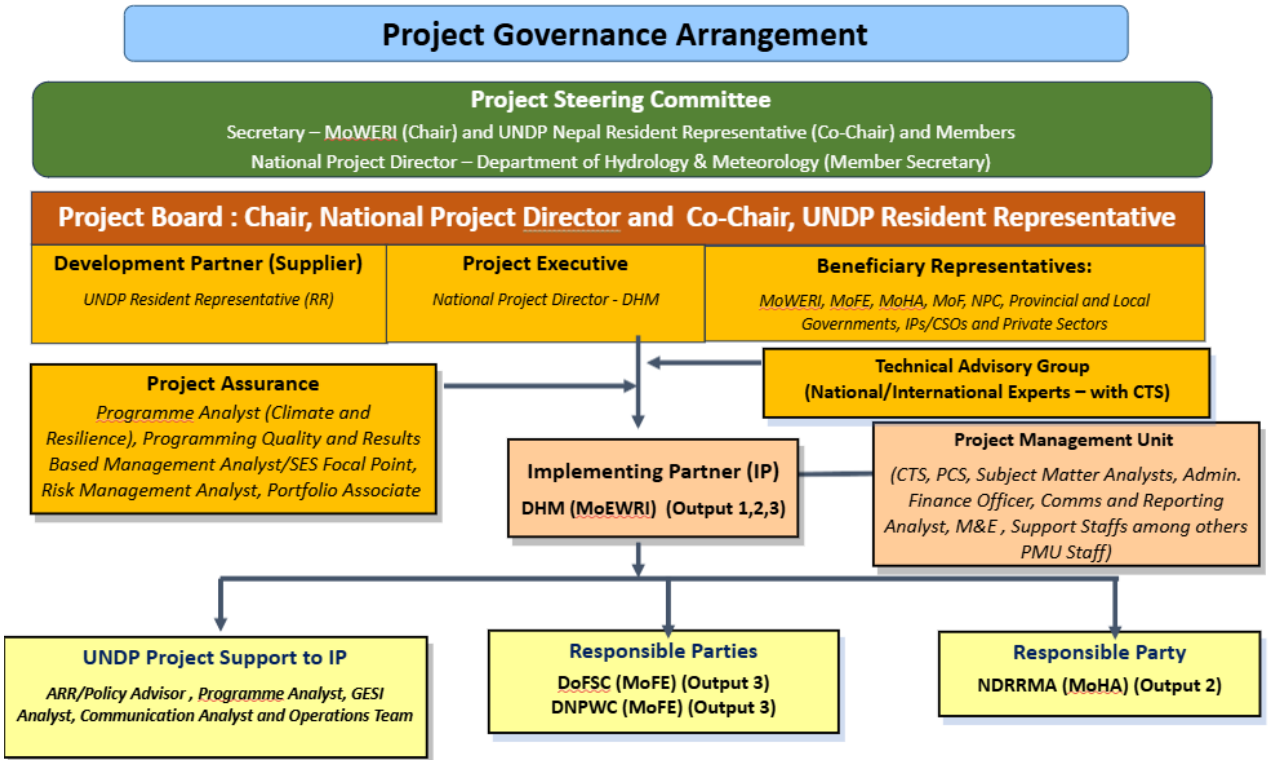
technical and non-technical trainings, workshops and conferences	Annual Progress Report; Interim Evaluation; Focus group discussions; Survey/questionnaire		SOPs to prioritise GLOF risk reduction strategies in Nepal 1.3. Number/percentage of DHM technical staff trained on the use of methods and SOPs to prioritise GLOF risk reduction strategies in Nepal	
Training and advocacy of communities in downstream valleys through mock drills and evacuation exercises	Training reports and feedback from mock drills; Focus group discussions and Key Informant Interviews; Surveys	Routine	1. Mock Drill Reports 2. Change in lead times in community response to GLOF and hazard events	$30,000
Technical monitoring and evaluation of lake lowering work	Technical assessment reports; Monitoring reports; surveys/questionnaires; Filed monitoring reports; Drone footages, GIS maps and satellite images;	Annually from Y2	Technical Assessment reports, Annual Progress Review reports	$289,410 ($58478 DHM co-finance)
Technical assessment of Eco-DRR measures to assess their effectiveness	GIS maps, Drone surveys, Focus group discussions	Routine	3.3 Technical Assessment Report of Eco-DRR measures implemented in downstream catchments of Arun and Dudhkoshi Sub-basins	$180,515 ($30,040 DOFSC co-finance)
Lessons learned, case studies, and knowledge generation	Workshop reports; Annual Progress Review reports; Interim evaluation report; Monitoring visit reports; Documentary footages and media articles; Survey/questionnaire and focus group discussions	Annual	Lessons Learnt Report; Knowledge Products and Case Studies	$15,750 (UNDP co-finance)
Strengthening government's institutional monitoring system including data collection and management system through mapping and import household data into the BIPAD portal	Government data/records, including BIPAD and Swata Prakashan; Project M&E framework and	Annual	3.1 Change in expected losses of lives and economic assets due to the impact of extreme climate-related disaster in the geographic areas of the GCF intervention 3.2 Functional government monitoring	$ 37,500

for the application of DSS and CAP and produce periodic report on climate hazards and impact			system on climate hazards and associated impacts	
Outcome mapping to capture the GESI results	Quarterly progress reports; Annual progress review reports; Monitoring visit reports; Interim evaluation report; Survey/questionnaire	Twice in the project cycle (Y4 and Y7)	1.3 GESI assessment report; GESI perspective in sectoral climate risk management plan, strategy, climate risk reduction related key tools and training manuals	$47,500
Institutional capacity building of local municipalities and establish GEDSI disaggregated data collection system in BIPAD Portal, reporting and programming	Capacity building/training reports; Capacity assessment reports; BIPAD portal and Swata Prakashan; Gender assessment reports	Y3, Y4, Y5	Capacity building reports, Functional and enhanced BIPAD portal	$67,800
Total				**$1,043,543 (including UNDP = $66,600; DOFSC=$30,040; DHM=$116,956)**

Evaluation Plan

GCF Evaluation Requirements	Partners (if joint)	Related Strategic Plan Output	UNSDCF/CPD Outcome	Submission Date to GCF	Key Evaluation Stakeholders	Cost and Source of Funding
Independent Interim Evaluation		B.3.1, C.1, C.5	Outcome 3	By the IER submission date on cover page of this project document	DHM, MoFE, DoFSC, and DNPWC PMU, UNDP CO	*40,000* Charged to Fee budget
Independent Final Evaluation		B.3.1, C.1, C.5	Outcome 3	By the FER submission date on cover page of this project document	DHM, MoFE, DoFSC, and DNPWC PMU, UNDP CO	*50,000* Charged to Fee budget
TOTAL indicative COST						*90,000 1-2% of Total GCF grant NOT TOTAL budget*

VIII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS



Section 1: General roles and responsibilities in the projects' governance mechanism

Implementing Partner (Executing Entity)

The Implementing Partner (referred as Executing Entity in GCF terminology) for this project is Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal.

The Implementing Partner is the entity to which the UNDP Administrator has entrusted the implementation of UNDP assistance specified in this signed project document along with the assumption of full responsibility and accountability for the effective use of UNDP resources and the delivery of outputs, as set forth in this document.

The Implementing Partner is responsible for executing this project. Specific tasks include:

- Project planning, coordination, management, monitoring, evaluation and reporting. This includes providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes and is aligned with national systems so that the data used and generated by the project supports national systems.
- Overseeing the management of project risks as included in this project document and new risks that may emerge during project implementation.
- Procurement of goods and services, including human resources.
- Financial management, including overseeing financial expenditures against project budgets.
- Approving and signing the multiyear workplan.
- Approving and signing the combined delivery report at the end of the year; and,
- Signing the financial report or the funding authorization and certificate of expenditures.

As the IP, MoEWRI/DHM will be accountable to UNDP for managing the project, including the monitoring and evaluation of project interventions achieving the project outcomes and for effective use of GCF resources. The MoEWRI/DHM will designate National Project Director to take the responsibility of effective project implementation, monitoroing, evaluaiton and reporting and achieving the project results on behalf of Implementing Parnter.

Responsible Parties:

Responsible parties will be overseen by and report to the MoEWRI/DHM in its role as Implementing Partner(Executing Entity). As such the Responsible Parties will enter into written agreements with MoEWRI/DHM as the Implementing Partner (Executing Entity) specifying their role in project implementation including deliverables, budgets and workplan in consistent with the funding proposal. These legal agreements will reflect the requirements for the flow of GCF funds in accordance with the provisions made in the Accreditation Master Agreement (AMA) and the project's Funded Activity Agreement (FAA). Responsible parties will be directly accountable to the MoEWRI/DHM Executing Entity/Implementing Partner of the project for implementation of proejct work plan, delivery of project outcomes and report on the usage of project funds.

The following government entities will act as the 'Responsible Parties (RP)' for MoEWRI/DHM and will be responsible for implementation of project activities as outlined in the funding propsoal:

- The Department of Forests and Soil Conservation (DoFSC) of Ministry of Forests and Environment (MoFE),
- The Department of National Parks and Wildlife Conservation (DNPWC) of Ministry of Forests and Environment (MoFE),
- The National Disaster Risk Reduction and Management Authority of Nepal (NDRRMA), Ministry of Home Affairs.

The IP/MoEWRI/DHM and RPs have agreed to designate dedicated officials (as listed below) for smooth implementation of the respective components.

DHM	NDRRMA	DoFSC	DNPWC
Gaz. I (Tech.)- 1 Gaz. II (Tech.)- 2 Gaz.III (Tech.)- 4 Gaz.III (Account)- 1 Gaz.III (Admin)- 1 Non-Gaz I Tech. - 2 Non-Gaz-I (Account)- 1 Non-Gaz-II (Admin) 1 Drivers - 2 Office Assistants - 2	Gaz. (Tec)I - 1 Gaz.II (Tech.) - 4 Gaz.III (Tech) - 1 Gaz.III (Account)- 1 Gaz.III (Admin)- 1 Non-Gaz-I - 1 Non-Gaz I (Account)- 1 Driver- 1 Office Assistant - 1	Gaz. I (Tech.)-1 Gaz. II (Tech.)- 1 Gaz.III (Tech.)-2 Non-Gaz I (Acc.)- 1 Non-Gaz I (Admin) 1 Driver -1 Office Assistant 1 BMC Koshi Office 10 Gaz II (Tech) -1 Gaz III (Tech) -2 Non-Gaz-I (Tech) -2 Non. Gaz-I (Admin) -1 Non-Gaz-I (Account) -1 Driver -1	Gaz. I (Tech.)- 1 Gaz. II (Tech.)- 2 Gaz.III (Tech.)- 2 Gaz.III (Account)- 1 Gaz.III (Admin)- 1 Non-Gaz-I (Admin)- 1 Driver - 1
Government Field Offices			
Pokhara (OHM) Dharan (OHM)	Concerned Municipalities /EOCs	Koshi BMC, Udayapur	Hedainagadhi, Sankhuwasabha

The specific roles that the IP-MoEWRI/DHM and RPs will be responsible for during implementation of the Activities are set out in Table 3 below. ***Table 3.*** *Activity-level distribution of implementation responsibilities.*

Output	Activity	Executing Entity	Implementing Partner/Responsible Parties
Output 1: Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development.	1.1. Strengthen the knowledge base and technical capacities for improved climate research and risk reduction strategies.	MoEWRI/DHM	DHM, DOFSC
	1.2. Develop policy and financial mechanisms for sustainable GLOF and flood risk information services.		
Output 2: Improved hazard monitoring and the generation and dissemination of early warnings to	2.1. Improve observation network density in GLOF watersheds to strengthen the technical capacity of		DHM, NDRRMA

local communities and important economic sectors.	DHM for the monitoring of climate hazard and risk.		
	2.2. Improve early warning systems to strengthen adaptive capacity and response to GLOFs and other climate hazards.		
Output 3: GLOF and flash flood risk and impact reduction measures implemented in priority glacial lake watersheds.	3.1. Lower the levels of four of the highest risk glacial lakes.		DHM, DoFSC NDRRMA, DNPWC
	3.2. Construction of structural and non-structural measures (Civil and Nbs/ Bioengineering) for the risk reduction of GLOF and flash flood.		
	3.3. Implement eco-disaster risk reduction solutions to reduce the impact of GLOFs and flash floods.		

Project stakeholders and target groups:

Project target groups will be engaged in decision-making through inclusive governance and local consultations. At the strategic level, representatives from local governments, CSOs, and Indigenous Peoples (IPs) organizations will be part of the Project Board, ensuring that community voices from the Dudhkoshi, Arun and Marsyangdi basins are reflected in key decisions. At the local level, the project will work closely with community groups, IP networks (e.g. NEFIN), user groups like FECOFUN, and local NGOs, through regular consultations, participatory planning, and feedback mechanisms as outlined in the Stakeholder Engagement Plan. This will ensure that communities are not only beneficiaries but also actively involved in shaping and implementing project interventions based on ground realities.

Stakeholders are defined as actors within the following groups of actors: government (all 3 tiers), local communities, community-based organizations, civil society organizations/NGOs, private sector, international development cooperation and international organizations, academic institutions. Key project stakeholders were initially identified through discussions with the NDA, DHM, MoFE, DoFSC, and DNPWC.

Key Stakeholders have been identified as shown below, with details of specific engagement processes provided in the Stakeholder Engagement Plan (Annex J):

- MoF, MoEWRI;DHM; NDRRMA; DOFSC; DNPWC; MoFE; MoHA
- Provincial Government; Local Government; Koshi Basin Management Centre;
- Local NGOs; Community Organizations; Community People; IPs networks;
- Private Institutions; Tourism Board; IPPAN
- UNDP-PSCU;

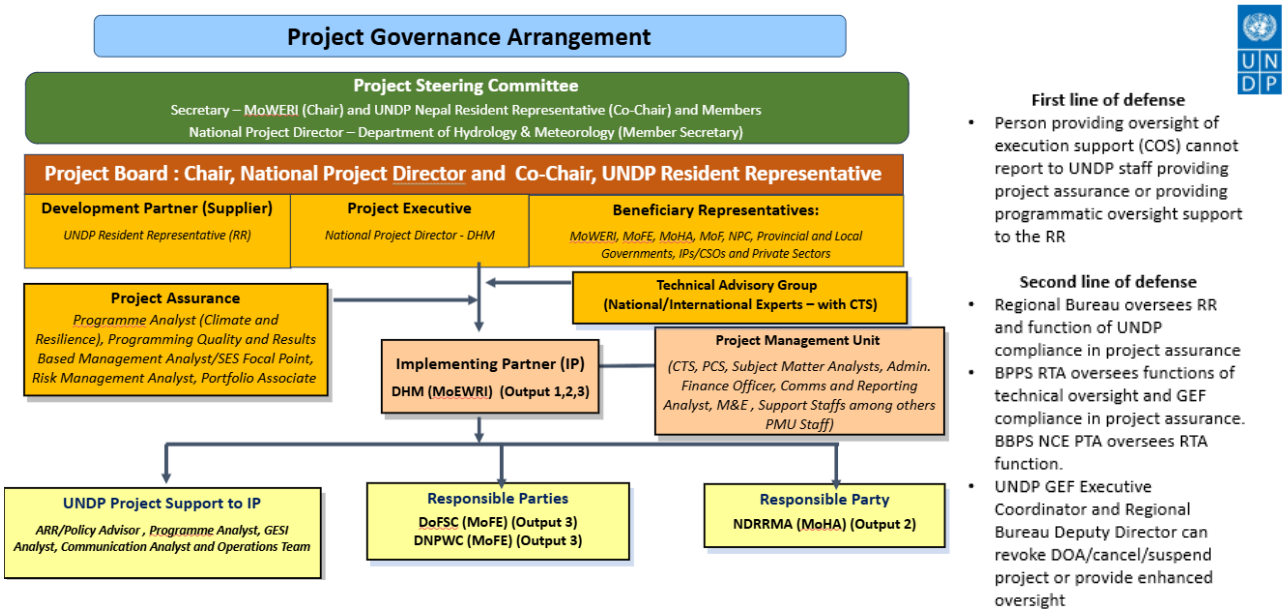
To ensure effective engagement with indigenous peoples, Nepal Federation of Indigenous Nationalities (NEFIN) and Community-based organizations such as FECOFUN will be closely consulted throughout implementation.

Partnership opportunities will be sought during project inception to engage other partners such as the International Centre for Integrated Mountain Development (ICIMOD) to support for knowledge generation and management built on ongoing relationship with the government of Nepal and the scope of MoU signed between ICIMOD and UNDP.

UNDP:
UNDP is accountable to the GCF for the implementation of this project. This includes overseeing project execution undertaken by the Implementing Partner to ensure that the project is being carried out in accordance with UNDP and GCF policies and procedures and the standards and provisions outlined in the Delegation of Authority (DOA) letter for this project. **The UNDP BPPS Executive Coordinator, in consultation with UNDP Regional Bureaus and the Implementing Partner, retains the right to revoke the project DOA, suspend or cancel this GCF project.** UNDP is responsible for the Project Assurance function in the project governance structure and presents to the Project Board and attends Project Board meetings as a non-voting member.

A firewall will be maintained between the delivery of project oversight and quality assurance performed by UNDP and charged to the GCF Fee and any support to project execution performed by UNDP (as requested by and agreed to by both the Implementing Partner and GCF) and should be correctly budgeted in the TBWP agreed with the GCF. The segregation of functions and firewall provisions for UNDP in this case is described in the next section.

Section 2: Project governance structure



The UNDP Resident Representative assumes full responsibility and accountability for oversight and quality assurance of this Project and ensures its timely implementation in compliance with the GCF-specific requirements and UNDP's Programme and Operations Policies and Procedures (POPP), its Financial Regulations and Rules and Internal Control Framework. A representative of the UNDP Country Office will assume the assurance role and will present assurance findings to the Project Board, and therefore attends Project Board meetings as a non-voting member.

UNDP project support*:* The Implementing Partner (MoEWRI/DHM) and GCF NDA, have requested UNDP to provide support services amounting to USD 857,353 for the full duration of the project. The cost of these support services has been duly budgeted in the TBWP and will be charged to the project budget. The execution support services whether financed from the project budget or other non-GCF sources - have been set out in detail and agreed between UNDP Country Office and the Implementing Partner in a Letter of Agreement (LOA). This LOA is attached to this Project Document.

To ensure the strict independence required by the UNDP Internal Control Framework, these execution services will be delivered independent from the GCF-specific oversight and quality assurance services.

Section 3: Segregation of duties and firewalls vis-à-vis UNDP representation on the project board:

In this case, UNDP's implementation oversight role in the project as represented in the project board and via the project assurance function is performed by UNDP Resident Representative. UNDP's execution role in the project (as requested by the implementing partner and approved by the GCF) is performed by Assistant Resident Representative who will report to Deputy Resident Representative.

Section 4: Roles and Responsiblities of the Project Organization Strucutre:

a) Project Board: All UNDP projects must be governed by a multi-stakeholder board or committee established to review performance based on monitoring and evaluation, and implementation issues to ensure quality delivery of results. The Project Board is the most senior dedicated body for a project.

The Project Board (PB) will be set up by the MoEWRI/DHM, the project Implementing Partner (Executing Entity)/ and chaired by the National Project Director for the project. The PB will be co-chaired by UNDP Representative. Other members of the PB will include representatives from relevant federal and provincial ministries including National Planning Commission, representatives of community organizations/indigenous people's organization, development partners and private sector as necessary. The PB will meet at least twice a year, however, the frequency of the PB meeting can be decided as deemed necessary. The Terms of Reference of Project Board will be signed by PB members in the first PB meeting and will be recorded as a PB meeting minute. The two prominent (mandatory) roles of the project board are as follows:

1) **High-level oversight of the execution of the project by the Implementing Partner** (as explained in the "Provide Oversight" section of the POPP). This is the primary function of the project board and includes annual (and as-needed) assessments of any major risks to the project, and decisions/agreements on any management

actions or remedial measures to address them effectively. The Project Board reviews evidence of project performance based on monitoring, evaluation and reporting, including progress reports, evaluations, risk register and the combined delivery report. The Project Board is the main body responsible for taking corrective action as needed to ensure the project achieves the desired results.

2) **Approval of strategic project execution decisions of the Implementing Partner** with a view to assess and manage risks, monitor and ensure the overall achievement of projected results and impacts and ensure long term sustainability of project execution decisions of the Implementing Partner (as explained in the "Manage Change" section of the POPP).

Requirements to serve on the Project Board:

- ✓ Agree to the Terms of Reference of the Board and the rules on protocols, quorum and minuting.
- ✓ Meet annually; at least twice.
- ✓ Disclose any conflict of interest in performing the functions of a Project Board member (if not avoidable) and take all measures to avoid any real or perceived conflicts of interest. This disclosure must be documented and kept on record by UNDP.
- ✓ Discharge the functions of the Project Board in accordance with UNDP policies and procedures.
- ✓ Ensure highest levels of transparency and ensure Project Board meeting minutes are recorded and shared with project stakeholders.

Responsibilities of the Project Board:

- ✓ Consensus decision making:
  - The project board provides overall guidance and direction to the project, ensuring it remains within any specified constraints, and provides overall oversight of the project implementation.
  - Review project performance based on monitoring, evaluation and reporting, including progress reports, risk register and the combined delivery report;
  - The project board is responsible for making management decisions by consensus.
  - In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition.
  - In case consensus cannot be reached within the Board, the UNDP representative on the board will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed.
- ✓ Oversee project execution:
  - Agree on Project Coordination Specialist's tolerances as required, within the parameters outlined in the project document, and provide direction and advice for exceptional situations when the Project Coordination Specialist's tolerances are exceeded.
  - Appraise annual work plans prepared by the Implementing Partner for the Project; review combined delivery reports prior to certification by the implementing partner.
  - Address any high-level project issues as raised by the Project Coordination Specialist and project assurance;
  - Advise on major and minor amendments to the project within the parameters set by UNDP and the donor and refer such proposed major and minor amendments to the UNDP BPPS/VF Executive Coordinator (and the GCF Secretariat and/or GCF Board, as required by GCF policies);
  - Provide high-level direction and recommendations to the project management unit to ensure that the agreed deliverables are produced satisfactorily and according to plans.
  - Track and monitor co-financed activities and realisation of co-financing amounts of this project.
  - Approve the Inception Report, Baseline Report, GCF APRs, Interim Independent Evaluation and terminal evaluation reports, other reports that GCF may require.
  - Ensure commitment of human resources to support project implementation, arbitrating any issues within the project.
- ✓ Risk Management:
  - Provide guidance on evolving or materialized project risks and agree on possible mitigation and management actions to address specific risks.
  - Review and update the project risk register and associated management plans based on the information prepared by the Implementing Partner. This includes risks related that can be directly managed by this project, as well as contextual risks that may affect project delivery or continued UNDP compliance and reputation but are outside of the control of the project. For example, social and environmental risks associated with co-financed activities or activities taking place in the project's area of influence that have implications for the project.
  - Address project-level grievances.

- ✓ Coordination:
    - Ensure coordination between various donor and government-funded projects and programmes.
    - Ensure coordination with various government agencies and their participation in project activities.

Composition of the Project Board: The composition of the Project Board must include individuals assigned to the following three roles:

1. **Project Executive:** This is an individual who represents ownership of the project and chairs (or co-chairs) the Project Board. The Executive usually is the senior national counterpart for nationally implemented projects (typically from the same entity as the Implementing Partner). If the project executive co-chairs the project board with representatives of another category, it typically does so with a development partner representative. The Project Executive is: The National Project Director, DHM.
2. **Beneficiary Representative(s):** Individuals or groups representing the interests of those groups of stakeholders who will ultimately benefit from the project. Their primary function within the board is to ensure the realization of project results from the perspective of project beneficiaries. Often representatives from civil society, industry associations, or other government entities benefiting from the project can fulfil this role. There can be multiple beneficiary representatives on the Project Board. The Beneficiary representative (s) is/are:
    a. Representative from Ministry of Energy, Water Resources and Irrigation (MoEWRI)
    b. Representative from Ministry of Forests and Environment (MoFE),
    c. Representative from Ministry of Home Affairs (MoHA)
    d. Representative from Ministry of Finance (MoF)
    e. Representative from National Planning Commission (NPC)
    f. Representative from relevant provincial ministry/ies Koshi and Gandaki Provinces
    g. Representative from Local Governments (Municipalities with the 4 Glacial Lakes),
    h. Representative from CSOs / IPs
    i. Representative from private sector partners

3. **Development Partner(s):** Individuals or groups representing the interests of the parties concerned that provide funding, strategic guidance and/or technical expertise to the project. The Development Partner is *UNDP Resident Representative*

b) **Project Assurance:** Project assurance is the responsibility of each project board member; however, UNDP has a distinct assurance role for all UNDP projects in carrying out objective and independent project oversight and monitoring functions. UNDP performs quality assurance and supports the Project Board (and Project Management Unit) by carrying out objective and independent project oversight and monitoring functions, including applying and ensuring compliance with UNDP's risk management and social and environmental management systems to ensure the SES are applied through the project cycle. The Project Board cannot delegate any of its quality assurance responsibilities to the Project Coordination Specialist. Project assurance is totally independent of project execution.

A designated representative of UNDP playing the project assurance role is expected to attend all board meetings and support board processes as a non-voting representative. It should be noted that while in certain cases UNDP's project assurance role across the project may encompass activities happening at several levels (e.g. global, regional), at least one UNDP representative playing that function must, as part of their duties, specifically attend board meeting and provide board members with the required documentation required to perform their duties. The UNDP representative playing the main project assurance function is UNDP Programme Analyst.

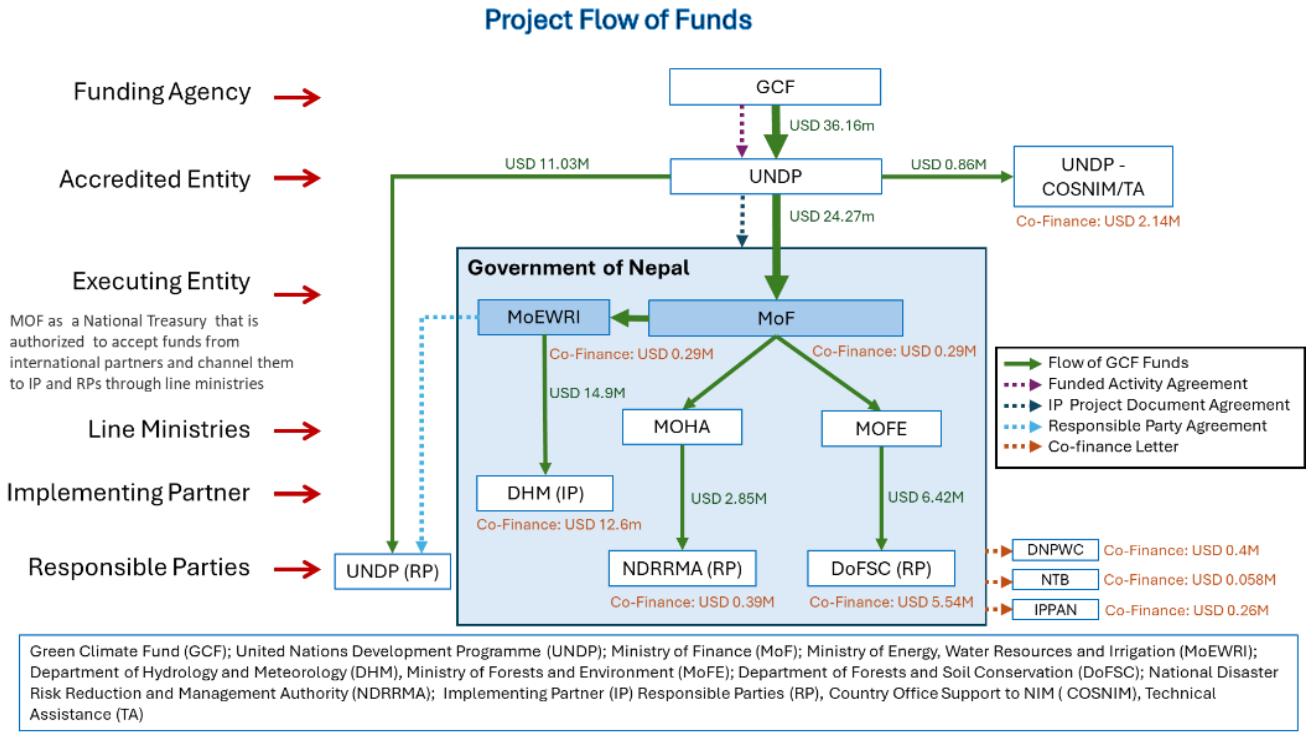
c) **Project Management Execution of the Project:** The Project Coordination Specialist is the senior most representative of the Project Management Unit (PMU) and is responsible for the overall day-to-day management of the project on behalf of the Implementing Partner, including the mobilization of all project inputs, supervision over project staff, responsible parties, consultants and sub-contractors. The Project Coordination Specialist typically presents key deliverables and documents to the board for review and approval, including progress reports, annual work plans, adjustments to tolerance levels and risk registers.

A designated representative of the PMU is expected to attend all board meetings and support board processes as a non-voting representative.

The primary PMU representative attending board meetings is *Project Coordination Specialist (PCS).*

Upon approval of the project by the GCF Board, a Funded Activity Agreement (FAA) will be signed between the GCF and UNDP. Following FAA signing, UNDP and Government of Nepal will sign project document, which is a legal document that outlines fund flow from Accredited Agency to the EE/IP and RPs through the Ministry of Finance and upon meeting the conditions precedents to first disbursement therein, the GCF proceed (grant) will be disbursed to UNDP. UNDP will transfer the GCF funds to the Ministry of Finance (MoF) of Nepal. The MoF will disburse the funds to the Implementing Partner (IP) and it's Responsible Parties (RPs) namely DoFSC and NDRRMA through appropriate government mechanism against approved annual work plan and budget. UNDP will retain necessary funds in line with the approved budget in the funding proposal to provide technical and operational support services to the EE/IP and RPs for implementation of the project.

For the flow of co-finance, formal commitment letters signed by the agenices (Annex 13), create the basis for managing the co-finance. Co-finance will not flow into the project accounts, but will rather be managed directly by the co-financing entities as per the commitments, which will be regularly monitored and reported through APR process. Additionally, UNDP Prodoc, which is officially signed between IP/EE and UNDP, provides a legal basis to realize the co-financing commitments from the partners, which will be separately recorded, monitored and audited.



Project Steering Committee

Project Steering Committee (PSC) will be formed in the chair of the Secretary of MoEWRI, responsible for Water Resources and Irrigation and co-chaired by UNDP Resident Representative. The member secretary of the PSC will be NPD of the project. One of the PSC's member will be Director General of DHM as head of the IP and other members will be finilized in the first PBM meeting.

The main function of the PSC will be to provide strategic guidance and ensure inter-government coordination within and across various government ministries and agencies involved in project implementation. The PSC meetings will be held at least once a year. The Secretary may designate a Joint Secretary level staff of MoEWRI to support PSC meetings. The Department of Hydrology and Metrology (DHM) will work as the Secretariate for the PSC and support the MoEWRI in organization of regular PSC meetings.

UNDP, in consultation with the Chair of the Project Board, will establish a Technical Advisory Group (TAG). The TAG will be chaired by a senior government official who is not directly involved in project management or oversight. The TAG will comprise the project's Chief Technical Specialist (CTS), appointed by UNDP, along with senior technical specialists and experts from MoEWRI/DHM, MoFE/DoFSC, DNPWC, and MoHA/NDRRMA. Other members of TAG will include technical experts working in other government agencies, research institutions, development partner organizations and national and international organizations, with relevant experience in various thematic areas of the project, as decided by UNDP in consultation with the Chair of the PB. The main function of the TAG will be to provide technical advice and inputs to the Implementing Partner (Executing Entity) it's RPs based on international best practice, regards to thematic

assessments and technical studies conducted by the project. Including the Chair, the number of TAG members will be limited to a maximum of eleven. Meetings of the TAG will be organized up to twice a year, though it can meet on ad hoc basis as and when required.

The IP (EE) will host the Project Management Unit (PMU , set up by UNDP. The personnel of the PMU will be hired by UNDP who will work under the overall guidance of the National Project Director, assigned by IP(EE). The PMU is responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.
The PMU will be headed by the Project Coordination Specialist (PCS), who will have day-to-day management and supervisory responsibilities of the project team and will be supported by thematic specialists as well as operational assistants. The PCS is responsible for the delivery of results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The multi-year work plan and annual work plan are prepared and updated by the PCS, with support from other PMU members, and reviewed and approved by the PB. The PCS is also responsible for maintaining and updating the procurement plan, project risk log, and stakeholder engagement plan with technical support from the Monitoring and Evaluation (M&E) Expert, the Environment and Social Safeguard (ESS) Officer, and the Gender Equality and Social Inclusion (GESI) Expert. The PCS also take the overall responsibility of adhering the project activities to the ESMF, IPPF, and GAAP and make periodic reports to the PB. Gender equality will be mainstreamed in each output and activity and oversight for gender mainstreaming will be provided by a project-financed gender specialist.

The “project assurance” function of UNDP is to support the Project Board (PB) by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. Project assurance has to be independent of the PCS; therefore, the PB cannot delegate any of its assurance responsibilities to the PCS. The project assurance role will be assumed by UNDP Resident Representative, who will represent UNDP in the Board, together with UNDP’s Programme Analyst for Climate Change and Resilience, Programme Analyst RBM and Programme Associate on behalf of UNDP.

UNDP provides a three-tier oversight and quality assurance role involving UNDP staff in Country Offices and at regional and headquarters levels. The quality assurance role supports the Project Board by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. Project assurance must be independent of the Project Management function; the Project Board cannot delegate any of its quality assurance responsibilities to the Project Coordination Specialist. The project assurance role is covered by the Accredited Entity fee provided by the GCF. As an Accredited Entity to the GCF, UNDP is required to deliver GCF-specific oversight and quality assurance services including; (i) day-to-day oversight supervision, (ii) oversight of the project completion, (iii) oversight of project reporting.

The justification to engage UNDP support services responds to the capacity constraints identified based on partner capacity assessments and the results of HACT micro-assessment of the MoEWRI/DHM . UNDP may engage other partners to support implementation of the proejct following a due process. Such support services and the cost involved, shall be detailed in a Letter of Agreement (LoA) for UNDP support services. As the support services will be provided by UNDP, usual UNDP regulations, rules and procedures apply.

IX. FINANCIAL PLANNING AND MANAGEMENT

The total cost of the project is USD 49,944,050. This is financed through a GCF grant of USD 36,158,230, USD 2,143,869 in cash co-financing to be administered by UNDP and USD 11,641,951 in other co-financing not administered by UNDP. UNDP is responsible for the oversight of implementation of the Funded Activity, including those activities and outcomes supported by GCF resources and through co-financing.

Co-finance disbursement monitoring: The actual realization (materialization) of project co-financing will be monitored and reported (i) in each Annual Performance Report (APR), (ii) in the Interim Evaluation, (iii) in the Terminal Evaluation, (iv) in the Project Completion Report, (v) as a condition precedent for all requests for disbursement, within the timeframe to ensure timely requests for disbursements and in form and substance satisfactory to the GCF, and (vi) upon the request of GCF. Signed letters from co-financiers will be requested for (i) and (v) to confirm the amounts that have materialized for the respective calendar year or implementation year.

Co-financing will be used for the following project outputs:

Co-financing source	Co-financing type/financial instrument	Name of Co-financier	Investment Mobilized	Co-financing amount	Co-financing Outputs
Government of Nepal	Grant	Department of Meteorology and Hydrology (DHM)	Investment mobilized	4,542,721	3
	In kind		Recurrent expenditures	1,555,234	1, 2, 3
	In-Project O&M		Investment mobilized	1,033,897	2, 3
	In kind	Department of Forest and Soil Conservation (DoFSC)	Recurrent expenditures	2,196,839	3
	In-Project O&M		Investment mobilized	607,448	3
	Grant	National Disaster Risk Reduction and Management Authority (NDRRMA)	Investment mobilized	174,904	2
	In-Project O&M		Investment mobilized	216,833	2
	In kind	Department of National Park and Wildlife Conservation (DNPWC)	Recurrent expenditures	407,952	3
	In kind	Ministry of Forest and Environment (MoFE)	Recurrent expenditures	293,245	PMC
	In kind	Ministry of Energy, Water Resources and Irrigation (MoEWRI)	Recurrent expenditures	293,245	PMC
UN Agency	Grant	UNDP	Investment Mobilised	2,143,869	1, 2, 3, PMC
Private Sector	In kind	Nepal Tourism Board (NTB)	Recurrent expenditures	58,334	2
	In kind	Independent Power Producers' Association, Nepal (IPPAN)	Recurrent expenditures	261,299	2

GCF Disbursement schedule: GCF grant funds will be disbursed by GCF upon submission of the Request for Disbursement (RfD) to GCF according to the indicative disbursement schedule (submitted to GCF as a condition for FAA effectiveness) and upon meeting all conditions precedent to disbursement. The Country Office will submit an annual work plan to the UNDP BPPS/VF Programme Support, Oversight and Compliance Hub and comply with the GCF milestones in order for the next tranche of project funds to be released. All efforts must be made to achieve 80% delivery annually to accomplish the expected outputs/activities in a timely manner, within the planned duration to avoid extension of the project.

The Proceeds will be disbursed in 7 disbursements as indicated in the FAA and will be divided as below:

Disbursements	GCF Proceeds (USD)
Disbursement 1	9,223,127
Disbursement 2	5,098,238
Disbursement 3	5,073,284
Disbursement 4	4,634,919
Disbursement 5	4,319,971
Disbursement 6	3,940,409
Disbursement 7	3,868,282
Total	**36,158,230**

Conditions Precedent for Disbursement: The Government/Implementing Partner is aware of the conditions and covenants of disbursement ascribed to the first and subsequent tranches of the GCF funding, as further set out below. To the extent that these obligations reflect actions of the Government, the Government must ensure that the conditions

are met and there is continuing compliance, as well as understanding that availability of GCF funding is contingent on meeting all conditions listed. The UNDP-BPPS unit will conduct a compliance review the FAA conditions precedent and covenants to disbursement as a part of the internal clearance procedures for submitting request for disbursements to the GCF.

The obligation of the Fund to make any Disbursements under this Agreement shall be subject to the following conditions having been fulfilled to the satisfaction, in form and substance, of the Fund:

(a) Conditions precedent to first Disbursement:
    i. Effectiveness of this Agreement;
    ii. Delivery to the Fund by the Accredited Entity of an executed copy of the Project Document, between the Accredited Entity and the Executing Entity;
    iii. Delivery to the Fund by the Accredited Entity of evidence of the authority of the person or persons authorized to sign each Request for Disbursement (with respect to the GCF Proceeds and the Accredited Entity Fees) under this Agreement, unless otherwise notified by the Accredited Entity, and the authenticated specimen signature of each such person.

(b) General conditions for all Disbursements:
    i. Other than in relation to the first Disbursement, submission to the Fund by the Accredited Entity of evidence that at least seventy per cent (70%) of the funds previously disbursed by the Fund have been spent on Eligible Expenditures;
    ii. (Other than in relation to the first Disbursement, submission to the Fund by the Accredited Entity of APRs and Financial Information in accordance with the AMA and this Agreement;
    iii. Delivery to the Fund by the Accredited Entity of a Request for Disbursement, signed by the person or persons authorized to do so, no later than thirty (30) calendar days prior to the date on which the
    iv. Disbursement is requested to be made, which shall not be later than the Closing Date; and
    v. Delivery to the Fund by the Accredited Entity of evidence indicating the status and the amount of the Co-financing funds disbursed and applied to the implementation of the Funded Activity up to the date of the request for funds made by the Accredited Entity.

If within one hundred and twenty (120) calendar days from the Effective Date, or such longer period established by the Fund in writing, the conditions precedent for the first Disbursement established in Clause 9.01 have not been fulfilled, the Fund may terminate this Agreement by giving notice to the Accredited Entity.

If thirty (30) days prior to the Closing Date, the Accredited Entity has not requested the Disbursement of the full amount of the GCF Proceeds, or the Fund has not otherwise disbursed the full amount of the GCF Proceeds, GCF shall be entitled to cancel the undisbursed portion of the GCF Proceeds.

In addition to clause 18.01 of the AMA, the Accredited Entity represents and warrants that:

(a) On the date of the execution of this Agreement, the Effective Date and the date of each Disbursement made by the GCF under this Agreement, the Accredited Entity has duly executed this Agreement, and that this Agreement is legally binding on, and enforceable against it in accordance with its governing law;
(b) On the date of the execution of this Agreement, the Effective Date and the date of each Disbursement made by the GCF under this Agreement, the Accredited Entity is duly authorized and has the capacity to enter into this Agreement and has duly executed and delivered this Agreement;
(c) On the date of execution of this Agreement, the Effective Date and on the date of each Disbursement made by the Fund under this Agreement, the Accredited Entity has carried out all due diligence as necessary to ensure that the Funded Activity is at all times in compliance with its own gender policy, indigenous peoples policy and any other relevant UNDP policies;
(d) On the date of the execution of this Agreement and the date of each Disbursement made by the Fund under this Agreement, there are no circumstances of which the Accredited Entity is aware, including through its oversight of the Funded Activity as per the obligations of this Agreement, the AMA and UNDP's own policies and practices, that may substantially interfere with the performance of its obligations under this Agreement, the AMA or with the implementation of the Funded Activity, or otherwise jeopardize the achievements of any objectives, outcomes or outputs of the Funded Activity;
(e) On the date of the first Disbursement by the Fund under this Agreement and throughout the term of this Agreement, the Project Document remains in effect;
(f) On the date of each Disbursement by the Fund under this Agreement, no Event of Default has occurred and is continuing under this Agreement;

(g) On the date of execution of this Agreement, the Effective Date and on the date of each Disbursement made by the Fund under this Agreement, the Accredited Entity has carried out all due diligence as necessary to ensure that the Funded Activity is at all times in compliance with the requirements of clause 4.05(b)(ii)(B) of theAMA.

In addition to clause 18.02 of the AMA, the Accredited Entity covenants that as from the Effective Date of this Agreement it shall:

Project Implementation

(a) Apply, in accordance with its own policies and procedures, its own fiduciary principles and standards relating to AML/CFT in the implementation of the Funded Activity;
(b) Ensure that the beneficiaries identified in section B.3 of the Funding Proposal are selected in accordance with the relevant eligibility criteria set out therein;
(c) In case of any material amendment to the eligibility criteria set out in section B.3 of the Funding Proposal, immediately inform the Fund and seek the Fund's approval of such amendment or modification;

Co-financing Provisions

(d) Upon request by the Fund, inform the Fund on the status of the Co-financing funds that have been disbursed and applied to the implementation of the Funded Activity;
(e) Inform the Fund, in the APRs to be submitted in accordance with the AMA, on the status of the Co-financing funds that have been disbursed and applied to the implementation of the Funded Activity;
(f) Ensure that no GCF Proceeds are transferred to the Implementing Partner (Executing Entity) if a default has occurred under the Project Document;
(g) Confirm to the Fund, in the APRs to be submitted to the Fund, that the Implementing Partner (Executing Entity) has allocated in its annual budget the relevant Co-financing resources for the implementation of the Project to the satisfaction of the Accredited Entity;
(h) Take appropriate measures to ensure that the Co-financing and the GCF Proceeds are disbursed and/or applied for the implementation of the Funded Activity in accordance with the Implementation Schedule;
(i) Ensure that the Co-financing provided by the Co-financiers for the execution of the Funded Activity is obtained from and contributed by each Co-financier in a timely manner;

ESS Provisions

(j) Ensure that the infrastructure to be implemented as part of the Funded Activity

(i) are designed, constructed, operated and decommissioned in accordance with good industry practices and any other applicable standards which, in each case, shall be consistent with the practice of other international organizations working in the region, and taking into consideration health and safety risks of third parties or affected communities, and

(ii) the quality of such infrastructure is in accordance with best practices followed by international organizations in the region;

(k) Undertake and/or put in place any adequate measures in order to ensure that the management of the environmental and social risks and impacts arising from the Funded Activity complies at all times with the recommendations, requirements and procedures set forth in the Environmental and Social Management Framework ("ESMF") which was provided by the Accredited Entity to the Fund, together with the Funding Proposal, and which shall not be amended, abrogated or waived without prior written approval of the Fund. This includes putting in place measures, including with respect to the Accredited Entity's grievance redress mechanisms, to prevent and respond to the conducts described in clause 18.02(k) of the AMA, for adherence to the relevant principles and requirements included in the ESMF;
(l) Ensure that the GCF Proceeds will not support or finance, directly or indirectly, any activities with potential environmental and social risks that are equivalent to category A pursuant to the Environmental and Social Risks Categories to be conducted as part of the Project;
(m) Undertake and/or put in place all adequate measures and dedicate the necessary financial, human and other resources in order to ensure that the Funded Activity complies at all times with the recommendations and requirements of the Gender Action Plan ("GAP"), provided by the Accredited Entity to the Fund as part of the Funding Proposal, which shall comply with the Accredited Entity's own gender policy, which is equivalent to the GCF's Updated Gender Policy, and the GAP shall not be amended, abrogated or waived without prior written approval of the Fund;
(n) In relation to each Sub-Project that is Category B (pursuant to the Environmental and Social Risk Categories), disclose the ESIA and ESMP and, as appropriate, any other associated information including those relevant to indigenous peoples required to be disclosed pursuant to the relevant policies of the Accredited Entity in accordance with clause 13.01, clause 25.05 and clause 25.08 of the AMA, the requirements of the Information Disclosure Policy and the Environmental and Social Policy (as adopted at B.32) (each, the "Sub-Project Disclosure Package"). The Accredited Entity shall disclose the Sub-Project Disclosure Package at least thirty (30) calendar days prior to its approval of the relevant Category B Sub- Project, in English and in local language (if not English), on its website and in locations

convenient to the affected peoples, and submit the Sub-Project Disclosure Package to the Fund for subsequent distribution to the GCF Board and the Fund's active observers and for publishing in the GCF website;

(o) Obtain or ensure that the relevant agency(ies) and/or person(s) shall acquire, all land and rights in respect of land that are required to carry out the Funded Activity and shall promptly furnish to the GCF, upon its request, evidence that such land and rights in respect of the land are available for the purposes of the Funded Activity;

(p) Ensure that the Implementing Partner (Executing Entity) shall acquire all necessary environmental licenses or clearances, and shall promptly furnish evidence, in a form and substance satisfactory to the Fund and upon its request, that such licenses or clearances, are available for the purposes of the Project;

(q) Prior to commencing any activities that have potential application of the Accredited Entity's Social and Environmental Standards (2021 version) including Standard 6 titled "Indigenous Peoples", and its Guidance Note on Standard 6 titled "Indigenous Peoples" (February 2021 version), furnish to the GCF, the Indigenous Peoples Plan or its equivalent and evidence that free, prior and informed consent from the indigenous peoples and communities has been obtained for the purposes of the relevant activities;

(r) Take appropriate measures to ensure that safety protocols are maintained at all times during Project implementation in accordance with the Accredited Entity's policies and procedures;

(s) Undertake all adequate measures to ensure that none of the persons or activities included in the Exclusion List is funded or otherwise receives, directly or indirectly, any GCF Proceeds under the Funded Activity;

Monitoring; Reporting; Evaluation

(t) In case any amendment or modification is entered into or otherwise agreed by the Accredited Entity with respect to the Project Document, inform of such event and furnish to the Fund the executed copies of such amendment or modification within ten (10) calendar days from its execution. For the avoidance of doubt, the Accredited Entity shall ensure that such amendment or modification does not contravene the terms and conditions provided for in this Agreement and the AMA; and

(u) In case of a change of the authorized representative to sign the request for disbursement, provide, together with the disbursement, evidence satisfactory to the Secretariat, of the authority of such person to sign the request for disbursement and the relevant authenticated specimen signature of such person;

Pursuant to clause 23.04 of the AMA, the Accredited Entity shall inform the Fund in the final APR and consult with the Fund on the steps to be taken in relation to the durable assets and/or equipment purchased with the GCF Proceeds to implement the Funded Activity, provided that nothing herein shall in any way be construed to limit the rights of UNDP to take such steps as it reasonably deems in the best interest of the continued operation of the Funded Activity taking into consideration the objectives of the GCF and the terms of the applicable SBAA, and in accordance with its policies and procedures.

Budget Revision and Tolerance:

Any reallocation of the GCF grant among the outputs that result in a variation of more than [10%] of the GCF agreed budget for that output must be approved by the GCF in advance.

Any increase in the amount allocated to project management costs must be communicated by the Accredited Entity to the Fund and approved in writing by the Fund in advance.

Any budget reallocation involving a major change in the project's scope, structure, design, or objectives or any other change that substantially alters the purpose or benefit of the project requires UNDP BPPS internal review/clearance and the GCF's prior written consent. All minor and major changes shall be duly documented in a Note to File and submitted to BPPS for prior to their implementation.

As per UNDP requirements outlined in the UNDP POPP, the project board will agree on a budget tolerance level for each plan under the overall annual work plan allowing the Project Coordination Specialist to expend up to the tolerance level beyond the approved project budget amount for the year without requiring a revision from the Project Board (within the GCF requirements noted above). Should such deviation occur, the Project Coordination Specialist and UNDP Country office will seek the approval of the UNDP-BPPS team.

UNDP is not in a position to increase the total budget above the amount approved by the donor, therefore any over-expenditure would have to be absorbed from non-GCF resources by the Implementing Partner (GCF Executing Entity).

Project Specific Conditions: The Implementing Partner hereby expressly agrees, and shall ensure that each of its responsible parties, their respective sub-recipients and other entities involved in Project Implementation, either as contractors or subcontractors and any individuals performing services for them under the Project Document agrees, to comply with the Project Specific Conditions, Representation, Warranties and Covenants, in each case as set out in Annex A of this Project Document. Non-compliance with these Project Specific Conditions, Representations, Warranties and

Covenants shall be deemed to constitute a breach by the Implementing Partner of its obligations under this Project Document.

Project extensions**:** Any project milestones with deadlines indicated in the signed FAA (including GCF closing date and completion date) **cannot be extended unless through a formal extension request submitted and approved by the GCF** as per the GCF policy on cancellation and restructuring. The UNDP-BPPS Executive Coordinator must approve all requests for extension of the Project Completion & Closing Date and other milestone extensions with hard deadlines, before they are submitted to the GCF. All extensions impose additional time and cost burdens at all levels and the GCF project budget cannot be increased beyond its originally approved amount. Extensions are unfunded by the GCF and UNDP. A single extension may be granted **on an exceptional basis** and subject to the conditions and maximum durations set out in the UNDP POPP. The project management costs during the extension period must remain within the originally approved amount, and any increase in PMC costs shall be covered by non-GCF resources; the additional UNDP oversight costs during the extension period must be covered by non-GCF resources, in accordance UNDP's policy as set out in UNDP POPP.

For any extension request, UNDP CO and IP will consult and jointly present a clear plan indicating how and from which specific sources the additional oversight costs that will be incurred by UNDP will be covered during the extended period. The BPPS Executive Coordinator shall consult the Regional Bureaux (RBX) and may reject the extension request if no external (non-GCF) financing by the IP or internal UNDP CO resources for the additional oversight cost of UNDP can be identified.

All extension requests, along with all supporting documentation, shall be submitted by the IP to the UNDP CO in line with the requirements and within the deadlines set out in the UNDP SOPs and policies in UNDP POPP.

Audit: The project will be audited as per UNDP Financial Regulations and Rules and applicable audit policies. Audit cycle and process must be discussed during the Inception workshop. If the Implementing Partner is an UN Agency, the project will be audited according to that Agencies applicable audit policies. The costs for audit must be included under PMC.

Transfer or disposal of assets: In consultation with the NIM Implementing Partner and other parties of the project, UNDP is responsible for deciding on the transfer or other disposal of assets. Transfer or disposal of assets is recommended to be reviewed and endorsed by the project board following UNDP rules and regulations. Assets may be transferred to the government for project activities managed by a national institution at any time during the life of a project, however it **must be done before the operational closure date**. In all cases of transfer, a transfer document must be prepared and kept on file[57]. The transfer should be done before Project management Unit complete their assignments.

In addition, the following GCF requirements must be followed: As stated in the Funding Activity Agreement (refer to the Annex for the relevant FAA clauses), the Accredited Entity shall inform the GCF, in the final Annual Progress Report (APR), which steps it intends to take in relation to the durable assets and/or equipment purchased with the GCF Proceeds to implement the Funded Activity.

Closing Date (GCF term): The closing date is defined in the signed FAA to be the date which is 7 years after the Effective Date (or such later date as the Fund shall establish by notice to the Accredited Entity), on which the Accredited Entity's right to receive GCF Proceeds to the GCF Account in respect of the Funded Activity will have terminated. The project closure date is identified in the signed FAA.

Project completion (GCF term): The project completion date is the date of FAA effectiveness plus project duration. This date can only be extended through a formal extension request to the GCF Secretariat. Prior to the completion date, all UNDP-financed inputs must be provided and related activities for the Project completed. No activities, except for the final clearance of the Terminal Evaluation Report and the corresponding management response and the end-of-project review Project Board Meeting should take place after the Completion Date.

Project completion will be conducted as per UNDP requirements outlined in the UNDP POPP and in accordance with the GCF-approved and agreed Project Calendar/Milestones in the FAA, as follows:

[57] See https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PPM_Project%20Management_Closing.docx&action=default.

Milestones	Timing
Start of Project implementation	Effective Date
Inception Report	Within six (6) months after the Effective Date
Baseline Assessment	Within twelve (12) months after the Effective Date
Independent Interim Evaluation Report	Within three (3) years and nine (9) months after the Effective Date
End of Project Implementation	Completion Date
Project Completion Report (Final APR)	Within three (3) months after Project Completion Date
Independent Final Evaluation Report	Within six (6) months after Project Completion Date

Project closure (UNDP term): Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP. All costs incurred to close the project must be included in the project closure budget and reported as final project commitments presented to the Project Board during the final project review. The only costs a project may incur following the final project review are those included in the project closure budget.

- **Operational closure**: **Operational closure must happen 9 months after the Completion Date as per the deadlines set in the FAA**. Prior to operational closure, the Final Evaluation Report must have been submitted and the corresponding FER management response and the end-of-project review Project Board meeting must have been completed. The Implementing Partner through a Project Board decision will notify the UNDP Country Office when operational closure has been completed. Before Operational Closure, the project must have completed the transfer or disposal of any equipment that is still the property of UNDP (refer to **Transfer or disposal of assets** paragraph).
- **Financial closure**: **Financial closure must happen within 6 months of operational closure or after the date of cancellation.** The project is financially closed when the following conditions are met: a) project is operationally completed or has been canceled; b) Implementing Partner has reported all financial transactions to UNDP; c) UNDP has closed the accounts for the project; d) UNDP and the Implementing Partner have certified a final Combined Delivery Report (which serves as final budget revision).
  Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Country Office will send the final signed closure documents including confirmation of final cumulative expenditure and unspent balance to the UNDP-BPPS/VF Programme Support, Oversight and Compliance Hub for confirmation before the project will be financially closed in Quantum by the UNDP Country Office.

Cancellation and Suspension: All projects considering going through cancellation or suspension must follow UNDP and GCF requirements. Guidance can be found in the UNDP POPP (SOPs for management actions of Vertical Fund projects escalated to the Executive Coordinator and the GCF policy on restructuring and cancellation).

Refund to GCF: Should a refund of unspent funds to the GCF be necessary, this will be managed directly by the UNDP-BPPS VF Directorate in New York. No action is required by the UNDP Country Office on the actual refund from UNDP project to the GCF. Unspent project balance is not permitted to be transferred to any other projects.

X. TOTAL BUDGET AND WORK PLAN

PIMS ID	6045	Quantum Business Unit	UNDP-NPL
Quantum Project ID	01006042	Quantum Project Title	PIMS 6045- Protecting **livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal.**
Quantum Award ID	1547032	Quantum Award Title	PIMS 6045- Protecting **livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal.**
Implementing Partner		Government of Nepal, represented by the Department of Hydrology and Meteorology (DHM) under the Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal	

OID	GCF Output / Atlas Activity	AID	Financing Source	Atlas Budget Account Code	Atlas Budget Account Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Amount Year 6 (USD)	Amount Year 7 (USD)	TOTAL (USD)	Budget notes
1	**Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development.**	1.1	**GCF**	61100	Salary costs - NP staff	1,618	1,699	1,784	1,873	1,967	2,065	2,169	13,175	1
				71200	International Consultants	100,000	80,000	90,000	60,000	20,000	50,000	-	400,000	2
				71300	Local Consultants	27,000	12,000	12,000	2,000	2,000	2,000	2,000	59,000	3
				72100	Contractual Services-Companies	100,000	50,000	50,000	50,000	-	-	-	250,000	4
				72800	Information Technology Equipment	92,180	100,000	50,000	-	-	-	-	242,180	5
				75700	Training, Workshops and Confer	15,000	11,250	11,250	11,250	11,250	11,250	11,250	82,500	6
					1.1 Total	335,798	254,949	215,034	125,123	35,217	65,315	15,419	1,046,855	
		1.2	**GCF**	61100	Salary costs - NP staff	1,618	1,699	1,784	1,873	1,967	2,065	2,169	13,175	7
				71200	International Consultants	-	15,000	-	-	-	-	-	15,000	8
				71300	Local Consultants	8,000	15,000	8,000	8,000	8,000	8,000	8,000	63,000	9
				71400	Contractual Services - Individ	79,789	95,988	102,845	110,225	118,172	110,906	118,548	736,473	10
				71600	Travel	26,000	81,740	78,000	82,000	82,000	71,000	52,000	472,740	11

				72100	Contractual Services-Companies	96,000	196,000	123,000	75,000	40,000	10,000	-	540,000	12
				72500	Supplies	2,500	2,500	2,500	2,500	2,500	2,500	2,500	17,500	13
				74200	Audio Visual & Print Prod Costs	2,000	5,000	10,000	15,000	15,000	15,000	8,000	70,000	14
				75700	Training, Workshops and Confer	26,000	41,000	33,500	37,250	31,500	31,500	31,500	232,250	15
			UNDP	71400	Contractual Services - Individ	28,513	31,366	34,502	37,953	41,748	45,923	50,515	270,520	16
					1.2 Total	270,420	485,293	394,131	369,801	340,887	296,894	273,232	2,430,658	
					GCF Total Output 1:	577,705	708,876	574,663	456,971	334,356	316,287	238,135	3,206,993	
					Government Co-financing Output 1:	109,424	108,331	113,733	119,419	125,406	131,709	138,344	846,365	Co-F 1
					UNDP Co-financing Output 1:	28,513	31,366	34,502	37,953	41,748	45,923	50,515	270,520	Co-F 2
					Output 1 Total:	**715,642**	**848,573**	**722,898**	**614,344**	**501,510**	**493,918**	**426,994**	**4,323,878**	
2	**Improved hazard monitoring and the generation and dissemination of early warnings to local communities and important economic sectors.**	2.1	**GCF**	61100	Salary costs - NP staff	3,956	4,153	4,361	4,579	4,808	5,048	5,301	32,206	17
				71400	Contractual Services - Individ	56,850	62,535	68,789	75,667	55,489	61,038	67,142	447,510	18
				72100	Contractual Services-Companies	362,965	573,909	426,174	239,577	106,677	42,352	43,845	1 795,499	20
				72200	Equipment and Furniture	1,515,201	-	-	8,297	8,297	8,297	8,297	1 548,388	21
					2.1 Total	1,938,971	640,597	499,324	328,120	175,270	116,735	124,584	3,823,603	
		2.2	**GCF**	61100	Salary costs - NP staff	3,956	4,153	4,361	4,579	4,808	5,048	5,301	32,206	22
				71200	International Consultants	12,750	-	-	-	-	-	-	12,750	23
				71300	Local Consultants	33,857	42,857	12,857	87,857	12,857	12,857	87,857	291,000	24
				71400	Contractual Services - Individ	101,408	119,770	129,004	139,001	149,826	145,725	156,848	941,582	25
				71600	Travel	15,845	29,272	99,599	19,959	20,355	90,791	21,270	297,090	26
				71800	Contractual Services-Imp Partn	13,854	14,231	14,653	15,126	15,655	16,247	16,911	106,678	27
				72100	Contractual Services-Companies	338,700	59,000	51,000	22,000	36,000	7,000	9,000	522,700	28
				72500	Supplies	2,500	2,500	2,500	2,500	2,500	2,500	2,500	17,500	29

				75700	Training, Workshops and Confer	417,000	408,033	436,783	282,833	328,033	298,033	316,783	2,487,500	30
			UNDP	71400	Contractual Services - Individ	28,513	31,366	34,502	37,953	41,748	45,923	50,515	270,520	31
		2.2 Total				968,383	711,183	785,260	611,808	611,783	624,124	666,985	4,979,526	
GCF Total Output 2:						2,878,842	1,320,415	1,250,082	901,975	745,305	694,937	741,054	8,532,609	
Government Co-financing Output 2:						44,457	56,684	220,042	261,931	219,019	226,900	235,198	1,264,229	Co-F 3
UNDP Co-financing Output 2:						28,513	31,366	34,502	37,953	41,748	45,923	50,515	270,520	Co-F 4
Private sector Co-financing Output 2:						117,090	33,757	33,757	33,757	33,757	33,757	33,758	319,633	Co-F 5
Output 2 Total:						**3,068,901**	**1,442,221**	**1,538,383**	**1,235,616**	**1,039,829**	**1,001,516**	**1,060,525**	**10,386,991**	
3	**GLOF and flash flood risk and impact reduction measures implemented in priority glacial lake watersheds.**	3.1	**GCF**	61100	Salary costs - NP staff	9,225	9,686	10,170	10,679	11,212	11,773	12,362	75,106	32
				71300	Local Consultants	25,560	-	-	-	-	-	-	25,560	33
				72100	Contractual Services-Companies	3,120,117	1,369,116	1,369,116	1,369,116	1,369,116	1,369,116	1 351,296	11,316,993	34
				72200	Equipment and Furniture	273,856	-	-	-	-	-	-	273,856	35
				75700	Training, Workshops and Confer	15,000	45,000	45,000	45,000	45,000	45,000	45,000	285,000	36
		3.1 Total				3,443,757	1,423,802	1,424,286	1,424,795	1,425,328	1,425,889	1,408,658	11,976,515	
		3.2	**GCF**	61100	Salary costs - NP staff	9,225	9,686	10,170	10,679	11,212	11,773	12,362	75,106	37
				72100	Contractual Services-Companies	191,542	139,377	139,377	139,377	139,377	139,377	139,377	1,027,807	38
		3.2 Total				200,766	149,063	149,547	150,056	150,590	151,151	151,739	1,102,913	
		3.3	**GCF**	61100	Salary costs - NP staff	9,225	9,686	10,170	10,679	11,212	11,773	12,362	75,106	39
				71200	International Consultants	15,000	11,250	-	-	-	-	-	26,250	40
				71300	Local Consultants	25,000	28,500	10,500	10,500	10,500	7,000	7,000	99,000	41
				71400	Contractual Services - Individ	144,080	154,446	165,639	177,729	190,600	204,513	219,477	1,256,485	42
				71600	Travel	9,740	12,805	6,000	10,000	6,000	6,000	13,000	63,545	43
				72100	Contractual Services-Companies	1,370,444	867,675	1,193,512	1,172,512	1,156,082	834,775	796,775	7,391,772	44
				72500	Supplies	2,500	2,500	2,500	2,500	2,500	2,500	2,500	17,500	45

				72800	Information Technology Equipmt	-	88,000	-	-	-	-	-	88,000	46
				75700	Training, Workshops and Confer	25,000	134,597	108,620	129,597	83,620	69,477	49,124	600,032	48
			UNDP	71400	Contractual Services - Individ	28,513	31,366	34,502	37,953	41,748	45,923	50,515	270,520	49
				71600	Travel	5,000	10,000	10,000	20,000	12,000	12,000	25,000	94,001	50
				72100	Contractual Services-Companies	50,000	-	-	-	-	-	-	50,000	51
			3.3 Total			1,684,502	1,350,824	1,541,442	1,571,469	1,514,262	1,193,961	1,175,752	10,032,211	
GCF Total Output 3:						5,245,511	2,882,323	3,070,774	3,088,366	3,036,432	2,713,077	2,660,634	22,697,117	
Government Co-financing Output 3:						1,946,416	1,846,678	2,093,957	640,020	668,614	698,820	730,729	8,625,234	Co-F 6
UNDP Co-financing Output 3:						83,514	41,366	44,502	57,953	53,748	57,923	75,515	414,521	Co-F 7
Output 3 Total:						**7,275,441**	**4,770,367**	**5,209,232**	**3,786,339**	**3,758,794**	**3,469,821**	**3,466,878**	**31,736,871**	
4	**Project Management**	4.1	**GCF**	72200	Equipment and Furniture	280,000	-	-	-	-	-	-	280,000	52
				71400	Contractual Services - Individ	58,841	64,725	71,197	78,317	86,148	94,763	104,239	558,230	53
				72500	Supplies	19,669	20,739	24,418	23,475	25,146	27,643	26,274	167,366	54
				72800	Information Technology Equipmt	87,223	22,500	-	-	2,921	-	-	112,644	55
				73400	Rental & Maint of Other Equip	8,857	8,857	8,857	8,857	8,857	8,857	8,857	62,000	56
				74596	Services to projects - GOE	66,479	69,803	73,293	76,958	80,806	84,846	89,088	541,272	57
			UNDP	72200	Equipment and Furniture	94,600	5,000	5,000	5,000	5,000	5,000	5,000	124,600	58
				71300	Local Consultants	18,000	19,500	21,000	22,500	24,000	25,500	27,000	157,500	59
				71400	Contractual Services - Individ	21,620	23,782	26,160	28,776	31,653	34,819	38,301	205,109	60
				71600	Travel	10,000	20,000	20,000	20,000	20,000	20,000	20,000	130,000	61
				72500	Supplies	5,000	15,000	15,000	10,000	10,000	10,000	10,000	75,000	62
				72800	Information Technology Equipmt	71,000	-	5,000	-	25,000	-	-	101,000	63
				73100	Rental and Premises	40,000	5,000	5,000	5,000	5,000	5,000	5,000	70,000	64

				73400	Rental & Maint of Other Equip	86,100	6,000	6,000	6,000	6,000	6,000	8,000	124,100	65
				74100	Professional Services	5,000	5,000	5,000	5,000	5,000	5,000	5,000	35,000	66
				74200	Audio Visual & Print Prod Costs	2,000	8,000	5,000	5,000	5,000	5,000	10,000	40,000	67
				75700	Training, Workshops and Confer	14,000	19,000	19,000	23,000	19,000	14,000	18,000	126,000	68
		4.1 Total				888,389	312,906	309,925	317,883	359,531	346,428	374,759	2,909,820	
GCF Total Output 4:						521,069	186,624	177,765	187,607	203,878	216,109	228,458	1,721,511	
Government Co-financing Output 4:						70,085	74,220	78,599	83,236	88,147	93,348	98,855	586,490	Co-F 8
UNDP Co-financing Output 4:						367,320	126,282	132,160	130,276	155,653	130,319	146,301	1,188,309	Co-F 9
Output 4 Total:						**958,474**	**387,125**	**388,524**	**401,119**	**447,679**	**439,776**	**473,614**	**3,496,310**	
GCF Grant Total:						9,223,127	5,098,238	5,073,284	4,634,919	4,319,971	3,940,409	3,868,282	36,158,230	
Government Co-financing Total:						2,170,381	2,085,911	2,506,329	1,104,607	1,101,186	1,150,777	1,203,126	11,322,318	
UNDP Co-financing Total:						507,859	230,380	245,666	264,135	292,897	280,088	322,846	2,143,870	
Private sector Co-financing Total:						117,090	33,757	33,757	33,757	33,757	33,757	33,758	319,633	
Project Grand Total:						**12,018, 457**	**7,448,286**	**7,859,036**	**6,037,418**	**5,747,811**	**5,405,031**	**5,428,011**	**49,944,050**	

Budget notes.

Budget noteS	Description of Cost
1	Services provided by existing UNDP staff in the form of technical inputs for the implementation of the project as outlined in the LoA to be signed with the Govt. of Nepal. Costs spread across Outputs 1 (8%) and Output 2 (21%) and Output 3 (71%). Personnel expected to provide technical support over the 7 year project duration include: ARR/Policy Advisor (10% of time for a total of $1480.35), Programme Analyst-CC and Resilience (35% of time for a total of $5181.33), RBM Analyst (10% of time for a total of $1480.35), GESI Analyst (15% of time for a total of $2220.53), Communication Analyst (12% of time for a total of $1776.42) and Youth Officer (7% of time for a total of $1036.25).
2	International consultant to support Department of Hydrology and Meteorology with the development of methods and SOPs for inventory and development of a spatial digital database of glaciers and glacial lake thereby strengthening knowledge base and technical capacities for improved climate research and risk reduction strategies as a GLOF expert.
	International consultant to support conduct training to introduce methods and tools for GLOF hazard prioritisation thereby strengthening knowledge base and technical capacities for improved climate research and risk reduction strategies as multi-hazard expert.
	International Consultant to support DHM for introduction of Methodology and SOPs for inventory and development of a spatial digital database of glaciers and glacial lake as a GLOF expert
3	Local consultant to provide support with the development of methods and SOPs as a glaciologist for Output 1-Act 1
	Local Consultant to support the international consultant to conduct training to introduce methods and tools for GLOF hazard prioritisation for Output 1-Act 1
	Local Consultant to support the introduction of methodology and SOPs for Output 1-Act 1
	Local Consultant to support the implementation as a GIS expert for Output 1-Act 1
4	Professional Services to support the development and delivery of technical training on regular/operational monitoring for risk prioritisation
	Professional services to conduct geophysical, topographic and bathymetric surveys
	Contractual services for the modelling and mapping of GLOF hazard prioritisation and mapping other extreme events
5	Satellite Imagery Software to support the development and delivery of technical training on regular/operational monitoring for risk prioritisation
	Equipment for geophysical, glacio-hydrological surveying
6	Annual training workshop (7 total) to initially introduce and thereafter update methods and tools for GLOF hazard prioritisation
	Conference to introduce methodology and SOPs for implementing integrated GLOF risk reduction in vulnerable watersheds
	Bi-annual 5-day training workshop for 9 technical staff from DHM on regular/operational monitoring for risk prioritisation and the use of risk information
7	Services provided by existing UNDP staff in the form of technical inputs for the implementation of the project as outlined in the LoA to be signed with the Govt. of Nepal. Costs spread across Outputs 1 (8%) and Output 2 (21%) and Output 3 (71%). Personnel expected to provide technical support over the 7 year project duration include: ARR/Policy Advisor (10% of time for a total of $1480.35), Programme Analyst-CC and Resilience (35% of time for a total of $5181.33), RBM Analyst (10% of time for a total of $1480.35), GESI Analyst (15% of time for a total of $2220.53), Communication Analyst (12% of time for a total of $1776.42) and Youth Officer (7% of time for a total of $1036.25).

8	International Consultant to develop climate-induced hazard event recording and management database systems for sustainable GLOF and flood risk information services.
9	Local consultant to support the International Consultant develop climate-induced hazard event recording and management database systems for Output 1-Act 2
	Local Consultant to support the implementation as a GIS expert for Output 1-Act 2.
10	Chief Technical Specialist Intl. IPSA 11-IB4 (30 % in output 1) for providing technical project level inputs for planning, implementation, monitoring & evaluation and reporting.
	GESI Expert (NPSA 9 33.33% in Output 1) for providing technical project level inputs to implement GESI Action Plan and enhance reporting gender mainstreaming in the substantive areas under the project's activities and budgeting.
	Communication and Reporting Officer (NPSA 8 - 33.33% in Output 1) for providing technical inputs, ensure related policy compliance, produce visibility materials (both for GCF and UNDP) and prepare communication and reporting plans its implementation over the project period.
	Civil Engineer- (NPSA 8 - 50% in Output 1 for 4 years) for providing technical inputs, ensure quality assurance and compliance of civil structures in close coordination with IP/DHM for 4 years.
11	Return flights for IC developing database systems
	DSA for the international consultant during field missions related to activity for developing climate-induced hazard event recording and management database systems.
	Travel (Local and International including 3 Field visits by Intl. Experts per year; Travel cost for helicopter monitoring & reporting)
	Travel cost for Exposure visits at suitable locations for 125 women (with 60% from marginalized, and vulnerable group, IPs) for learning and sharing on Climate Risk Management (Annex: GESI Action Plan)
12	Professional services to conduct an audit of the DHM technical team's IT infrastructure and provide recommendations for upgrades for hosting climate-induced hazard event recording and management database systems. DHM technical team to upgrade the IT infrastructure based on the recommendations provided by the professional services.
	Local consultancy to develop Practical GESI Working Strategy Guideline for the project (Arun & Dudhkoshi watersheds for 12 Selected Municipalities and establish a regular and systematic coaching/monitoring system on GESI within project through recruitment of senior level GESI advisor for the project; provision for incentives, recognition for male leadership to promote women's leadership/ roles for Output 1-Act 2.
	Local consultancy to review from GESI perspectives, at least 5 key climate risk reduction related methods, tools, guidelines, documents etc for Output 1-Act 2.
	Local consultancy to integrate GESI in climate change induced disasters/ hazards related training manuals; organise participatory training and coaching on integrating GESI in CC, DRR and GLOF risk management for Output 1-Act 2.
	Local consultancy to review institutional arrangements and capacity for GLOF from GESI perspectives for Output 1-Act 2.
	Local Consultancy with DRR, Climate Change and Private Sector expertise to support the implementation of Output 1 Sub-Activities 1.2.2 (Develop climate risk information products and tailor them for use by productive sectors (tourism and hydropower) and 1.2.3 (Establish public-private sector partnerships to generate long-term buy-in and incentives for investment in GLOF risk reduction).
	Procurement of contractual service to Integrate GESI in Output 1-Act 2. Specific deliverables will be mentioned in the Terms of Reference for: a) Sector-specific climate risk management plans; and b) Development of long-term integrated watershed management strategy for managing CC induced disaster risks for project watersheds.
13	Training supplies; resources for sustainable GLOF and flood risk information services.
14	Printing and Publications related to activities to develop policy and financial mechanisms for sustainable GLOF and flood risk information services.
15	Engagement workshop with representatives from tourism and hydropower sectors to establish public-private partnerships
	Annual engagement workshop, led by DHM, to update climate risk information in collaboration with tourism and hydropower stakeholders starting in Year 2.
	Training/Workshop/Meetings for all activities under Output 1 Training compliance, admin finance, ESS, ME, GESI related to govt PIU unit.
	Meeting to establish public-private sector partnerships between target private sector stakeholders and government agencies

	Workshop to validate and review public-private sector partnership agreements and sign MoUs
	Annual engagement workshop to review and expand upon public-private partnership agreements
16	Project Coordination Specialist (NPSA 10 33.33% in Output 1) for overall project coordination within the project and to Government (both IPs and RPs) including donors and partners. This position will also ensure in establishing a strong team for proper and timely implementation of the project's activities.
	M & E Expert (NPSA 8 33.33% in Output 1) for overall monitoring, evaluation and providing critical feedback for ensuring the project's implementation and results are met on time thereby following M&E plan (Annex 11) of the project.
	ESS Expert (NPSA 9 33.33% in Output 1) for providing technical inputs over the project period to ensure the environment and social safeguard plan is well implemented with following the UNDP/ GCF standard and guidelines
Co-F 1	Staff time for PMU and field office Recurrent costs (Electricity, Water, Miscellaneous, telephone, internet, stationary) Printing and publication
Co-F 2	Detailed breakdown in FAA Budget worksheet - Stated above in Budget note 16. Project Coordination Specialist (NPSA 10 33.33% in Output 1 for a total of $ 97,753) M & E Expert (NPSA 9 33.33% in Output 1 for a total of $ 67,754) ESS Expert (NPSA 9 33.33% in Output 1 for a total of $ 67,754)
17	Services provided by existing UNDP staff in the form of technical inputs for the implementation of the project as outlined in the LoA signed with the Govt. of Nepal. Costs spread across Outputs 1 (8%) and Output 2 (21%) and Output 3 (71%). Personnel expected to provide technical support over the 7 year project duration include: ARR/Policy Advisor (10% of time for a total of $3618.65), Programme Analyst-CC and Resilience (35% of time for a total of $12666.4), RBM Analyst (10% of time for a total of $3618.65), GESI Analyst (15% of time for a total of $5427.98), Communication Analyst (12% of time for a total of $4341.82) and Youth Officer (7% of time for a total of $2532.73).
18	Hydrologist (NPSA 7) for providing relevant technical inputs particularly on installation of Hydrological stations to link with Early Warning System in the project watershed over the project period.
	Meteorologist (NPSA 7) for providing relevant technical inputs particularly on installation of Meteorological stations to link with Early Warning System over the project period.
	ICT Officer-NPSA 7 (4 years) for providing relevant technical inputs covering Early Warning System (BIPAD and DHM Portal) and in the project watershed for 4 years.
20	Contractual services (Climate Risk Reduction & EWS) for the implementation, compliance & quality assurance of Sub-activities 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5 and 2.1.6
	Professional services to conduct the site assessments and detail design for the installation of Sub-activities 2.1.1, 2.1.2, 2.1.3, 2.1.5, and 2.1.6 in the Marsyangdi Basin, and Dudhkoshi and Arun Sub-basins.
	Professional services for the assembly, testing, installation and commissioning for all stations under Activity 2.1.
	Professional services the civil work required for setting up all new stations under Activity 2.1. These works include ground clearance, fencing, structure and transportation, etc. at all sites.
	Contractual services for supply, delivery, installation and testing of hydromet equipment for Activities 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6. DHM will procure the consulting firm following the government procurement process.
	Consultancy Firm for Water Quality Monitoring- including travel costs
	Professional services to conduct a review of the existing hydrological network in Nepal and identify specific stations that need to be integrated into a real-time data acquisition system.

	Professional services to support DHM to integrate the existing hydrology stations into a real-time data acquisition system.
21	Annual GSM data charges for the new stations installed under Activity 2.1. Allocation is under DHM and the cost is related to License fee.
	Annual satellite data charges for the new stations installed under Activity 2.1. Allocation is under DHM and the cost is related to License fee.
	Equipment for the installation of 6 base stations at Pangboche, Jayaram Ghat - Middle Hill, Tumlingtar (Turkighat), Chatara, Dharapani and Muglin (2 in the Marsyangdi Basin, 2 in the Dudhkoshi Sub-basin and 2 in the Arun Sub-basin).
	Equipment for the installation of 10 satellite communication terminal required for all stations under Activities 2.1.
	Computing equipment required for the connection of the base and other stations. This includes a computer and peripherals at central office and two basin offices, as well as display systems at Emergency Operation Centre.
	Equipment for the installation of 24 automatic weather stations (AWS) at key locations in GLOF watersheds (7 AWS in the Marsyangdi Basin, 5 in the Dudhkoshi Sub-basin and 12 in the Arun Sub-basin).
	Equipment: 4 tipping bucket rain gauges.
	Equipment: 4 storage rain gauges.
	Equipment: 27 radar-based water level sensors (RLS) at key locations in GLOF watersheds (11 in the Marsyangdi Basin, 8 in the Dudhkosi Sub-basin and 8 in the Arun Sub-basin).
	1 Siren Central Station
	9 accompanying siren towers
22	Services provided by existing UNDP staff in the form of technical inputs for the implementation of the project as outlined in the LoA signed with the Govt. of Nepal. Costs spread across Outputs 1 (8%) and Output 2 (21%) and Output 3 (71%). Personnel expected to provide technical support over the 7 year project duration include: ARR/Policy Advisor (10% of time for a total of $3618.65), Programme Analyst-CC and Resilience (35% of time for a total of $12666.4), RBM Analyst (10% of time for a total of $3618.65), GESI Analyst (15% of time for a total of $5427.98), Communication Analyst (12% of time for a total of $4341.82) and Youth Officer (7% of time for a total of $2532.73).
23	International consultant to support the design and delivery of the trainings, as well as the preparation of the relevant training material to improve early warning systems to strengthen adaptive capacity and response to GLOFs and other climate hazards.
24	Local consultant to conduct outcomes mapping to measure changes a) leadership practices of women and discriminated groups b) application of GESI knowledge and skills by SMs, c) application of GESI skills and knowledge by municipality and its partners institutions, and capture intended and unintended GESI outcomes (mid- term and final)
	Expert to support NDRRMA facilitated trainings and workshops Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika to enhance the capacity of local emergency operations centers of the respective municipalities thereby linking with Emergency Operations Centers (EOCs) both horizontally and vertically.
	Local consultant to support Municipal Governments to develop Local Disaster Resilience Framework for climate informed development.
	Local consultant to develop the community response plans with DHM and NDRRMA and integrate them into the existing EWS and disaster response protocols.
	Local consultant to develop Local Disaster Resilience Framework for municipalities in the Arun and Dudhkosi Sub-Basin and Marsyangdi Basin
25	DRR/M-EWSS Expert (NPSA 8) for providing necessary technical inputs and supporting DHM and NDRRMA for effective implementation of the project activities particularly on DRR and EWS on time ensuring quality during the project implementation period.
	Chief Technical Specialist Intl. IPSA 11- IB4 (30 % in output 2) for providing technical project level inputs for planning, implementation, monitoring & evaluation and reporting.

	GESI Expert (NPSA 9 33.33% in Output 2) for providing technical project level inputs to implement GESI Action Plan and enhance reporting gender mainstreaming in the substantive areas under the project's activities and budgeting.
	Communication and Reporting Officer (NPSA 8 - 33.33% in Output 2) for providing technical inputs, ensure related policy compliance, produce visibility materials (both for GCF and UNDP) and prepare communication and reporting plans its implementation over the project period.
	Civil Engineer (NPSA 8 - 50% in Output 2 for 4 years) for providing technical inputs, ensure quality assurance and compliance of civil structures in close coordination with IP/DHM for 4 years.
26	DSA for the international consultant for activity related to strengthening the technical and institutional capacity of DHM at field level to produce early warnings and disseminate them to government agencies and productive sectors.
	Travel (Intl & DSA) Trainings/Exposure visits planned for enhanced knowledge and concepts of Climate Change & EWS (20 participants)
	Travel (Intl & DSA) International /South South learning and exposures to enhance climate change, EWS and strengthening systems (20 officials of RPs & IPs)
	Travel (Local and International including 3 Field visits by Intl. Experts per year; Travel cost for helicopter monitoring & reporting)
	Travel and DSA during monitoring visits by project personnel for activity 2.1 and 2.2
27	NDRRMA will hire local consultants for importing household data to Bipad Portal for the application of DSS and CAP (cleaning; processing; import; verification) Dudhkoshi 1 Palika, Arun-1 Palika, Marsyangdi-1 Palika, following the government procurement process.
	NDRRMA will hire Data/MIS Specialist/Computer Operator for providing technical inputs, processing scientific data for BIPAD and DSS including linking with Early Warning system for the project period, following government procurement process..
28	Professional services to develop 3 multi-hazard-based risk assessments in each watershed 1 in the Dudhkosi Sub-basin, 1 in the Arun Sub-basin and 1 in the Marsyangdi Basin. This stydy is important to carry out climate adaptation/ NbS and DRR activities
	Professional services to invest in and collaborate with, women lead cooperatives, partner institutions with expertise to support GESI responsive and climate resilient agroforestry/nature-based tourism, alternative energy technologies, water management activities in 16 potential wards of the project areas.
	Professional services to integrate risk communication into the LEOCs in the Arun and Dudhkosi Sub-Basins and Marsyangdi Basin and linking with other EOCs both at horizontal and vertical levels
	Professional services to map household data into the Bipad Portal for the application of DSS and CAP (cleaning; processing; import; verification) for the Arun and Dudhkosi Sub-Basins and Marsyangdi Basin (one import needed per location)
	Professional services to Update EWS knowledge products, training manuals, methods, and approaches to make it responsive to women and most vulnerable groups - such as Persons with Disabilities.
	Professional services to Conduct site-specific risk and vulnerability assessments, focusing on historical discrimination + situational + climate vulnerabilities to identify most critical locations and populations for targeted interventions and outreach.
	Contractual service for preparing, printing and publications of climate-responsive Municipal Disaster Preparedness and Response Plans, as well as Local-level Climate-resilient Action Plans.
29	Training supplies; resources during climate-responsive Municipal Disaster Preparedness and Response Plans, as well as Local-level Climate-resilient Action Plans.
30	Annual training workshops for technical staff from DHM on improved methods for generating and disseminating early warnings in close collaboration with EOCs at all levels
	Community engagement workshops in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin, led by representatives from DHM and local level disaster response units to update the response plans in Years 3 and 7.
	Training/Workshop/Meetings for all components Training on compliance, admin finance ESS ,ME , GESI related to sub-national and local level partners & stakeholders
	Organize and strengthen local interest groups in selected 31 municipalities of the project areas.
	Workshops to Strengthen and collaborate with partner agencies in GESI and climate resilient livelihood expertise such as local chapters of HIMAWANTI Nepal, NEFIN (Women) , women led cooperatives etc. in the project areas.

	Organize Gender and Persons with Disability responsive training/ capacity building activities, mock drill with required tools (display, hand held-sirens, mobile sets for EWS task force leaders) and Community Field visit to upstream and downstream communities of the project watersheds/ Basins Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika
	One engagement workshop in each of the 10 target districts in the target basins (Marsyangdi Basin, and Arun and Dudhkosi Sub-Basins) for the development of Local Disaster Resilience Framework (LDRF)
	One validation workshop per district in each target basin (Marsyangdi Basin, and Arun and Dudhkosi Sub-basins) to validate the developed community-based early response plans
	One annual awareness raising campaign in each target district (starting in Year 2) to enhance awareness across the target GLOF watersheds on the LDRF focussing on response plans.
	Annual training workshops for local governments in Arun and Dudhkosi Sub-Basins and Marsyangdi Basin (one per location) to institutionalise EWS at the local level.
	Orientation programme and annual engagement with community members in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin (one per location), including IP, women, Persons with Disbilities and youths to integrate their knowledge on exposure and vulnerability into multi-hazard risk assessments.
	Organize orientation programme and engage community members including IP, women, Persons with Disabilities and youth with their indigenous knowledge on Risk Assessment and risk communication Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika
	Orientation trainings for local governments for strengthening EWS to institutionalize at the local level to prepare LDRF/ guidelines/ tools for replication and sustainability Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika
	Annual inter-palika (LEOCs) interaction workshops to strengthen vertical and horizontal linkages in the Arun and Dudhkosi Sub-Basins and Marsyangdi Basin (one per location)
	Annual awareness raising campaigns (one per location per year) in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin for roll out of localised BIPAD Portal to local government and communities
	Training workshops to support EOCs with minimum required logistics for disaster preparedness and response including orientation on application and dissemination of information through DIMS/Bipad Portal with integration of DHM's mechanism for effective disaster preparedness and management information Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika
	Training workshops to Support LEOC with minimum required logistics for disaster preparedness and response equipment including orientation on application and dissemination of information through DIMS/Bipad Portal, Volunteer Management Information System (VMIS), Resource Management Information (Godam) System for effective disaster preparedness and management information Dudhkoshi - 4 Palika, Arun - 4 Palika, Marsyangdi - 4 Palika
	One community engagement workshop per location in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin for the development of the community-based response plans.
	One workshop per location in the Arun and Dudhkosi Sub-Basins and Marsyangdi Basin to establish Volunteer Bureaus to strengthen emergency response.
	Annual training workshops for Volunteer Bureaus established in each Municipality (Arun and Dudhkosi Sub-basins and Marsyangdi Basin) on efficient and effective emergency response, including accessing and implementing the response plans, first aid including search and rescue.
	Support training of Volunteer Bureaus for search and rescue and first aid to the most climate vulnerable communities Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika
	Engagement workshop per location in the Arun and Dudhkosi Sub-basin and Marsyangdi Basin for the preparation of Local Disaster Resilience Framework (one framework for each municipality
	Validation workshops for the finalisation and implementation of climate-responsive Municipal Disaster Preparedness and Response Plans, and local-level climate-resilient action plans
	Workshops to update the Local Disaster Resilience Framework. These workshops will happen at the end of Year 3 and 7 (two in Year 3 and two in Year 7, i.e. one at the municipal level and one at the local/community level).

	Training workshops to Support Local Governments to formulate LDRF, policies, guidelines and SOPs Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika
31	Project Coordination Specialist (NPSA 10 33.33% in Output 2) for overall project coordination within the project and to Government (both IPs and RPs) including donors and partners. This position will also ensure in establishing a strong team for proper and timely implementation of the project's activities.
	M & E Expert (NPSA 8 33.33% in Output 2) for overall monitoring, evaluation and providing critical feedback for ensuring the project's implementation and results are met on time thereby following M&E plan (Annex 11) of the project.
	ESS Expert (NPSA 9 33.33% in Output 2) for providing technical inputs over the project period to ensure the environment and social safeguard plan is well implemented with following the UNDP/ GCF standard and guidelines.
Co-F 3	Annual monitoring and O&M for the hydro-met stations installed under Sub-activities 2.1.1, 2.1.3, 2.1.5, and 2.1.6. This monitoring and O&M will start in Year 2 and continue until project closure. Further O&M will be undertaken after the project is completed in accordance with the Operations Manual (Annex 21). Software (communication, data processing, EWS) Annual monitoring and O&M for the interventions focused on improved hazard response, including refresher trainings, repairing of search and rescue equipment, refilling first aid boxes, under Sub-activities 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5, and 2.2.6. This monitoring and O&M will start in Year 4 and continue until project closure. Further O&M will be undertaken after the project is completed in accordance with the Operations Manual (Annex 21). NDRRMA has committed a contingency fee, calculated at 5% of the base committed co-finance amount
Co-F 4	Detailed breakdown in FAA Budget worksheet; Stated above in Budget note 34. Project Coordination Specialist (NPSA 10 33.33% in Output 2 for a total of $ 97,753) M & E Expert (NPSA 9 33.33% in Output 2 for a total of $ 67,754) ESS Expert (NPSA 9 33.33% in Output 2 for a total of $ 67,754)
Co-F 5	IPPAN contribution for Land for the installation of weather stations and Security for weather stations commencing in Year 1 for the extent of the project. Further security will occur for 8 years post project completion. NTB contribution for Staff support for capacity building under Sub-activity 2.2.1, specifically for training on EWS and climate hazard safety events for trekkers, travel agencies, porters, hoteliers and local businesses
32	Services provided by existing UNDP staff in the form of technical inputs for the implementation of the project as outlined in the LoA signed with the Govt. of Nepal. Costs spread across Outputs 1 (8%) and Output 2 (21%) and Output 3 (71%). Personnel expected to provide technical support over the 7 year project duration include: ARR/Policy Advisor (10% of time for a total of $8438.83), Programme Analyst-CC and Resilience (35% of time for a total of $29536.42), RBM Analyst (10% of time for a total of $8438.84), GESI Analyst (15% of time for a total of $12658.26), Communication Analyst (12% of time for a total of $10126.61) and Youth Officer (7% of time for a total of $5907.19).
33	Local consultant to develop a training programme for local communities living in the areas near the Thulagi, Lumding Tsho, Lower Barun and Hongu 2 Glacial Lakes on the construction process and systems required for lowering the glacial lakes.
	Local consultant to develop a training programme for communities living in the areas near the Thulagi, Lumding Tsho, Lower Barun and Hongu 2 Glacial Lakes on how to respond to accidental hazards associated with lowering the glacial lakes.
34	Professional services (specifically a GeoTechnical Engineer and a Civil/Structural Engineer) to support the development of detailed site-specific engineering designs, compliance and oversight for lake lowering
	Professional services to set up and operation of the medical facilities, as well as administration required for the construction phase of lowering the Thulagi Lake.
	Professional services to set up and operation of the medical facilities, as well as administration required for the construction phase of lowering the Lumding Tsho Lake.
	Professional services to set up and operation of the medical facilities, as well as administration required for the construction phase of lowering the Lower Barun Lake.

	Professional services to set up and operation of the medical facilities, as well as administration required for the construction phase of lowering the Hongu 2 Lake.
	Consultancy Firm (Team - ESS expert, IP Expert & GESI Expert) for compliance of ESS, IP and GESI policies for all outputs.
	Professional services to undertake detailed technical studies for the lowering of the Thulagi Lake, including a detailed geo-technical investigation, GPR survey, and hydrological assessment of the current discharge of the glacier outlet.
	Professional services to undertake detailed technical studies for the lowering of the Lumding Tsho Lake, including a detailed geo-technical investigation, and GPR survey.
	Professional services to undertake detailed technical studies for the lowering of the Lower Barun Lake, including a detailed geo-technical investigation, and GPR survey.
	Professional services to undertake detailed technical studies for the lowering of the Hongu 2 Lake, including a detailed geo-technical investigation, and GPR survey.
	Professional services to undertake the civil works required to lower the Thulagi Lake, such as excavation, and the construction of the coffer dam, canals, mechanical sluice gate, abutments, race floor and protection works.
	Professional services to undertake the civil works required to lower the Lumding Tsho Lake, such as excavation, and the construction of the coffer dam, canals, mechanical sluice gate, abutments, race floor and protection works.
	Professional services to undertake the civil works required to lower the Lower Barun Lake, such as excavation, and the construction of the coffer dam, canals, mechanical sluice gate, abutments, race floor and protection works.
	Professional services to undertake the civil works required to lower the Hongu 2 Lake, such as excavation, and the construction of the coffer dam, canals, mechanical sluice gate, abutments, race floor and protection works.
	Professional services to undertake the hydromechanical works required to lower the Thulagi Lake.
	Professional services to undertake the hydromechanical works required to lower the Lumding Tsho Lake.
	Professional services to undertake the hydromechanical works required to lower the Lower Barun Lake.
	Construction supervision and management of the lowering of the Thulagi Lake.
	Construction supervision and management of the lowering of the Lumding Tsho Lake.
	Construction supervision and management of the lowering of the Lower Barun Lake.
	Construction supervision and management of the lowering of the Hongu 2 Lake.
	Annual monitoring and evaluation works required during the construction phase of lowering the Thulagi Lake.
	Annual monitoring and evaluation works required during the construction phase of lowering the Lumding Tsho Lake.
	Annual monitoring and evaluation works required during the construction phase of lowering the Lower Barun Lake.
	Annual monitoring and evaluation works required during the construction phase of lowering the Hongu 2 Lake.
	Professional services for ongoing training for technical staff at DHM on the construction processes and systems, as well as the continuous monitoring and evaluation of construction works during the pre- and post-construction phases.
35	Procurement of Security equipment required to prevent accidents around the construction sites. Such equipment will include appropriate signage, warnings, fencing and barriers for DHM.
36	Annual awareness raising for local communities living in the areas near the Thulagi, Lumding Tsho, Lower Barun and Hongu 2 Glacial Lakes on the training programme on construction processes and systems required for lowering the glacial lakes.
	Annual training workshops per target area to deliver the training programme to local communities living in the areas near the Thulagi, Lumding Tsho, Lower Barun and Hongu 2 Glacial Lakes, and promote the uptake and continued use of the programme after the project period.
	Training and awareness workshops to deliver the training programme to communities living in the areas near the Thulagi, Lumding Tsho, Lower Barun and Hongu 2 Glacial Lakes on how to respond to accidental hazards associated with lowering the lakes.
37	Services provided by existing UNDP staff in the form of technical inputs for the implementation of the project as outlined in the LoA signed with the Govt. of Nepal. Costs spread across Outputs 1 (8%) and Output 2 (21%) and Output 3 (71%). Personnel expected to provide technical support over the 7 year project duration include:

	ARR/Policy Advisor (10% of time for a total of $8438.83), Programme Analyst-CC and Resilience (35% of time for a total of $29536.42), RBM Analyst (10% of time for a total of $8438.84), GESI Analyst (15% of time for a total of $12658.26), Communication Analyst (12% of time for a total of $10126.61) and Youth Officer (7% of time for a total of $5907.19).
38	Consultant/assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) to Install 3,101.61 m3 of flood walls and RCC revetments.
	Contractual Services (includes Civil Engineer, Structural Engineer and Site Supervisor) to support the implementation, compliance and oversight of Sub-activities 3.2.1 and 3.2.2
	Contractual Services for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) to Construct 67 conservation ponds (38 in the Arun Sub-basin and 29 in the Dudhkosi Sub-basin).
	Professional services to install 3,101.61 m3 of flood walls and RCC revetments.
	Professional services to construct 67 conservation ponds (38 in the Arun Sub-basin and 29 in the Dudhkosi Sub-basin).
39	Services provided by existing UNDP staff in the form of technical inputs for the implementation of the project as outlined in the LoA signed with the Govt. of Nepal. Costs spread across Outputs 1 (8%) and Output 2 (21%) and Output 3 (71%). Personnel expected to provide technical support over the 7 year project duration include: ARR/Policy Advisor (10% of time for a total of $8438.83), Programme Analyst-CC and Resilience (35% of time for a total of $29536.42), RBM Analyst (10% of time for a total of $8438.84), GESI Analyst (15% of time for a total of $12658.26), Communication Analyst (12% of time for a total of $10126.61) and Youth Officer (7% of time for a total of $5907.19).
40	Climate specialist to undertake a multi-hazard assessment to support preparation of Climate risks informed National Park management plan of two National parks areas in each of the Arun and Dudhkosi Sub-basins.
	International consultant to develop a climate- and gender-responsive Integrated Watershed Management Plan and Integrated National Park Management Plan for each of the Arun and Dudhkosi Sub-basins.
41	Local consultant to support the international consultant with undertaking a multi-hazard assessment, as well as develop a climate- and gender-responsive Integrated Watershed Management Plan and Integrated National Park Management Plan for each of the Arun and Dudhkosi Sub-basins.
	Local consultant to develop a training programme on multi-hazard risk assessments and risk reduction measures (such as CCA, EbA, Eco-DRR measures) and how to use the Agricultural Management Information System (AMIS) with available agrometeorologinal database.
	Local consultant to develop local curriculum on climate change-related education and trainings on multi-hazards, CCA and Eco-DRR for high school teachers and students in the project area.
	Local Consultant (IP Expert) to support implementation of IPP
42	Civil Engineer (NPSA 8 - Output3) for providing technical inputs, ensure quality assurance and compliance of civil strucutures/bio engineering/NbS in close coordination with RP/DoFSC over the project period.
	Watershed Management Officer (NPSA 8) for providing technical inputs on Watershed Conservation adopting bio engineering, nature based solution in close collaboration with DoFSC and DNPWC over the project period.
	Chief Technical Specialist Intl. IPSA 11-IB4 (40 % in output 3) for providing technical project level inputs for planning, implementation, monitoring & evaluation and reporting.

	GESI Expert (NPSA 9 33.33% in Output 3) for providing technical project level inputs to implement GESI Action Plan and enhance reporting gender mainstreaming in the substantive areas under the project's activities and budgeting.
	Communication and Reporting Officer (NPSA 8 - 33.33% in Output 3) for providing technical inputs, ensure related policy compliance, produce visibility materials (both for GCF and UNDP) and prepare communication and reporting plans its implementation over the project period.
43	DSA for the climate specialist undertaking the multi-hazard assessment of the national parks' areas in each of the Arun and Dudhkosi Sub-basins.
	DSA for the international consultant undertaking the risk assessments and management plans.
	Travel/ DSA for Consultant developing Grievance Redress Mechanism
	Travel (Local and International) for Evaluations (MTR&TE)
44	Contractual service for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Plantation of 153.3 ha trees along vulnerable riverbanks, sub-watershed areas and flood plains of 3 river systems (81.6 ha in the Arun Sub-basin and 71.68 ha in the Dudhkosi Sub-basin). Will be implemented through UNDP.
	Contractual service for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Establishing 17,744 m3of vegetative gabion walls (10,7961 m3in the Arun Sub-basin and 6,948 m3in the Dudhkosi Sub-basin). Will be implemented by UNDP.
	Contractual service for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Installing 978,436 m of live check dams (955,396 m in the Arun Sub-basin and 23,040 m in the Dudhkosi Sub-basin). Will be implemented by UNDP.
	Contractual service for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Install 15,298.94 m3 of vegetative gabion revetments (3,447.5 m3 in the Arun Sub-basin and 11,851.44 m3 in the Dudhkosi Sub-basin). Will be implemented by UNDP.
	Contractual service for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Installing 7,246 m3 of vegetative gabion spurs (4,608 m3 in the Arun Sub-basin and 2,638 m3 in the Dudhkosi Sub-basin). Will be implemented by UNDP.
	Contractual service for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Installing a total of 29,685 m3 of vegetative gabion check dams (21,960 m3 in the Arun Sub-basin and 7,725 m3 in the Dudhkosi Sub-basin). Will be implemented by UNDP.
	Contractual service for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Installing a total of 15,009.8 m3 of vegetative dry stone check dams (9,371.25 m3 in the Arun Sub-basin and 5,638.5 m3 in the Dudhkosi Sub-basin). Will be implemented by UNDP.
	Contractual service for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for sub-activity 3.3.7, 3.3.8 and 3.3.9.
	Contractual services to support the development and implementation of integrated climate- and gender-responsive watershed and national park management plans
	Contractual services (including Agricultural Experts, Climate Change Adaptation Experts and MIS) to support the development and implementation of a climate-resilient agricultural management and information system
	Consultancy Firm for the preparation of Indigenous Peoples Implementation Plan
	Consultancy Firm for Stakeholder engagement & IPP implementation
	Consultancy Firm for Grievance Redress Mechanism
	Consultancy Firm to update and audit the ESMF/ESMP
	Professional services for plantation of 71.68 ha in the Dudhkosi Sub-basin along vulnerable riverbanks, sub-watershed areas and flood plains of river systems.
	Professional services for plantation of 81.6 ha in the Arun Sub-basin along vulnerable riverbanks, sub-watershed areas and flood plains of river systems.

	Professional services to establish 17,744 m3 of vegetative gabion walls (10,7961 m3 in the Arun Sub-basin and 6,948 m3 in the Dudhkosi Sub-basin).
	Technician and seeds (10 K*2) (Consulting firm)
	Professional services to install 978,436 m of live check dams (955,396 m in the Arun Sub-basin and 23,040 m in the Dudhkosi Sub-basin).
	Professional services to install 15,298.94 m3 of vegetative gabion revetments (3,447.5 m3 in the Arun Sub-basin and 11,851.44 m3 in the Dudhkosi Sub-basin).
	Professional services to install a total of 7,246 m3 of vegetative gabion spurs (4,608 m3 in the Arun Sub-basin and 2,638 m3 in the Dudhkosi Sub-basin).
	Professional services to install a total of 29,685 m3 of vegetative gabion check dams (21,960 m3 in the Arun Sub-basin and 7,725 m3 in the Dudhkosi Sub-basin).
	Professional services to install a total of 15,009.8 m3 of vegetative dry stone check dams (9,371.25 m3 in the Arun Sub-basin and 5,638.5 m3 in the Dudhkosi Sub-basin).
	Professional services to install a total of 3,194 m2 of vegetative stone rip-rap (1,582.5 m2 in the Arun Sub-basin and 1,611.5 m2 in the Dudhkosi Sub-basin).
	Professional services to implement a total of 451,880 m of brush layering (36,750 m in the Arun Sub-basin and 8,438 m in the Dudhkosi Sub-basin).
	Professional services to plant a total of 298,162 m2 of grass seedlings (155,419 m2 in the Arun Sub-basin and 142,743 m2 in the Dudhkosi Sub-basin).
	Contractual services to develop a Watershed/Sub-watershed-level Climate-smart Agricultural Management Information System (AMIS) to be implemented in 8 watersheds in the Arun Sub-basin and 5 sub-watersheds in the Dudhkosi Sub-basin.
	Professional service to Strengthen and collaborate with at least 40% of the total project's municipality and ward level CC induced disaster related committees to establish GEDSI desegregated data collection system in Bipad Portal, reporting and programming
	Professional service to develop M&E framework and tracking and presentation tools including GIS, Training in M&E methods and approaches, Monitoring and data collection missions including Annual project audits.
	Insurance for the equipment that will be procured for the installation of the tangible downstream interventions under Activities 3.2 and 3.3 by DHM. This includes for: i) potential damages during civil works, as well as to plants and materials; ii) the risk of riots, strikes, damage, malicious damage and terrorism; and iii) third party liability insurance.
	Insurance for the equipment that will be procured for the installation of the tangible downstream interventions under Activities 3.2 and 3.3 by DoFSC. This includes for: i) potential damages during civil works, as well as to plants and materials; ii) the risk of riots, strikes, damage, malicious damage and terrorism; and iii) third party liability insurance.
45	Training supplies; resources for climate-resilient agricultural management and information system, and implement climate-resilient GLOF and flood risk reduction strategies.
46	Technology Equipment (Drones for seeds sowing)
48	Training for relevant officials (within federal, provincial and municipal governments) on the implementation of the management plans and MHRA models/tools, NbS, CCA, and Eco-DRR.
	Training and Workshop - Includes 10K per year for Activity 3.3.12 for all 7 years
	Conduct women leadership training for both advantaged and poor and highly marginalized women and men
	Training for farmers and other community representatives, as well as government officials (within the relevant department and at the relevant level), on the implementation of the AMIS and how to scale and replicate the system across Nepal.
	Training and awareness workshops for the delivery of the training programme. 12 workshops will be conducted in the Arun Sub-basin and 7 in the Dudhkosi Sub-basin. The training and awareness initiatives will focus on demonstrating effective risk reduction and adaptation techniques such as CCA, EbA, Eco-DRR measures and on how to implement and use the AMIS.
	Training workshops to deliver the curricular (10 and 8 schools in the Arun and Dudhkosi Sub-basins, respectively).
	Training workshops for community based organizations (15 and 12 CBOs in Arun and Dudhkosi Sub-basins, respectively) on effective risk reduction and adaptation techniques such as CCA, EbA, Eco-DRR measures and on the use of the AMIS. CBOs that will be targeted for this training include but are not limited to mothers' group, women lead cooperatives, Indigenous People's organizations, local youth-clubs, community forest users' groups.

	Provide targeted participatory technical training on early warning and monitoring: a) For women and most vulnerable groups - such as Persons with Disabilities - living in locations most at risk to GLOF and other climate change induced disaster risks (mainly for poor Dalits and marginalized Indigenous groups, PWDs, elderly); b) Local Disaster Management Committee members.
	Meetings/consultations during the processing of Stakeholder Response Mechanism (SRM) and Grievance Redress Mechanism (GRM) for the project.
49	Project Coordination Specialist (NPSA 10 33.33% in Output 3) for overall project coordination within the project and to Government (both IPs and RPs)including donors and partners. This position will also ensure in establishing a strong team for proper and timely implementation of the project's activities.
	M & E Expert (NPSA 8 33.33% in Output 3) for overall monitoring, evaluation and providing critical feedback for ensuring the project's implementation and results are met on time thereby following M&E plan (Annex 11) of the project.
	ESS Expert (NPSA 9 33.33% in Output 3) for providing techncial inputs over the project period to ensure the environment and social safeguard plan is well implemented with following the UNDP/ GCF standard and guidelines.
50	Travel (Local and International) for project M&E
	Travel (Local and International) for Evaluations (MTR&TE)
51	Consultancy Firm for the preparation of Environmental Safeguard Management Plan (45K for ESMP and 5K for Land Acquisition Plan)
Co-F 6	Professional services to be facilitated by DHM for the construction of an access trail to enable access to all project sites under Output 3. Staff time for PIU and field office Programme M&E Staff time for gauge readers O&M for the interventions under Activity 3.1, starting in Year 7 and continuing until project closure. Further O&M will be undertaken after the project is completed in accordance with the Operations Manual (Annex 21). Staff time for PIU for DNPWC involvement across Sub-Activities 3.3.10, 3.3.11 and 3.3.12 Office running cost for DNPWC PIU Field activity cost for DNPWC PIU Salaries and allowances (Salary of staffs who are directly working in Soil Conservation, Climate Change Adaptation, Nature Based Solutions, Integrated Watershed Management in Koshi Basin) Office spaces (Rental and non rental) Daily Subsistence Allowances (DSA) for Govt. Staff of DoFSC Maintenance costs (Vehicle and others) Vehicle (4 wheel used in Field activity, monitoring, Integrated Watershed Management etc.) Recurrent Costs (Electricity, Water, Miscellaneous) (water, telephone, internet, stationary) Stationeries and printing Programme M&E costs (Staffs going to data collection, measurement, monitoring, supervision including DA, TA) Machinery / Equipment (Soil Laboratory equipment, Data server, Communication equipment etc.) Programme Activities (beyond the proposed activities) expenditure through contingencies Support for capacity building and training workshops Salaries and allowances (Salary of staffs who are directly working in Soil Conservation, Climate Change Adaptation, Nature Based Solutions, Integrated Watershed Management in Koshi Basin) Daily Subsistence Allowances (DSA) for Govt. Staff of DoFSC Maintenance costs (Vehicle and others) Vehicle (4 wheel used in Field activity, monitoring, Integrated Watershed Management etc.) Recurrent Costs (Electricity, Water, Miscellaneous) (water, telephone, internet, stationary)

	Stationeries and printing Programme M&E costs (Staffs going to data collection, measurement, monitoring, supervision including DA, TA) Machinery / Equipment (Soil Laboratory equipment, Data server, Communication equipment etc.) Research, Study and Extension Research and Consulting service (capital) (Related to watershed management, soil conservation, Research and development on CC Adaptation etc.) to undertake for the baseline construction works for downstream interventions Construction Works (Embankment, Bioengineering, rebetment nature-based solutions, plantations etc.) O&M for the interventions under Activity 3.2 and Activity 3.3, starting in Year 3 and continuing until project closure. Further O&M will be undertaken after the project is completed in accordance with the Operations Manual (Annex 21).
Co-F 7	Detailed breakdown in FAA Budget worksheet; Stated above from Budget note 54 to 56. Project Coordination Specialsit (NPSA 10 33.33% in Output 3 for a total of $ 97,753). M & E Expert (NPSA 9 33.33% in Output 3 for a total of $ 67,754). ESS Expert (NPSA 9 33.33% in Output 3 for a total of $ 67,754). Travel (Local and International) spread across the project period for a value of $ 74,000 for project monitoring and evaluation. Travel (Local and International) for mid-project and final Evaluations a sum of $ 20,000. Professional or contractual services: Consultancy Firm for the preparation of Environmental Safeguard Management Plan through RfP procurement process for a value of $ 50,000.
52	Procurement of Vehicles 4WD (4 Nos); Motorcycle (6 Nos.); Electric car (for city 2 nos.) for field work and national level coordination meetings/workshops/seminars during the project period.
53	Project Assistant/Receptionist-NPSA 5 (7 years) for providing administration support services to Administration & Finance Officer over the project period.
	Office Support Staff-NPSA 3 (1); for providing administrative support, messenger service over the project period.
	Administration & Finance Assistant (Procurement & logistics) - 1 Nos (NPSA 7) for providing necessary support to Administration & Finance Officer for procurement and logistics of the project activities over the project period.
	Driver NPSA 2 - 2 Nos to drive project vehicle for official missions over the project period.
54	Stationaries; Publication and Office Materials for DHM over the project period.
	Photocopy Paper; Water; Stationary for NDRRMA over the project period.
	Stationery; fuel; vehicle maintenance; Water (Tap) bill; Electricity bill; Telephone bill; Internet bill; courier service; website design; machinery maintenance; Plumber and electricity maintenance for DoFSC over the project period.
55	Computer; Laptop; Printer; Photocopy machine; Furniture for DHM over the project period.
	Printer; Computer; Laptop for NDRRMA over the project period.
	Laptop (5); Desktop (8); Printer B/W (8); Color printer (1); Camera (1); Photocopy machine (1); Vacuum cleaner (2); furniture for DoFSC over the project period.
56	Four-wheel motor vehicles for field mobilisation and monitoring (Rental) at field where project vehicle is unavailable
57	GOE - Service to Projects Admin DPC over the project period for support provided by UNDP Nepal Country Office team on Financial Management, Human Resource, Procurement, Asset Management, Fellow Ship/Visa/ Custom Clearance/Protocol, Transport Services, Information Technology including inflation. Costs for support services provided by existing UNDP CO staff for admin, financial, procurement services based on UNDP transaction service costs the breakup of which is as below: i) HR services - USD 65,824.11 ii) Procurement Services - USD 113,235.83 iii) Finance Services - USD 331,601.12

	iv) IT Services - USD 9,974.06 v) Administrative & Security services - USD 20,636.61
58	Two-wheel motor bikes (Electric) for city movement during project implementation period being purchased from UNDP resources.
	4 WD vehicle - 1 nos; 1 Electric vehicle for field monitoring and coordination meetings/workshops/seminars during the project period being purchased from UNDP resources.
	Procurement through UNDP resources of Information Technology/Equipment including High altitude gears for field assessment, monitoring and reporting.
59	Financial Compliance Expert for oversight and financial project compliance
60	Finance and Administrative Officer (NPSA 8) for overseeing the project's operation planning, implementation and reporting of administration, finance, human resource, procurement over the project period.
61	Travel for project M&E
62	Procurement of regular office supplies for the project over the project implementation period.
63	Information Technology and Equipment (laptops) for project personnel use over the project period.
	Information Technology and Equipment (Camera) for use by project during M&E for documentation and reporting.
64	Rental and Premises for project office over the project period.
65	Project Vehicle (2 vehicle) Repair and Maintenance over the project period.
66	Professional Services (Audit Fee)
67	Audio Visual and Printing Production Costs of project's visibility and communication materials.
68	Quarterly Meeting/ Annual Review Meeting (PSC Costs) including Project Board Meetings
	Training, Workshops and Conference related to project inception, review and planning meetings
Co-F 8	Staff salary, inflating annually
Co-F 9	Detailed breakdown in FAA Budget worksheet; Stated above from Budget note 58 to 68.

XI. LEGAL CONTEXT

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of (country) and UNDP, signed on (date). All references in the SBAA to "Executing Agency" shall be deemed to refer to "Implementing Partner."

This project will be implemented by Department of Hydrology and Meteorology under Ministry of Energy, Water Resources and Irrigation ("Implementing Partner") in collaboration with Responsible Parties in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

XII. RISK MANAGEMENT

Implementing Partner is a Government Entity (NIM)

1. Consistent with the Article III of the SBAA *[or the Supplemental Provisions to the Project Document]*, the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP's property in the Implementing Partner's custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:
   a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
   b) assume all risks and liabilities related to the Implementing Partner's security, and the full implementation of the security plan.

2. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner's obligations under this Project Document.

3. The Implementing Partner agrees to undertake all reasonable efforts to ensure that no UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the United Nations Security Council Consolidated Sanctions List, and that no UNDP funds received pursuant to the Project Document are used for money laundering activities. The United Nations Security Council Consolidated Sanctions List can be accessed via https://www.un.org/securitycouncil/content/un-sc-consolidated-list.

4. The Implementing Partner acknowledges and agrees that UNDP will not tolerate sexual harassment and sexual exploitation and abuse of anyone by the Implementing Partner, and each of its responsible parties, their respective sub-recipients and other entities involved in Project implementation, either as contractors or subcontractors and their personnel, and any individuals performing services for them under the Project Document.

   (a) In the implementation of the activities under this Project Document, the Implementing Partner, and each of its sub-parties referred to above, shall comply with the standards of conduct set forth in the Secretary General's Bulletin ST/SGB/2003/13 of 9 October 2003, concerning "Special measures for protection from sexual exploitation and sexual abuse" ("SEA").

   (b) Moreover, and without limitation to the application of other regulations, rules, policies and procedures bearing upon the performance of the activities under this Project Document, in the implementation of activities, the Implementing Partner, and each of its sub-parties referred to above, shall not engage in any form of sexual harassment ("SH"). SH is defined as any unwelcome conduct of a sexual nature that might reasonably be expected or be perceived to cause offense or humiliation, when such conduct interferes with work, is made a condition of employment or creates an intimidating, hostile or offensive work environment. SH may occur in the workplace or in connection with work. While typically involving a pattern of conduct, SH may take the form of a single incident. In assessing the reasonableness of expectations or perceptions, the perspective of the person who is the target of the conduct shall be considered.

5. a) In the performance of the activities under this Project Document, the Implementing Partner shall (with respect to its own activities), and shall require from its sub-parties referred to in paragraph 4 (with respect to their activities)

that they, have minimum standards and procedures in place, or a plan to develop and/or improve such standards and procedures in order to be able to take effective preventive and investigative action. These should include: policies on sexual harassment and sexual exploitation and abuse; policies on whistleblowing/protection against retaliation; and complaints, disciplinary and investigative mechanisms. In line with this, the Implementing Partner will and will require that such sub-parties will take all appropriate measures to:

i. Prevent its employees, agents or any other person engaged to perform any services under this Project Document, from engaging in SH or SEA;

ii. Offer employees and associated personnel training on prevention and response to SH and SEA, where the Implementing Partner and its sub-parties referred to in paragraph 4 have not put in place its own training regarding the prevention of SH and SEA, the Implementing Partner and its sub-parties may use the training material available at UNDP;

iii. Report and monitor allegations of SH and SEA of which the Implementing Partner and its sub-parties referred to in paragraph 4 have been informed or have otherwise become aware, and status thereof;

iv. Refer victims/survivors of SH and SEA to safe and confidential victim assistance; and

v. Promptly and confidentially, record and investigate any allegations credible enough to warrant an investigation of SH or SEA. The Implementing Partner shall advise UNDP of any such allegations received and investigations being conducted by itself or any of its sub-parties referred to in paragraph 4 with respect to their activities under the Project Document, and shall keep UNDP informed during the investigation by it or any of such sub-parties, to the extent that such notification (i) does not jeopardize the conduct of the investigation, including but not limited to the safety or security of persons, and/or (ii) is not in contravention of any laws applicable to it. Following the investigation, the Implementing Partner shall advise UNDP of any actions taken by it or any of the other entities further to the investigation.

b) The Implementing Partner shall establish that it has complied with the foregoing, to the satisfaction of UNDP, when requested by UNDP or any party acting on its behalf to provide such confirmation. Failure of the Implementing Partner, and each of its sub-parties referred to in paragraph 4, to comply of the foregoing, as determined by UNDP, shall be considered grounds for suspension or termination of the Project.

6. Social and environmental sustainability will be enhanced through application of the UNDP Social and Environmental Standards (http://www.undp.org/ses) and related Accountability Mechanism (http://www.undp.org/secu-srm).

7. The Implementing Partner shall: (a) conduct project and programme-related activities in a manner consistent with the UNDP Social and Environmental Standards, (b) implement any management or mitigation plan prepared for the project or programme to comply with such standards, and (c) engage in a constructive and timely manner to address any concerns and complaints raised through the Accountability Mechanism. UNDP will seek to ensure that communities and other project stakeholders are informed of and have access to the Accountability Mechanism.

8. All signatories to the Project Document shall cooperate in good faith with any exercise to evaluate any programme or project-related commitments or compliance with the UNDP Social and Environmental Standards. This includes providing access to project sites, relevant personnel, information, and documentation.

9. The Implementing Partner will take appropriate steps to prevent misuse of funds, fraud or corruption, by its officials, consultants, responsible parties, subcontractors and sub-recipients in implementing the project or using UNDP funds.

10. In the implementation of the activities under this Project Document, UNDP places reasonable reliance upon the Implementing Partner for it to apply its laws, regulations and processes, and applicable international laws regarding anti money laundering and countering the financing of terrorism, to ensure consistency with the principles of then in force the UNDP Anti-Money Laundering and Countering the Financing of Terrorism Policy.

11. The Implementing Partner will ensure that its financial management, anti-corruption, anti-fraud and anti-money laundering and countering the financing of terrorism policies are in place and enforced for all funding received from or through UNDP.

12. The requirements of the following documents, then in force at the time of signature of the Project Document, apply to the Implementing Partner: (a) UNDP Policy on Fraud and other Corrupt Practices and (b) UNDP Office of Audit and Investigations Investigation Guidelines. The Implementing Partner agrees to the requirements of the above documents, which are an integral part of this Project Document and are available online at www.undp.org.

13. In the event that an investigation is required, UNDP has the obligation to conduct investigations relating to any aspect of UNDP projects and programmes in accordance with UNDP's regulations, rules, policies and procedures. The Implementing Partner shall provide its full cooperation, including making available personnel, relevant documentation, and granting access to the Implementing Partner's (and its consultants', responsible parties', subcontractors' and sub-recipients') premises, for such purposes at reasonable times and on reasonable conditions as may be required for the purpose of an investigation. Should there be a limitation in meeting this obligation, UNDP shall consult with the Implementing Partner to find a solution.

14. The signatories to this Project Document will promptly inform one another in case of any incidence of inappropriate use of funds, credible allegation of fraud or corruption or other financial irregularities with due confidentiality.

    Where the Implementing Partner becomes aware that a UNDP project or activity, in whole or in part, is the focus of investigation for alleged fraud/corruption, the Implementing Partner will inform the UNDP Resident Representative/Head of Office, who will promptly inform UNDP's Office of Audit and Investigations (OAI). The Implementing Partner shall provide regular updates to the head of UNDP in the country and OAI of the status of, and actions relating to, such investigation.

15. UNDP shall be entitled to a refund from the Implementing Partner of any funds provided that have been used inappropriately, including through fraud, corruption or other financial irregularity, or otherwise paid other than in accordance with the terms and conditions of the Project Document. Such amount may be deducted by UNDP from any payment due to the Implementing Partner under this or any other agreement. Recovery of such amount by UNDP shall not diminish or curtail the Implementing Partner's obligations under this Project Document.

    Where such funds have not been refunded to UNDP, the Implementing Partner agrees that donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities under this Project Document, may seek recourse to the Implementing Partner or the recovery of any funds determined by UNDP to have been used inappropriately, including through fraud, corruption or other financial irregularity, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

    Note: The term "Project Document" as used in this clause shall be deemed to include any relevant subsidiary agreement further to the Project Document, including those with responsible parties, subcontractors and sub-recipients.

16. Each contract issued by the Implementing Partner in connection with this Project Document shall include a provision representing that no fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the proposal, have been given, received, or promised in connection with the selection process or in contract execution, and that the recipient of funds from the Implementing Partner shall cooperate with any and all investigations and post-payment audits.

17. Should UNDP refer to the relevant national authorities for appropriate legal action any alleged wrongdoing relating to the project, the Government will ensure that the relevant national authorities shall actively investigate the same and take appropriate legal action against all individuals found to have participated in the wrongdoing, recover and return any recovered funds to UNDP.

18. The Implementing Partner shall ensure that all of its obligations set forth under this section entitled "Risk Management" are passed on to each responsible party, subcontractor and sub-recipient and that all the clauses under this section entitled "Risk Management Standard Clauses" are included, mutatis mutandis, in all sub-contracts or sub-agreements entered into further to this Project Document.

XIII. MANDATORY ANNEXES

Annex A: GCF Specific Conditions, Representations, Warranties and Covenants
Annex B: GCF Board-approved Funding Proposal
Annex C: Letter of agreement between the Implementing Partner and Responsible Parties
Annex D: Co-financing commitment letters of co-financing (from the project design stage)
Annex E: Timetable of project implementation
Annex F: Procurement plan
Annex G: Terms of References for Project Board and Project Team
Annex H: UNDP Social and Environmental Screening Procedure (SESP) (to be completed in UNDP Quantum+ and the printout to be attached to the project document)
Annex I: Environmental and Social Management Plan or Framework (ESMP or ESMF), as relevant
Annex J: Stakeholder Engagement Plan (including summary of consultations)
Annex K: Gender Analysis and Action Plan
Annex L: UNDP Risk Register
Annex M: Letter of Agreement with the government in case UNDP Support Service Costs are applied
Annex N: HACT micro assessment and Partner Capacity Assessment Tool (PCAT)
Annex O: Additional agreements: Including cost sharing agreements, project cooperation agreements signed with NGOs (where the NGO is designated as the "executing entity"), letters of financial commitments
Annex P: UNDP Project Quality Assurance Report (to be completed in UNDP Quantum+ and the printout to be attached to the project document)
Annex Q: Monitoring Activity Table
Annex R: On-Granting Provisions Applicable to the Implementing Partner (N/A)
Annex S: Other annexes included in the Funding Proposal annex package approved by the GCF Board (to the extent that they are not confidential as indicated in the disclosure form submitted to the GCF)

Annex A: GCF Specific Conditions, Representation, Warranties and Covenants

(i) The Implementing Partner hereby expressly agrees, and shall ensure that each of its responsible parties, their respective sub-recipients and other entities involved in Project Implementation, either as contractors or subcontractors and any individuals performing services for them under the Project Document agrees, to comply with the following Project Specific Conditions:

(a) Conditions precedent to first Disbursement:
   i. Effectiveness of this Agreement;
   ii. Delivery to the Fund by the Accredited Entity of an executed copy of the Project Document, between the Accredited Entity and the Executing Entity;
   iii. Delivery to the Fund by the Accredited Entity of evidence of the authority of the person or persons authorized to sign each Request for Disbursement (with respect to the GCF Proceeds and the Accredited Entity Fees) under this Agreement, unless otherwise notified by the Accredited Entity, and the authenticated specimen signature of each such person.

(b) General conditions for all Disbursements:
   i. Other than in relation to the first Disbursement, submission to the Fund by the Accredited Entity of evidence that at least seventy per cent (70%) of the funds previously disbursed by the Fund have been spent on Eligible Expenditures;
   ii. (Other than in relation to the first Disbursement, submission to the Fund by the Accredited Entity of APRs and Financial Information in accordance with the AMA and this Agreement;
   iii. Delivery to the Fund by the Accredited Entity of a Request for Disbursement, signed by the person or persons authorized to do so, no later than thirty (30) calendar days prior to the date on which the
   iv. Disbursement is requested to be made, which shall not be later than the Closing Date; and
   v. Delivery to the Fund by the Accredited Entity of evidence indicating the status and the amount of the Co-financing funds disbursed and applied to the implementation of the Funded Activity up to the date of the request for funds made by the Accredited Entity.

If within one hundred and twenty (120) calendar days from the Effective Date, or such longer period established by the Fund in writing, the conditions precedent for the first Disbursement established in Clause 9.01 have not been fulfilled, the Fund may terminate this Agreement by giving notice to the Accredited Entity.

If thirty (30) days prior to the Closing Date, the Accredited Entity has not requested the Disbursement of the full amount of the GCF Proceeds, or the Fund has not otherwise disbursed the full amount of the GCF Proceeds, GCF shall be entitled to cancel the undisbursed portion of the GCF Proceeds.

(ii) The Implementing Partner hereby expressly represents and warrants, and shall ensure, where applicable, that each of its responsible parties, their respective sub-recipients and other entities involved in Project Implementation, either as contractors or subcontractors and any individuals performing services for them under the Project Document represents and warrants, that:

(a) On the date of the execution of this Agreement, the Effective Date and the date of each Disbursement made by the GCF under this Agreement, the Accredited Entity has duly executed this Agreement, and that this Agreement is legally binding on, and enforceable against it in accordance with its governing law;
(b) On the date of the execution of this Agreement, the Effective Date and the date of each Disbursement made by the GCF under this Agreement, the Accredited Entity is duly authorized and has the capacity to enter into this Agreement and has duly executed and delivered this Agreement;
(c) On the date of execution of this Agreement, the Effective Date and on the date of each Disbursement made by the Fund under this Agreement, the Accredited Entity has carried out all due diligence as necessary to ensure that the Funded Activity is at all times in compliance with its own gender policy, indigenous peoples policy and any other relevant UNDP policies;
(d) On the date of the execution of this Agreement and the date of each Disbursement made by the Fund under this Agreement, there are no circumstances of which the Accredited Entity is aware, including through its oversight of the Funded Activity as per the obligations of this Agreement, the AMA and UNDP's own policies and practices, that may substantially interfere with the performance of its obligations under this Agreement, the AMA or with the implementation of the Funded Activity, or otherwise jeopardize the achievements of any objectives, outcomes or outputs of the Funded Activity;
(e) On the date of the first Disbursement by the Fund under this Agreement and throughout the term of this Agreement, the Project Document remains in effect;

(f) On the date of each Disbursement by the Fund under this Agreement, no Event of Default has occurred and is continuing under this Agreement;
(g) On the date of execution of this Agreement, the Effective Date and on the date of each Disbursement made by the Fund under this Agreement, the Accredited Entity has carried out all due diligence as necessary to ensure that the Funded Activity is at all times in compliance with the requirements of clause 4.05(b)(ii)(B) of the AMA.

(iii) The Implementing Partner hereby expressly covenants, and shall ensure, where applicable, that each of its responsible parties, their respective sub-recipients and other entities involved in Project Implementation, either as contractors or subcontractors and any individuals performing services for them under the Project Document covenants, that:

Project Implementation

(a) Apply, in accordance with its own policies and procedures, its own fiduciary principles and standards relating to AML/CFT in the implementation of the Funded Activity;
(b) Ensure that the beneficiaries identified in section B.3 of the Funding Proposal are selected in accordance with the relevant eligibility criteria set out therein;
(c) In case of any material amendment to the eligibility criteria set out in section B.3 of the Funding Proposal, immediately inform the Fund and seek the Fund's approval of such amendment or modification;

Co-financing Provisions

(d) Upon request by the Fund, inform the Fund on the status of the Co-financing funds that have been disbursed and applied to the implementation of the Funded Activity;
(e) Inform the Fund, in the APRs to be submitted in accordance with the AMA, on the status of the Co-financing funds that have been disbursed and applied to the implementation of the Funded Activity;
(f) Ensure that no GCF Proceeds are transferred to the Implementing Partner (Executing Entity) if a default has occurred under the Project Document;
(g) Confirm to the Fund, in the APRs to be submitted to the Fund, that the Implementing Partner (Executing Entity) has allocated in its annual budget the relevant Co-financing resources for the implementation of the Project to the satisfaction of the Accredited Entity;
(h) Take appropriate measures to ensure that the Co-financing and the GCF Proceeds are disbursed and/or applied for the implementation of the Funded Activity in accordance with the Implementation Schedule;
(i) Ensure that the Co-financing provided by the Co-financiers for the execution of the Funded Activity is obtained from and contributed by each Co-financier in a timely manner;

ESS Provisions

(j) Ensure that the infrastructure to be implemented as part of the Funded Activity:
  vi. are designed, constructed, operated and decommissioned in accordance with good industry practices and any other applicable standards which, in each case, shall be consistent with the practice of other international organizations working in the region, and taking into consideration health and safety risks of third parties or affected communities, and
  vii. (ii) the quality of such infrastructure is in accordance with best practices followed by international organizations in the region;
(k) Undertake and/or put in place any adequate measures in order to ensure that the management of the environmental and social risks and impacts arising from the Funded Activity complies at all times with the recommendations, requirements and procedures set forth in the Environmental and Social Management Framework ("ESMF") which was provided by the Accredited Entity to the Fund, together with the Funding Proposal, and which shall not be amended, abrogated or waived without prior written approval of the Fund. This includes putting in place measures, including with respect to the Accredited Entity's grievance redress mechanisms, to prevent and respond to the conducts described in clause 18.02(k) of the AMA, for adherence to the relevant principles and requirements included in the ESMF;
(l) Ensure that the GCF Proceeds will not support or finance, directly or indirectly, any activities with potential environmental and social risks that are equivalent to category A pursuant to the Environmental and Social Risks Categories to be conducted as part of the Project;
(m) Undertake and/or put in place all adequate measures and dedicate the necessary financial, human and other resources in order to ensure that the Funded Activity complies at all times with the recommendations and requirements of the Gender Action Plan ("GAP"), provided by the Accredited Entity to the Fund as part of the Funding Proposal, which shall comply with the Accredited Entity's own gender policy, which is equivalent to the GCF's Updated Gender Policy, and the GAP shall not be amended, abrogated or waived without prior written approval of the Fund;
(n) In relation to each Sub-Project that is Category B (pursuant to the Environmental and Social Risk Categories), disclose the ESIA and ESMP and, as appropriate, any other associated information including those relevant to indigenous

peoples required to be disclosed pursuant to the relevant policies of the Accredited Entity in accordance with clause 13.01, clause 25.05 and clause 25.08 of the AMA, the requirements of the Information Disclosure Policy and the Environmental and Social Policy (as adopted at B.32) (each, the "Sub-Project Disclosure Package"). The Accredited Entity shall disclose the Sub-Project Disclosure Package at least thirty (30) calendar days prior to its approval of the relevant Category B Sub- Project, in English and in local language (if not English), on its website and in locations convenient to the affected peoples, and submit the Sub-Project Disclosure Package to the Fund for subsequent distribution to the GCF Board and the Fund's active observers and for publishing in the GCF website;

(o) Obtain or ensure that the relevant agency(ies) and/or person(s) shall acquire, all land and rights in respect of land that are required to carry out the Funded Activity and shall promptly furnish to the GCF, upon its request, evidence that such land and rights in respect of the land are available for the purposes of the Funded Activity;

(p) Ensure that the Implementing Partner (Executing Entity) shall acquire all necessary environmental licenses or clearances, and shall promptly furnish evidence, in a form and substance satisfactory to the Fund and upon its request, that such licenses or clearances, are available for the purposes of the Project;

(q) Prior to commencing any activities that have potential application of the Accredited Entity's Social and Environmental Standards (2021 version) including Standard 6 titled "Indigenous Peoples", and its Guidance Note on Standard 6 titled "Indigenous Peoples" (February 2021 version), furnish to the GCF, the Indigenous Peoples Plan or its equivalent and evidence that free, prior and informed consent from the indigenous peoples and communities has been obtained for the purposes of the relevant activities;

(r) Take appropriate measures to ensure that safety protocols are maintained at all times during Project implementation in accordance with the Accredited Entity's policies and procedures;

(s) Undertake all adequate measures to ensure that none of the persons or activities included in the Exclusion List is funded or otherwise receives, directly or indirectly, any GCF Proceeds under the Funded Activity;

Monitoring; Reporting; Evaluation

(t) In case any amendment or modification is entered into or otherwise agreed by the Accredited Entity with respect to the Project Document, inform of such event and furnish to the Fund the executed copies of such amendment or modification within ten (10) calendar days from its execution. For the avoidance of doubt, the Accredited Entity shall ensure that such amendment or modification does not contravene the terms and conditions provided for in this Agreement and the AMA; and

(u) In case of a change of the authorized representative to sign the request for disbursement, provide, together with the disbursement, evidence satisfactory to the Secretariat, of the authority of such person to sign the request for disbursement and the relevant authenticated specimen signature of such person;

Pursuant to clause 23.04 of the AMA, the Accredited Entity shall inform the Fund in the final APR and consult with the Fund on the steps to be taken in relation to the durable assets and/or equipment purchased with the GCF Proceeds to implement the Funded Activity, provided that nothing herein shall in any way be construed to limit the rights of UNDP to take such steps as it reasonably deems in the best interest of the continued operation of the Funded Activity taking into consideration the objectives of the GCF and the terms of the applicable SBAA, and in accordance with its policies and procedures.

The Implementing Partner agrees that any non-compliance of the Project Specific Conditions under item (i), representation and warranties provided under item (ii) and/or the covenants set out in item (iii) above shall be deemed a breach of the obligations of the Implementing Partner under this Project Document.

Annex B: GCF Board-approved Funding Proposal

https://www.greenclimate.fund/project/fp272

Annex C: Letter of agreement between the Implementing Partner and Responsible Parties

(Not Applicable)

Annex D: Co-financing commitment letters of co-financing (from the project design stage)

GOVERNMENT OF NEPAL

MINISTRY OF FINANCE

International Economic Cooperation And

Coordination Division

Singhadurbar, Kathmandu

Ref No. :- 1627-081/82

Date :- A.D. 2025-03-25

N.S. :- २०७८ चित्तला २२ मंगलवार

Subject: Confirmation of No Changes to the Previously Issued Letter on Co-Financing United Nations Development Programme.

United Nation Development Programme "UNDP"

and The Green Climate Fund "GCF"

Dear Sir/Madam,

With reference to the letter dated on 24 November 2021 (IECCD/MOF /GCF 2021/22- 548), The Ministry of Finance reaffirms in kind and parallel co-financing commitment as specified in the original correspondence.

Should you require any further clarification, please do not hesitate to reach out.

Verified Digital Signature Signed By
Dhani Ram Sharma
drsharma@mof.gov.np

(Dhani Ram Sharma)

Joint Secretary

CC:

Ministry of Energy Water Resources and Irrigation

Singha Durbar, Kathmandu

Tel: Minister 4211809, Secretary 4211332, International Economic Cooperation Coordination Division 4211372, 4211867
Fax No.: 4211164, 4211165, Website: www.mof.gov.np

नेपाल पर्यटन बोर्ड
Nepal Tourism Board

(नेपाल पर्यटन बोर्ड ऐन, २०५३ द्वारा स्थापित)
(Established under Nepal Tourism Board Act 1997)

Ref: 05/21/82-033
Date: 14th March 2025

To
United Nations Development Programme (UNDP)
The Green Climate Fund (GCF)
Kathmandu, Nepal

Re: Co-financing commitment letter for "Protecting Livelihoods and Assets at Risk from GLOFs and Climate Change-Induced Flooding in Glacial River Basins of Nepal"

Dear Madam/Sir,

I am writing to you to express our commitment to support "Protecting Livelihoods and Assets at Risk from GLOFs and Climate Change-Induced Flooding in Glacial River Basins of Nepal" that was proposed to the Green Climate Fund (GCF) for funding.

This is to confirm the **in-kind contribution** of Nepal Tourism Board to co-finance the project, should the proposal be approved, with a total value of **USD 58,334** for the project period of 7 years.

Thank you and we look forward for the long standing partnership between NTB and UNDP in future endeavor.

Regards
Deepak Raj Joshi
Chief Executive Officer

Tourist Service Center, P.O. Box: 11018, Bhrikutimandap, Kathmandu, Nepal
Tel: 977-1-4256909, Fax: 977-1-4256910, E-mail: info@ntb.org.np, URL: ntb.gov.np
Tourist Service Center, Pardi, Pokhara, Nepal Tel: 977-61-465292

iPPAN
Regd No: 77/1263/057/058 PAN No. 302275560
स्वतन्त्र ऊर्जा उत्पादकहरूको संस्था, नेपाल
Independent Power Producers' Association, Nepal

President
Ganesh Karki

Senior Vice President
Mohan k. Dangi

Vice President
Ananda Chaudhary
Ashish Garg
Bharat B. Khatri
Ram P. Acharya
Uttam Bhlon Lama

General Secretary
Balaram Khatiwada

Deputy General Secretary
Prakash Chandra Dulal

Secretary
Bharat K. Khadka
Bharat P. Nepal
Bikram Bista
Him P. Pathak
Kabita Pokharel

Treasurer
Narendra Ballav Panth

Member
Bharat P. Parajuli
Bijay Mohan Bhattarai
Isha Shrestha
Kuber Mani Nepal
Mithun C.P. Paudel
Shankar Bashyal
Suman Joshi
Susan Karmacharya
T. N. Acharya
Uttar K. Shrestha

Associate Member
Shailendra Guragain

IPP & Chief Advisor
Krishan P. Acharya

Kathmandu, Nepal.

Date: 5th March, 2025

To,
United Nations Development Programme "UNDP",
And
The Green Climate Fund "GCF".

Re: Co-financing commitment letter for "Protecting Livelihoods and Assets at Risk from GLOFs and Climate Change-Induced Flooding in Glacial River Basins of Nepal"

Dear Sir/Madam,

I am writing to you to express our commitment to support **"Protecting Livelihoods and Assets at Risk from GLOFs and Climate Change-Induced Flooding in Glacial River Basins of Nepal."** that was proposed to the Green Climate Fund (GCF) for funding.

This is to confirm the Co-financing contribution of Independent Power Producers' Association, Nepal (IPPAN), Kathmandu to co-finance the project, should the proposal be approved, with a total value of USD 1.62 Million for the Project period and up to 15 years, in kind only as per terms and conditions mentioned in the annexure with no liability on our part.

Sincerely,

.....
Ganesh karki
President
Independent Power Producers' Association of Nepal

Enclosure:

- Annexure: contribution workings and conditions

Heritage Plaza II, Kamaladi, PO Box: 20010, Kathmandu, Nepal, Tel:977-1-4169175, Mobile No. +977 9851358275
Email: info@ippan.org.np, ippan2001@gmail.com, web : ippan.org.np

United Nations Development Programme

25 May 2023

Dear Mr. Gonzalez,

Re: Co-financing commitment letter for Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change induced flooding inglacial river basins of Nepal

I am writing to you to express our commitment to support "Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal" that was proposed to the Green Climate Fund (GCF) for funding.

This is to confirm the In-Cash contribution of UNDP Nepal to co-finance the project, should the proposal be approved, with a total value of **USD 2,143,869** over the project period of 7 years.

Yours sincerely,

Ayshanie Medagangoda-Labé (Ms.)
Resident Representative

Mr. Henry Gonzalez
Executive Director a.i.
Green Climate fund
Songdo Business District, Yeonsu-gu, Incheon 22004
Republic of Korea

United Nations House, • GPO Box 107, Pulchowk, Lalitpur, Nepal • Tel: +977 14290000
Fax: (977-1) 14290055, 14290066 E-mail: registry.np@undp.org • http://www.undp.org/nepal

Annex E: Timetable of project implementation

				Y1				Y2				Y3				Y4				Y5				Y6				Y7				Y8			
				Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Output 2. Improved hazard monitoring and the generation and dissemination of early warning to local communities and important economic sectors	Activity 1.2. Develop public-private partnerships for sustainable investment in GLOF and flood risk information services.	Activity 1.1. Strengthen the knowledge base and technical capacities for improved climate research and risk reduction strategies.	Output 1. Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development.																																
		*Methods and SOPs for the inventory and development of a spatial digital database (GIS) of glaciers and glacial lakes developed and institutionalised in DHM																																	
	*Climate-induced hazard event recording and management database systems for sustainable GLOF and flood risk information services	Annual workshop to train technical staff in DHM and Glacier Lake Departments on regular/operational monitoring for risk prioritisation, and risk information use																																	
	*Sector-specific climate risk management plans	Geophysical investigation, as well as topographic and bathymetric surveys commenced																																	
	Engagement workshop with representatives from tourism and hydropower sectors to establish public-private partnerships	Annual workshop to train technical staff in DHM and Glacier Lake Departments on																																	
	Annual engagement workshop, led by DHM, to update climate risk information in collaboration with tourism and hydropower stakeholders starting in Year 2. Annual engagement workshop to review and expand upon public-private partnership agreements Validation workshop for review of public-private sector partnership agreements and signing of MoUs	Geophysical investigation, as well as topographic and bathymetric surveys completed *Topographic and bathymetric survey report																																	
	Development of long-term integrated watershed management strategy for managing CC induced disaster risks for project watersheds. *Long-term integrated watershed management strategy	Methodology and standard operating procedures (SOPs) introduced for integrated GLOF risk reduction implementation planning in vulnerable watersheds																																	
	Validation workshop for review of public-private sector partnership agreements and signing of MoUs																																		
		Annual workshop to train technical staff in DHM and Glacier Lake Departments on regular/operational monitoring for risk prioritisation, and risk information use																																	
	Annual engagement workshop, led by DHM, to update climate risk information in collaboration with tourism and hydropower stakeholders starting in Year 2. Annual engagement workshop to review and expand upon public-private partnership agreements Validation workshop for review of public-private sector partnership agreements and signing of MoUs *Renewed PPP Agreements and MoUs																																		
		Annual workshop to train technical staff in DHM and Glacier Lake Departments on regular/operational monitoring for risk prioritisation, and risk information use																																	
	Annual engagement workshop, led by DHM, to update climate risk information in collaboration with tourism and hydropower stakeholders starting in Year 2. *Updated climate risk information intregated into national knowledge databases.																																		
		Annual workshop to train technical staff in DHM and Glacier Lake Departments on regular/operational monitoring for risk prioritisation, and risk information use																																	
	Annual engagement workshop, led by DHM, to update climate risk information in collaboration with tourism and hydropower stakeholders starting in Year 2. *Updated climate risk information intregated into national knowledge databases.																																		
		Annual workshop to train technical staff in DHM and Glacier Lake Departments on regular/operational monitoring for risk prioritisation, and risk information use																																	
	Annual engagement workshop, led by DHM, to update climate risk information in collaboration with tourism and hydropower stakeholders starting in Year 2. *Updated climate risk information intregated into national knowledge databases.																																		
		Update of risk status of the identified glaciers and glacial lakes using the GIS database, geophysical investigation and surveys by DHM *Updated glacial lake prioritisation report																																	
		Annual workshop to train technical staff in DHM and Glacier Lake Departments on regular/operational monitoring for risk prioritisation, and risk information use *DHM staff equipped to reguylarly assess GLOF risk and prioritise risk reduction																																	
	Annual engagement workshop, led by DHM, to update climate risk information in collaboration with tourism and hydropower stakeholders starting in Year 2. *Updated climate risk information intregated into national knowledge databases. Annual engagement workshop to review and expand upon public-private partnership agreements																																		

Output 3. GLOF and flash flood risk and impact reduction measures implemented in priority glacial lake watersheds	Activity 2.2. Develop and implement early warning systems planning to strengthen adaptive capacity and response to GLOFs and other climate hazards in vulnerable sectors and communities	Activity 2.1. Improve observation network density in GLOF watersheds to strengthen the technical capacity of DHM for the monitoring of climate hazard and risk.
	Development of training material to improve early warning systems to strengthen adaptive capacity and response to GLOFs and other climate hazards.	
	Annual training workshops for technical staff from DHM on improved methods for generating and disseminating early warnings Orientation programme and annual engagement with community members in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin (one per location) Annual awareness raising campaigns (one per location per year) in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin for roll out of localised Bipad Portal to local government and communities ***Increase community awareness of GLOF risk and local response stratgies.**	
	*** 3 multi-hazard-based risk assessments in each watershed 1 in the Dudhkosi Sub-basin, 1 in the Arun Sub-basin and 1 in the Marsyangdi Basin.**	Recruitment of 1 Hydrologist for providing relevant technical inputs particularly on installation of Hydrological stations and 1 Meteorologist for providing relevant technical inputs particularly on installation of Meteorological stations
	Engagement workshop per location in the Arun and Dudhkosi Sub-basin and Marsyangdi Basin for the preparation of Local Disaster	Conduct the site assessments and detail design for the installation of Hydrological stations
	Annual training workshops for technical staff from DHM on improved methods for generating and disseminating early warnings Orientation programme and annual engagement with community members in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin (one per location) Annual awareness raising campaigns (one per location per year) in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin for roll out of localised Bipad Portal to local government and communities ***Increase community awareness of GLOF risk and local response stratgies.**	Development of TORs and procurement packages with specifications for 6 hydrological stations, 24 AWSs, 9 precipitation gauges, and 27 radar based water level sensors, low-cost water tower and 9 siren towers and other equipment
	Validation workshops for the finalisation and implementation of climate-responsive Municipal Disaster Preparedness and Response Plans, and local-level climate-resilient action plans Workshops to update the Local Disaster Resilience Framework. These workshops will happen at the end of Year 3 and 7 (two in Year 3 and two in Year 7, i.e. one at the municipal level and one at the local/ community level).	Procurement of firm to conduct a review of the existing hydrological network in Nepal and identify specific stations that need to be integrated into a real-time data acquisition system.
	Design and printing of publications of climate-responsive Municipal Disaster Preparedness and Response Plans, as well as Local-level Climate-resilient Action Plans.	
	Workshops to update the Local Disaster Resilience Framework. These workshops will happen at the end of Year 3 and 7 (two in Year 3 and two in Year 7, i.e. one at the municipal level and one at the local/community level). ***Updated Local Disaster Resilience Framework for 10 communities.** ***10 community-based disaster response plans.**	Procurement of contractor for executing the civil work required for setting up all new stations
	Annual training workshops for technical staff from DHM on improved methods for generating and disseminating early warnings Orientation programme and annual engagement with community members in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin (one per location) Annual awareness raising campaigns (one per location per year) in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin for roll out of localised Bipad Portal to local government and communities ***Increase community awareness of GLOF risk and local response stratgies.**	Procurement of equipment for installation of 6 hydological station, 24 AWSs, 9 Precipitation gauges, 27 Water level sensors and 10 towers Integration of the existing hydrology stations into a real-time data acquisition system. Water Quality Monitoring
		* Installation of 2 hydrological base stations, 8 AWSs, 3 Precipitation gauges, 9 Water level sensors,
		Water Quality Monitoring
	Annual training workshops for technical staff from DHM on improved methods for generating and disseminating early warnings Orientation programme and annual engagement with community members in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin (one per location)	Installation of 2 hydrological base stations, 8 AWSs, 3 Precipitation gauges, 9 Water level sensors, 3 towers Generation of annual satellite data
		Installation of 2 hydrological base stations, 8 AWSs, 3 Precipitation gauges, 9 Water level sensors, 3 towers
		Water Quality Monitoring
	Annual training workshops for technical staff from DHM on improved methods for generating and disseminating early warnings Orientation programme and annual engagement with community members in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin (one per location) Annual awareness raising campaigns (one per location per year) in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin for roll out of localised Bipad Portal to local government and communities ***Increase community awareness of GLOF risk and local response stratgies.**	Generation of annual satellite data *Satellite data integrated into EWS databases.
	Annual training workshops for technical staff from DHM on improved methods for generating and disseminating early warnings Orientation programme and annual engagement with community members in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin (one per location) Annual awareness raising campaigns (one per location per year) in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin for roll out of localised Bipad Portal to local government and communities ***Increase community awareness of GLOF risk and local response stratgies.**	Water Quality Monitoring Generation of annual satellite data *Satellite data integrated into EWS databases.
	Workshops to update the Local Disaster Resilience Framework. These workshops will happen at the end of Year 3 and 7 (two in Year 3 and two in Year 7, i.e. one at the municipal level and one at the local/community level). ***Updated Climate-responsive Municipal Disaster Preparedness and Response Plans**	
	Workshops to update the Local Disaster Resilience Framework. These workshops will happen at the end of Year 3 and 7 (two in Year 3 and two in Year 7, i.e. one at the municipal level and one at the local/community level). ***Updated Local Disaster Resilience Framework in 10 communities**	Water Quality Monitoring
	Annual training workshops for technical staff from DHM on improved methods for generating and disseminating early warnings Orientation programme and annual engagement with community members in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin (one per location) Annual awareness raising campaigns (one per location per year) in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin for roll out of localised Bipad Portal to local government and communities ***Increase community awareness of GLOF risk and local response stratgies.**	Generation of annual satellite data *Satellite data integrated into EWS databases.

Activity 3.2. Construction of structural and non-structural measures (Civil and NbS/ Bioengineering) for the risk reduction of GLOF and flash flood.	Activity 3.1. Lower the levels of four of the highest risk glacial lakes.
	Conduct on-the-ground assessments including - topographical surveys of the site and the moraine dam - bathymetric investigation - hydrometeorology assessments - geophysical investigations using a GPR survey, and electric resistivity tomography assessments of the sites
*Detailed site-specific engineering designs for - 3,102 m3 of flood walls and RCC revetments - 67 conservation ponds will be established (38 in the Arun	*Detailed site-specific engineering designs for the lowering of the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes.
Validate designs and develop procurement package	Validate designs and develop procurement package
Commence construction of flood walls and RCC revetments. Commence construction of conservation ponds	Commence construction to lower the Thulagi, Lower Barun and Lumding Tsho by 3 m and the Hongu 2 Lake by 1 m.
	*Step 1 completed to lower the Thulagi, Lower Barun and Lumding Tsho by 3 m and the Hongu 2 Lake by 1 m.
*1,000 m3 of flood walls and RCC revetments installed. *25 conservation ponds constructed (14 in the Arun Sub-	*Step 2 completed to lower the Thulagi, Lower Barun and Lumding Tsho by 3 m and the Hongu 2 Lake by 1 m.
	*Step 3 completed to lower the Thulagi, Lower Barun and Lumding Tsho by 3 m and the Hongu 2 Lake by 1 m.
	*Step 4 completed to lower the Thulagi, Lower Barun and Lumding Tsho by 3 m and the Hongu 2 Lake by 1 m.
* 3,101.61 m3 of flood walls and RCC revetments installed. *67 conservation ponds constructed (38 in the Arun Sub-	

Project Monitoring	Activity 3.3. Implement eco-disaster risk reduction and nature-based solutions to reduce the impact of GLOFs and flash floods.
Inception Report	
	Undertake multi-hazard risk assessments Training for relevant officials (within federal, provincial and municipal governments) on the implementation of the management plans and MHRA models/tools, NbS, CCA, and Eco-DRR.
APR1	*Climate-resilient agricultural management and information system Procurement of Technology Equipment (Drones for seeds sowing)
	Complete assessment and detailed design for Plantation of 153.3 ha trees along vulnerable riverbanks - Establishing 17,744 m3of vegetative gabion walls
	*Integrated, climate- and gender-responsive watershed and national park management plans
	*Curriculum for climate-change related education Conduct women leadership training for both advantaged and poor and highly marginalized women and men Targeted participatory technical training on early warning and monitoring: a) For women and most vulnerable groups - such as Persons with Disabilities - living in locations most at risk to GLOF and other climate change induced disaster risks (mainly for poor Dalits and marginalized Indigenous groups, PWDs, elderly);
APR 2	Commence implementation of NbS solutionsincluding plantations, check dams, gabion walls etc
	Training for- relevant officials on the implementation of the management plans and MHRA models/tools, NbS, CCA, and Eco-DRR. - farmers and other community representatives, government officials on the implementation of the AMIS - CBOs on effective risk reduction and adaptation techniques such as CCA, EbA, Eco-DRR measures and on the use of the AMIS.
	Conduct women leadership training for both advantaged and poor and highly marginalized women and men Targeted participatory technical training on early warning and monitoring: a) For women and most vulnerable groups - such as Persons with Disabilities - living in locations most at risk to GLOF and other climate change induced disaster risks (mainly for poor Dalits and marginalized Indigenous groups, PWDs, elderly); b) Local Disaster Mangement Committe members.
Interim Evaluation	Training for- relevant officials on the implementation of the management plans and MHRA models/tools, NbS, CCA, and Eco-DRR. - farmers and other community representatives, government officials on the implementation of the AMIS - CBOs on effective risk reduction and adaptation techniques such as CCA, EbA, Eco-DRR measures and on the use of the AMIS.
	Conduct women leadership training for both advantaged and poor and highly marginalized women and men Targeted participatory technical training on early warning and monitoring: a) For women and most vulnerable groups - such as Persons with Disabilities - living in locations most at risk to GLOF and other climate change induced disaster
APR 4	
	Training for- relevant officials on the implementation of the management plans and MHRA models/tools, NbS, CCA, and Eco-DRR. - farmers and other community representatives, government officials on the implementation of the AMIS - CBOs on effective risk reduction and adaptation techniques such as CCA, EbA, Eco-DRR measures and on the use of the AMIS.
	Conduct women leadership training for both advantaged and poor and highly marginalized women and men Targeted participatory technical training on early warning and monitoring: a) For women and most vulnerable groups - such as Persons with Disabilities - living in locations most at risk to GLOF and other climate change induced disaster
APR 5	
	Training for relevant officials on the implementation of the management plans and MHRA models/tools, NbS, CCA, and Eco-DRR. - farmers and other community representatives, government officials on the implementation of the AMIS - CBOs on effective risk reduction and adaptation techniques such as CCA, EbA, Eco-DRR measures and on the use of the AMIS.
	Conduct women leadership training for both advantaged and poor and highly marginalized women and men Targeted participatory technical training on early warning and monitoring: a) For women and most vulnerable groups - such as Persons with Disabilities - living in locations most at risk to GLOF and other climate change induced disaster
APR 6	
	Training for relevant officials on the implementation of the management plans and MHRA models/tools, NbS, CCA, and Eco-DRR. farmers and other community representatives, government officials on the implementation of the AMIS - CBOs on effective risk reduction and adaptation techniques such as CCA, EbA, Eco-DRR measures and on the use of the AMIS.
	Conduct women leadership training for both advantaged and poor and highly marginalized women and men Targeted participatory technical training on early warning and monitoring: a) For women and most vulnerable groups - such as Persons with Disabilities - living in locations most at risk to GLOF and other climate change induced disaster
Project Completion Completion Report	*Plantation of 153.3 ha trees along vulnerable riverbanks *Establishment of 17,744 m3of vegetative gabion walls *Installation of 978,436 m of live check dams *Installation of 7,246 m3 of vegetative gabion spurs *Installation of a total of 29,685 m3 of vegetative gabion check dams *Installation of a total of 15,009.8 m3 of vegetative dry stone check dams
Terminal Evaluation	

Annex F: Procurement plan

General

1. **Project information**: Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal,
2. **Project number:** 6045
3. **Country:** Nepal
4. **Version of the Plan**: Version 1.0 dated 27.03.2025
5. **Procurement Plan clearance date (to be indicated by GCF):**
6. **Period covered by this procurement plan:** This initial procurement plan covers the full implementation period (84 Months).

Procurement Methods and Prior Review Thresholds

	Procurement Method[58]	Procurement category	Financial threshold applicable[59]	Prior Review Threshold (applicable if the Executing Entity is not the AE)[60]	Remarks
1.	Micro-purchasing (MP)	Goods and Services	Below US 10,000	Please refer to Annex 1: UNDP Policy on Prior and Post Review	Canvassing (by phone, Internet, shopping, etc.); Limited international or national
2.	Request for quotation (RFQ)	Goods, Services and Works	US $5,000 to $199,999		E-tendering through Quantum; Limited international or national
3.	Request for proposal (RFP) Low value	Services	Below $200,000		E-tendering through Quantum; Limited international or national
3.	Request for proposal (RFP) High value	Services	US $200,000 and above		Advertisement in international media; Open international
4.	Invitation to bid (ITB)	Goods, Services and Works	US $200,000 and above		Advertisement in international media; Open international
5.	Desk Review / Procurement Notice	Individual consultants	Below $100,000		Direct invitation from roster or Advertisement in international/national media; Limited international or national
6.	Open competitive process	Individual consultants	$100,000 and above		Advertisement in international/national media; Open international or national
7	Use of existing LTA agreements	Goods and Services	Any amount and depending on the approved ceiling for LTA use		Advertisement in international/national media; Open international or national

[58] As per applicable procurement policy of the Accredited Entity.
[59] Financial threshold for which the indicated procurement method should be used.
[60] Financial threshold above which the Accredited Entity will review and provide clearance prior procurement process is initiated (not applicable if AE is the executing entity)

Procurement activities

Item No.	Description of works, goods, non-consultancy and consultancy services to be procured	Required Delivery / Commencement of Services time (weeks/ months after FP approval)	Procuring entity	Estimated cost (USD)	Procurement method[1]	Selection method[2]	Prequalification (Yes/No)	Review by AE (Prior/Post procurement process)	Tender issuing (e.g. weeks/months from the FP approval, etc)	Bid submission deadline (days/weeks after tender issuing day)	Evaluation and contract signing time (days/weeks after bid submission deadline)	Remarks
Non-consulting services (Workshop)												
1	Annual engagement workshop to review and expand upon public-private partnership agreements	Y1-Q2	DHM	22,500	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y1-Q1	Y1-Q1	Y1-Q2	7 contracts
2	Organize orientation programme and engage community members including IP, women, Persons with Disabilities and youth with their indigenous knowledge on Risk Assessment and risk communication Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika	Y1-Q2, Y2-Q1, Y3-Q1, Y4-Q1, Y5-Q1, Y6-Q1	NDRRMA	251,700	Expression of Intent (EOI)	Quality and Cost Based Selection (QCBS)	No	NA	Y1-Q1, Y1-Q4, Y2-Q4, Y3-Q4, Y4-Q4, Y5-Q4	Y1-Q1, Y1-Q4, Y2-Q4, Y3-Q4, Y4-Q4, Y5-Q4	Y1-Q2, Y2-Q1, Y3-Q1, Y4-Q1, Y5-Q1, Y6-Q1	15 contracts
3	Orientation trainings for local governments for strengthening EWS to institutionalize at the local level to prepare LDRF/ guidelines/ tools for replication and sustainability Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika	Y1 to Y6; Q2 of each year	NDRRMA	251,700	Expression of Intent (EOI)	Quality and Cost Based Selection (QCBS)	No	NA	Y1 to Y6; Q1 of each year	Y1 to Y6; Q1 of each year	Y1 to Y6; Q2 of each year	15 contracts
4	Organize and strengthen local interest groups in selected 31 municipalities of the project areas.	Y1-Q4	UNDP	155,000	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y1-Q4	Y1-Q4	Y1-Q4	31 contracts
5	Strengthen and collaborate with partner agencies in GESI and climate resilient livelihood expertise such as local chapters of HIMAWANTI Nepal, NEFIN (Women), women led cooperatives etc. in the project areas.	Y1-Q4	UNDP	80,000	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y1-Q4	Y1-Q4	Y1-Q4	16 contracts
6	Training for relevant officials (within federal, provincial and municipal governments) on the implementation of the management plans and MHRA models/tools, NbS, CCA, and Eco-DRR.	Y1-Q4	UNDP	28,506	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y1-Q4	Y1-Q4	Y1-Q4	6 contracts
7	Training workshops to deliver the curricular (10 and 8 schools in the Arun and Dudhkosi Sub-basins, respectively).	Y2-Q2 to Q4	DoFSC	48,665	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y1-Q4	Y1-Q4	Y2-Q2	18 contracts;
8	Training and Workshop - Includes 10K per year for Activity 3.3.12 for all 7 years	Y1-Q4	UNDP	149,624	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y1-Q4	Y1-Q4	Y1-Q4	18 contracts
9	Annual training workshop (7 total) to initially introduce and thereafter update methods and tools for GLOF hazard prioritization (USD 3,750 for 7 workshops)	Y1 to Y7, Q3 of each year	UNDP	26,250	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y1 to Y7, Q3 of each year	Y1 to Y7, Q3 of each year	Y1 to Y7, Q3 of each year	7 contracts
10	Conference to introduce methodology and SOPs for implementing integrated GLOF risk reduction in vulnerable watersheds	Y3-Q1	UNDP	3,750	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y3-Q1	Y3-Q1	Y3-Q1	1 contract
11	Bi-annual 5-day training workshop for 9 technical staff from DHM on regular/operational monitoring for risk prioritization and the use of risk information (USD 3,750 for 14 Workshops)	Y1 to Y7, Q2 and Q4 of each year	UNDP	52,500	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y1 to Y7, Q2 and Q4 of each year	Y1 to Y7, Q2 and Q4 of each year	Y1 to Y7, Q2 and Q4 of each year	14 contracts
12	Engagement workshop with representatives from tourism and hydropower sectors to establish public-private partnerships	Y2-Q3	UNDP	3,750	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y2-Q3	Y2-Q3	Y2-Q3	1 contract
13	Annual engagement workshop, led by DHM, to update climate risk information in collaboration with tourism and hydropower stakeholders starting in Year 2. (USD 3,750 for 6 workshops)	Y2 to Y7, Q4 of each year	UNDP	22,500	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y2 to Y7, Q4 of each year	Y2 to Y7, Q4 of each year	Y2 to Y7, Q4 of each year	6 contracts

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14	Meeting to establish public-private sector partnerships between target private sector stakeholders and government agencies (USD 1,000 for 8 workshops)	Y2-Q3 to Q4	DHM	8,000	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2-Q3	Y2-Q3	Y2-Q4	8 contracts Below Rs. 5 hundred thousand Rule 85
15	Workshop to validate and review public-private sector partnership agreements and sign MoUs (USD 3,750 for 2 workshops)	Y3-Q3	DHM	7,500	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y3-Q3	Y3-Q3	Y3-Q3	2 contracts Below Rs. 2 million Rule 84
16	Annual training workshops for 9 technical staff from DHM on improved methods for generating and disseminating early warnings. (USD 3,750 for 7 workshops)	Y1 to Y7, Q2 of each year	UNDP	26,250	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y1 to Y7, Q2 of each year	Y1 to Y7, Q2 of each year	Y1 to Y7, Q2 of each year	7 contracts
17	One engagement workshop in each of the 10 target districts in the target basins (Marsyangdi Basin, and Arun and Dudhkosi Sub-Basins) for the development of Local Disaster Resilience Framework (LDRF) (USD 3,750 for 10 workshops)	Y2-Q2	NDRRMA	37,500	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2-Q2	Y2-Q2	Y2-Q2	10 contracts
18	One validation workshop per district in each target basin (Marsyangdi Basin, and Arun and Dudhkosi Sub-basins) to validate the developed community-based early response plans (USD 3,750 for 10 workshops)	Y2-Q2	NDRRMA	37,500	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2-Q2	Y2-Q2	Y2-Q2	10 contracts
19	One annual awareness raising campaign in each target district (starting in Year 2) to enhance awareness across the target GLOF watersheds on the LDRF focusing on response plans. (USD 5,000 for 10 campaigns)	Y2 to Y7; Q3 of each year	NDRRMA	50,000	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2 to Y7; Q2 of each year	Y2 to Y7; Q2 of each year	Y2 to Y7; Q3 of each year	10 contracts
20	Annual training workshops for local governments in Arun and Dudhkosi Sub-Basins and Marsyangdi Basin (one per location) to institutionalize EWS at the local level. (USD 3,750 for 21 training workshops)	Y2 to Y6; Q4 of each year	NDRRMA	78,750	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2 to Y6; Q3 of each year	Y2 to Y6; Q3 of each year	Y2 to Y6; Q4 of each year	21 contracts
21	Orientation programme and annual engagement with community members in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin (one per location), including IP, women, Persons with Disbilities and youths to integrate their knowledge on exposure and vulnerability into multi-hazard risk assessments. (USD 3,750 for 21 training workshops)	Y2 to Y6; Q2 of each year	NDRRMA	78,750	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2 to Y6; Q1 of each year	Y2 to Y6; Q1 of each year	Y2 to Y6; Q2 of each year	21 contracts
22	Annual inter-palika (LEOCs) interaction workshops to strengthen vertical and horizontal linkages in the Arun and Dudhkosi Sub-Basins and Marsyangdi Basin (one per location) (USD 3,750 for 21 workshops)	Y2 to Y6; Q3 of each year	NDRRMA	78,750	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2 to Y6; Q2 of each year	Y2 to Y6; Q2 of each year	Y2 to Y6; Q3 of each year	21 contracts
23	Annual awareness raising campaigns (one per location per year) in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin for roll out of localized Bipad Portal to local government and communities (USD 3,750 for 21 campaigns)	Y2 to Y6; Q4 of each year	NDRRMA	78,750	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2 to Y6; Q3 of each year	Y2 to Y6; Q3 of each year	Y2 to Y6; Q4 of each year	21 contracts
24	One community engagement workshop per location in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin for the development of the community-based response plans. (USD 3750 for 3 workshops)	Y2 to Y6; Q3 of each year	NDRRMA	11,250	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2 to Y6; Q2 of each year	Y2 to Y6; Q2 of each year	Y2 to Y6; Q3 of each year	3 contracts
25	Community engagement workshops in the Arun and Dudhkosi Sub-basins and Marsyangdi Basin, led by representatives from DHM and local level disaster response units to update the response plans in Years 3 and 7. (USD 3,750 for 6 workshop)	Y3 & Y7, Q2	UNDP	22,500	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y3 & Y7, Q2	Y3 & Y7, Q2	Y3 & Y7, Q2	6 contracts

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26	One workshop per location in the Arun and Dudhkosi Sub-Basins and Marsyangdi Basin to establish Volunteer Bureaus to strengthen emergency response. (USD 3750 for 3 workshops)	Y2 to Y6; Q2 of each year	NDRR MA	11,250	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2 to Y6; Q1 of each year	Y2 to Y6; Q1 of each year	Y2 to Y6; Q2 of each year	3 contracts
27	Annual training workshops for Volunteer Bureaus established in each Municipality (Arun and Dudhkosi Sub-basins and Marsyangdi Basin) on efficient and effective emergency response, including accessing and implementing the response plans, first aid including search and rescue. (USD 3,750 for 21 workshops)	Y2 to Y6; Q2 of each year	NDRR MA	78,750	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2 to Y6; Q1 of each year	Y2 to Y6; Q1 of each year	Y2 to Y6; Q2 of each year	21 contracts
28	Engagement workshop per location in the Arun and Dudhkosi Sub-basin and Marsyangdi Basin for the preparation of Local Disaster Resilience Framework (one framework for each municipality) (USD 3,750 for 6 engagement workshops)	Y2 to Y6; Q3 of each year	NDRR MA	22,500	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2 to Y6; Q2 of each year	Y2 to Y6; Q2 of each year	Y2 to Y6; Q3 of each year	6 contracts
29	Validation workshops for the finalization and implementation of climate-responsive Municipal Disaster Preparedness and Response Plans, and local-level climate-resilient action plans (USD 3,750 for 6 validation workshops)	Y2 to Y6; Q4 of each year	NDRR MA	22,500	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2 to Y6; Q3 of each year	Y2 to Y6; Q3 of each year	Y2 to Y6; Q4 of each year	6 contracts
30	Workshops to update the Local Disaster Resilience Framework. These workshops will happen at the end of Year 3 and 7 (two in Year 3 and two in Year 7, i.e. one at the municipal level and one at the local/community level). (USD 3,750 for 4 workshops)	Y2 to Y6; Q4 of each year	NDRR MA	15,000	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2 to Y6; Q3 of each year	Y2 to Y6; Q3 of each year	Y2 to Y6; Q4 of each year	4 contracts
31	Support Local Governments to formulate LDRF, policies, guidelines and SOPs Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika (USD 5,000 for 15 trainings)	Y2 to Y6; Q1 of each year	NDRR MA	75,000	Sealed Quotation (SQ)	Quality Cost Based Selection (QCBS)	No	NA	Y1 to Y5; Q4 of each year		Y2 to Y6; Q1 of each year	15 contracts
32	Annual awareness raising for local communities living in the areas near the Thulagi, Lumding Tsho, Lower Barun and Hongu 2 Glacial Lakes on the training programme on construction processes and systems required for lowering the glacial lakes starting from second year. (USD 3,750 for 24 Awareness campaigns)	Y2 - Q1, Y3-Y7 Q2	UNDP	90,000	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y2 - Q1, Y3-Y7 Q2	Y2 - Q1, Y3-Y7 Q2	Y2 - Q1, Y3-Y7 Q2	24 contracts
33	Annual training workshops per target area to deliver the training programme to local communities living in the areas near the Thulagi, Lumding Tsho, Lower Barun and Hongu 2 Glacial Lakes, and promote the uptake and continued use of the programme after the project period from second year (USD 3,750 for 24 Awareness campaigns)	Y2 - Q1, Y3-Y7 Q2	UNDP	90,000	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y2 - Q1, Y3-Y7 Q2	Y2 - Q1, Y3-Y7 Q2	Y2 - Q1, Y3-Y7 Q2	24 contracts
34	Training and awareness workshops to deliver the training programme to communities living in the areas near the Thulagi, Lumding Tsho, Lower Barun and Hongu 2 Glacial Lakes on how to respond to accidental hazards associated with lowering the lakes. (USD 3,750 for 28 Awareness campaigns)	Y2 - Q2, Y3-Q3, Y4-Q2	UNDP	105,000	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y2 - Q2, Y3-Q3, Y4-Q2	Y2 - Q2, Y3-Q3, Y4-Q2	Y2 - Q2, Y3-Q3, Y4-Q2	28 contracts
35	Training for farmers and other community representatives, as well as government officials (within the relevant department and at the relevant level), on the implementation of the AMIS and how to scale and replicate the system across Nepal. (USD 4,238 for 6 trainings)	Y2-Q4, Y3-Q4	DoFSC	25,425	Sealed Quotation (SQ)	Quality Cost Based Selection (QCBS)	No	NA	Y2-Q2, Y3-Q2	Y2-Q3, Y3-Q3	Y2-Q3, Y3-Q3	6 contracts
36	Training and awareness workshops for the delivery of the training programme. 12 workshops will be conducted in the Arun Sub-basin and 7 in the Dudhkosi Sub-basin. The training and awareness initiatives will focus on demonstrating effective risk reduction and adaptation techniques such as CCA, EbA, Eco-DRR measures and on how to implement and use the AMIS. (USD 4,005 for 19 training workshops)	Y3-Q4, Y4-Q1, Y5-Q2	DoFSC	76,090	Sealed Quotation (SQ)	Quality Cost Based Selection (QCBS)	No	NA	Y3-Q3, Y3-Q4, Y5-Q1	Y3-Q3, Y3-Q4, Y5-Q1	Y3-Q4, Y4-Q1, Y5-Q2	19 contracts

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37	Training workshops for community-based organizations (15 and 12 CBOs in Arun and Dudhkosi Sub-basins, respectively) on effective risk reduction and adaptation techniques such as CCA, EbA, Eco-DRR measures and on the use of the AMIS. CBOs that will be targeted for this training include but are not limited to mothers' group, women lead cooperatives, Indigenous People's organizations, local youth-clubs, community forest users groups. (USD 2,145 for 27 training workshops)	Y3 to Y5; 3 in each Q2, Q3 and Q4	DoFSC	57,908	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y3 to Y5; 2 in each Q2, Q3 and Q4	Y3 to Y5; 2 in each Q2, Q3 and Q4	Y3 to Y5; 3 in each Q2, Q3 and Q4	27 contracts
38	Annual Training/Workshop/Meetings for all activities under Output 1 Training compliance, admin finance, ESS, ME, GESI related to govt PIU unit.	Y1 to Y7, Q2	UNDP	168,000	Existing Long-Term Agreement (LTA)	Single source selection (SSS)	NA	NA	NA	NA	Y1 to Y7, Q2	7 contracts
39	Organize Gender and Persons with Disability responsive training/ capacity building activities, mock drill with required tools (display, handheld-sirens, mobile sets for EWS task force leaders) and Community Field visit to upstream and downstream communities of the project watersheds/ Basins Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika from second year (3 watershed X 6 years)	Y2 to Y7; Q3 of each year	NDRRMA	251,700	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2 to Y7; Q2 of each year	Y2 to Y7; Q2 of each year	Y2 to Y7; Q3 of each year	18 contracts
40	Training/Workshop/Meetings for all components Training on compliance, admin finance ESS, ME, GESI related to sub-national and local level partners & stakeholders (two in each watershed 2X 3 watershed = 6)	Y2-Q2, Y4-Q2	UNDP	80,000	Existing Long-Term Agreement (LTA)	Single source selection (SSS)	NA	NA	NA	NA	Y2-Q2, Y4-Q2	6 contracts
41	Provide targeted participatory technical training on early warning and monitoring: a) For women and most vulnerable groups - such as Persons with Disabilities - living in locations most at risk to GLOF and other climate change induced disaster risks (mainly for poor Dalits and marginalized Indigenous groups, PWDs, elderly); b) Local Disaster Management Committee members. (Two in each watershed 2X 3 watersheds = 6)	Y2 to Y7; Q2 of each year	NDRRMA	108,480	Sealed Quotation (SQ)	Quality Cost Based Selection (QCBS)	No	NA	Y2 to Y7; Q1 of each year	Y2 to Y7; Q1 of each year	Y2 to Y7; Q2 of each year	12 contracts
42	Conduct women leadership training for both advantaged and poor and highly marginalized women and men (two in each watershed 2X 3 watersheds = 6)	Y2-Q3, Y5-Q2	UNDP	90,000	Existing Long-Term Agreement (LTA)	Single source selection (SSS)	NA	NA	NA	NA	Y2-Q3, Y5-Q2	6 contracts
Total:				**2,979,548**								
Non-consulting services (Travel)												
1	Travel (Local and International including 3 Field visits by Intl. Experts per year; Travel cost for helicopter monitoring & reporting)	Y2-Q2	UNDP	217,000	Existing Long-Term Agreement (LTA)	Single source selection (SSS)	NA	NA	NA	NA	Y2-Q2	7 contracts
2	Return flights for IC developing database systems	Y2-Q3	UNDP	2,000	Existing Long-Term Agreement (LTA)	Single source selection (SSS)	NA	NA	NA	NA	Y2-Q3	1 contract
3	Organize Exposure visit for women (with 60% from marginalized, and vulnerable group, IPs) for learning and sharing on Climate Risk Management from second year	Y2-Q4	UNDP	250,000	Existing Long-Term Agreement (LTA)	Single source selection (SSS)	NA	NA	NA	NA	Y2-Q4	12 contracts

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4	Travel (Intl & DSA) Trainings/Exposure visits planned for enhanced knowledge and concepts of Climate Change & EWS (20 participants in total and approx. 3-4 participant per year)	Y2-Q3	UNDP	50,000	Existing Long-Term Agreement (LTA)	Single source selection (SSS)	NA	NA	NA	NA	Y2-Q3	6 contracts
5	Travel (Intl & DSA) International /South-South learning and exposures to enhance climate change, EWS and strengthening systems (20 officials of RPs & Ips in total and approx. 3-4 participant per year))	Y2-Q2	UNDP	110,000	Existing Long-Term Agreement (LTA)	Single source selection (SSS)	NA	NA	NA	NA	Y2-Q2	6 contracts
6	Travel (Local and International including 3 Field visits by Intl. Experts per year; Travel cost for helicopter monitoring & reporting)	Y2-Q2	UNDP	107,000	Existing Long-Term Agreement (LTA)	Single source selection (SSS)	NA	NA	NA	NA	Y2-Q2	1 contract
7	Travel (Local and International) for Mid-term Evaluations	Y3-Q3	UNDP	42,000	Existing Long-Term Agreement (LTA)	Single source selection (SSS)	NA	NA	NA	NA	Y3-Q3	1 contract
Total:				**778,000**								
Non-consulting services (Other services such as printing translation, audit etc.)												
1	Printing and Publications related to activities to develop policy and financial mechanisms for sustainable GLOF and flood risk information services.	Y1-Q3	UNDP	70,000	Request for Quotation (RFQ)	Least Cost Selection (LCS)	No	Yes-Post	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
2	Printing and Publications related to climate-responsive Municipal Disaster Preparedness and Response Plans, as well as Local-level Climate-resilient Action Plans.	Y1-Q3	UNDP	51,000	Request for Quotation (RFQ)	Least Cost Selection (LCS)	No	Yes-Post	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
3	Annual GSM data charges for the new stations installed under Activity 2.1.	Y4-Q1 to Y7-Q4	DHM	4,842	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y4-Q1 to Y7-Q4	Y4-Q1 to Y7-Q4	Y4-Q1 to Y7-Q4	1 contract
4	Annual satellite data charges for the new stations installed under Activity 2.1.	Y4-Q1 to Y7-Q4	DHM	28,345	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y4-Q1 to Y7-Q4	Y4-Q1 to Y7-Q4	Y4-Q1 to Y7-Q4	1 contract on yearly basis (hence 4 separate contracts will be issued)
5	Professional services to conduct an audit of the DHM technical team's IT infrastructure and provide recommendations for upgrades for hosting climate-induced hazard event recording and management database systems. DHM technical team to upgrade the IT infrastructure based on the recommendations provided by the professional services.	Y1-Q3 to Y4-Q4	DHM	50,000	Expression of Intent (EOI)	QCBS	Yes	NA	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
6	Insurance for the equipment that will be procured for the installation of the tangible downstream interventions under Activities 3.2 and 3.3. This includes for: i) potential damages during civil works, as well as to plants and materials; ii) the risk of riots, strikes, damage, malicious damage and terrorism; and iii) third party liability insurance.	Y2 to Y7, Q1 of each year	DHM	1,171,070	Expression of Intent (EOI)	QCBS	Yes	NA	Y1-Q4	Y1-Q4	Y2-Q1	1 contract; embedded in the respective service provider contract

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7	Insurance for the equipment that will be procured for the installation of the tangible downstream interventions under Activities 3.2 and 3.3. This includes for: i) potential damages during civil works, as well as to plants and materials; ii) the risk of riots, strikes, damage, malicious damage and terrorism; and iii) third party liability insurance.	Y2 to Y7, Q1 of each year	DoFSC	477,920	Expression of Intent (EOI)	QCBS	Yes	NA	Y1-Q4	Y1-Q4	Y2-Q1	1 contract; embedded in the respective service provider contract
Total:				**1,853,177**								
Consultancy services (Companies)												
1	Professional services to conduct a review of the existing hydrological network in Nepal and identify specific stations that need to be integrated into a real-time data acquisition system.	Y1-Q4 to Y2-Q4	DHM	30,000	Expression of Intent (EOI)	QCBS	Yes	NA	Y1-Q3	Y1-Q3	Y1-Q4	1 contract
2	Professional services to support DHM to integrate the existing hydrology stations into a real-time data acquisition system.	Y2-Q4 to Y3-Q4	DHM	50,000	Expression of Intent (EOI)	QCBS	Yes	NA	Y2-Q3	Y2-Q3	Y2-Q4	1 contract
3	Professional services to develop 3 multi-hazard-based risk assessments in each watershed 1 in the Dudhkosi Sub-basin, 1 in the Arun Sub-basin and 1 in the Marsyangdi Basin.	Y1-Q2	UNDP	94,200	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q1	Y1-Q1	Y1-Q2	1 contract
4	Professional services to conduct site-specific risk and vulnerability assessments, focusing on historical discrimination + situational + climate vulnerabilities to identify most critical locations and populations for targeted interventions and outreach.	Y1-Q3 to Y2-Q4	DoFSC	50,000	Expression of Intent (EOI)	QCBS	Yes	Yes-Pre	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
5	Professional services to invest in and collaborate with, women lead cooperatives, partner institutions with expertise to support GESI responsive and climate resilient agroforestry/nature-based tourism, alternative energy technologies, water management in 16 potential wards (mountain, mid-hill and tarai areas).	Y2-Q2	UNDP	80,000	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y2-Q1	Y2-Q1	Y2-Q2	1 contract
6	Professional services to undertake detailed technical studies for the lowering of the Thulagi Lake, including a detailed geo-technical investigation, GPR survey, and hydrological assessment of the current discharge of the glacier outlet.	Y1-Q3 to Y2-Q3	DHM	447,977	Expression of Intent (EOI)	QCBS	Yes	Yes-Pre	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
7	Professional services to undertake detailed technical studies for the lowering of the Lumding Tsho Lake, including a detailed geo-technical investigation, and GPR survey.	Y1-Q3 to Y2-Q3	DHM	334,315	Expression of Intent (EOI)	QCBS	Yes	Yes-Pre	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
8	Professional services to undertake detailed technical studies for the lowering of the Lower Barun Lake, including a detailed geo-technical investigation, and GPR survey.	Y1-Q3 to Y2-Q3	DHM	416,271	Expression of Intent (EOI)	QCBS	Yes	Yes-Pre	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
9	Professional services to undertake detailed technical studies for the lowering of the Hongu 2 Lake, including a detailed geo-technical investigation, and GPR survey.	Y1-Q3 to Y2-Q3	DHM	298,470	Expression of Intent (EOI)	QCBS	Yes	Yes-Pre	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
10	Professional services (specifically a GeoTechnical Engineer and a Civil/Structural Engineer) to support the development of detailed site-specific engineering designs, compliance and oversight for lake lowering	Y1-Q3	UNDP	184,800	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
11	Consultancy Firm (Team - ESS expert, IP Expert & GESI Expert) for compliance of ESS, IP and GESI policies.	Y2-Q2	UNDP	214,000	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y2-Q1	Y2-Q1	Y2-Q2	1 contract
12	Consulting firm for t/assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) to Install 3,101.61 m3 of flood walls and RCC revetments.	Y1-Q4	UNDP	47,182	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q3	Y1-Q3	Y1-Q4	1 contract

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13	Contractual Services (includes Civil Engineer, Structural Engineer and Site Supervisor) to support the implementation, compliance and oversight of Sub-activities 3.2.1 and 3.2.2	Y3-Q4	UNDP	192,500	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y3-Q3	Y3-Q3	Y3-Q4	1 contract
14	Consulting firm for /assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) to Construct 67 conservation ponds (38 in the Arun Sub-basin and 29 in the Dudhkosi Sub-basin).	Y1-Q4	UNDP	4,892	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y1-Q3	Y1-Q3	Y1-Q4	1 contract
15	Consulting firm for /assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Plantation of 153.3 ha trees along vulnerable riverbanks, sub-watershed areas and flood plains of 3 river systems (81.6 ha in the Arun Sub-basin and 71.68 ha in the Dudhkosi Sub-basin). Will be implemented through UNDP.	Y1-Q3	UNDP	66,684	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
16	Consulting firm for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Establishing 17,744 m3of vegetative gabion walls (10,7961 m3in the Arun Sub-basin and 6,948 m3in the Dudhkosi Sub-basin). Will be implemented by UNDP.	Y1-Q4	UNDP	29,611	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q3	Y1-Q3	Y1-Q4	1 contract
17	Consulting firm for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Installing 978,436 m of live check dams (955,396 m in the Arun Sub-basin and 23,040 m in the Dudhkosi Sub-basin). Will be implemented by UNDP.	Y1-Q4	UNDP	3,391	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y1-Q3	Y1-Q3	Y1-Q4	1 contract
18	Consultant/assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Install 15,298.94 m3 of vegetative gabion revetments (3,447.5 m3 in the Arun Sub-basin and 11,851.44 m3 in the Dudhkosi Sub-basin). Will be implemented by UNDP.	Y1-Q3	UNDP	65,181	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
19	Consulting firm for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Installing 7,246 m3 of vegetative gabion spurs (4,608 m3 in the Arun Sub-basin and 2,638 m3 in the Dudhkosi Sub-basin). Will be implemented by UNDP.	Y1-Q3	UNDP	29,765	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
20	Consulting firm for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Installing a total of 29,685 m3 of vegetative gabion check dams (21,960 m3 in the Arun Sub-basin and 7,725 m3 in the Dudhkosi Sub-basin). Will be implemented by UNDP.	Y1-Q3	UNDP	88,473	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
21	Consulting firm for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for Installing a total of 15,009.8 m3 of vegetative dry stone check dams (9,371.25 m3 in the Arun Sub-basin and 5,638.5 m3 in the Dudhkosi Sub-basin). Will be implemented by UNDP.	Y1-Q3	UNDP	27,734	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
22	Contractual service for assessment and detail design (Investigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction Supervision and Quality Control) for sub-activity 3.3.7, 3.3.8 and 3.3.9	Y1-Q3	UNDP	5,930	Micro-purchasing	Least Cost Selection (LCS)	No	NA	Y1-Q3	Y1-Q3	Y1-Q3	1 contract
23	Contractual services to support the development and implementation of integrated climate- and gender-responsive watershed and national park management plans	Y1-Q4	UNDP	60,000	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q3	Y1-Q3	Y1-Q4	1 contract

Item No.	Description of works, goods, non-consultancy and consultancy services to be procured	Required Delivery / Commencement of Services time (weeks/ months after FP approval)	Procuring entity	Estimated cost (USD)	Procurement method[1]	Selection method[2]	Prequalification (Yes/No)	Review by AE (Prior/Post procurement process)	Tender issuing (e.g. weeks/months from the FP approval, etc)	Bid submission deadline (days/weeks after tender issuing day)	Evaluation and contract signing time (days/weeks after bid submission deadline)	Remarks
24	Consultancy Firm for the preparation of Indigenous Peoples Implementation Plan	Y1-Q2	UNDP	50,000	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q2	Y1-Q2	Y1-Q2	1 contract
25	Consultancy Firm for Stakeholder engagement & IPP implementation	Y2-Q2	UNDP	280,000	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y2-Q1	Y2-Q1	Y2-Q2	1 contract
26	Consultancy Firm for Grievance Redress Mechanism	Y2-Q1	UNDP	26,000	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q4	Y1-Q4	Y2-Q1	1 contract
27	Consultancy Firm to update and audit the ESMF/ESMP	Y1-Q2	UNDP	50,000	Request for Quotation (RFQ)	Least Cost Selection (LCS)	No	Yes-Post	Y1-Q2	Y1-Q2	Y1-Q2	1 contract
28	Strengthen and collaborate with at least 40% of the total project's municipality and ward level CC induced disaster related committees to establish GEDSI desegregated data collection system in Bipad Portal, reporting and programming (USD 4,520 for 15 contracts)	Y2 to Y4; Q2 of each year	NDRRMA	67,800	Sealed Quotation (SQ)	Quality Cost Based Selection (QCBS)	No	NA	Y2 to Y4; Q1 of each year	Y2 to Y4; Q1 of each year	Y2 to Y4; Q2 of each year	15 contracts
29	Support EOCs with minimum required logistics for disaster preparedness and response including orientation on application and dissemination of information through DIMS/Bipad Portal with integration of DHM's mechanism for effective disaster preparedness and management information Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika from second year (3 watershed X 6 years)	Y2 to Y4; Q2 of each year	NDRRMA	300,000	National Competitive bidding (NCB)	Quality Cost Based Selection (QCBS)	No	Yes-Pre	Y2 to Y4; Q1 of each year	Y2 to Y4; Q1 of each year	Y2 to Y4; Q2 of each year	18 contracts
30	Support LEOC with minimum required logistics for disaster preparedness and response equipment including orientation on application and dissemination of information through DIMS/Bipad Portal, Volunteer Management Information System (VMIS), Resource Management Information (Godam) System for effective disaster preparedness and management information Dudhkoshi - 4 Palika, Arun - 4 Palika, Marsyangdi - 4 Palika	Y2 to Y4; Q2 of each year	NDRRMA	302,400	National Competitive bidding (NCB)	Quality Cost Based Selection (QCBS)	No	Yes-Pre	Y2 to Y4; Q1 of each year	Y2 to Y4; Q1 of each year	Y2 to Y4; Q2 of each year	3 contracts
31	Support training of Volunteer Bureaus for search and rescue and first aid to the most climate vulnerable communities Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika	Y2 to Y6; Q2 of each year	NDRRMA	90,000	Sealed Quotation (SQ)	Quality Cost Based Selection (QCBS)	No	NA	Y2 to Y6; Q1 of each year	Y2 to Y6; Q1 of each year	Y2 to Y6; Q2 of each year	15 contracts
32	Professional services to conduct the site assessments and detail design for the installation of Sub-activities 2.1.1, 2.1.2, 2.1.3, 2.1.5, and 2.1.6 in the Marsyangdi Basin, and Dudhkosi and Arun Sub-basins.	Y2-Q1 to Y3-Q1	DHM	70,989	Expression of Intent (EOI)	QCBS	Yes	NA	Y1-Q4	Y1-Q4	Y2-Q1	1 contract
34	Contractual services (Climate Risk Reduction & EWS) for the implementation, compliance & quality assurance of Sub-activities 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5 and 2.1.6	Y2-Q2	UNDP	190,442	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y2-Q1	Y2-Q1	Y2-Q2	1 contract
35	Construction supervision and management of the lowering of the Thulagi Lake.	Y3-Q1 to Y7-Q4	DHM	288,500	Expression of Intent (EOI)	Quality Cost Based Selection (QCBS)	Yes	Yes-Pre	Y2-Q4	Y2-Q4	Y3-Q1	1 contract
36	Construction supervision and management of the lowering of the Lumding Tsho Lake.	Y3-Q1 to Y7-Q4	DHM	214,107	Expression of Intent (EOI)	Quality Cost Based Selection (QCBS)	Yes	Yes-Pre	Y2-Q4	Y2-Q4	Y3-Q1	1 contract
37	Construction supervision and management of the lowering of the Lower Barun Lake.	Y3-Q1 to Y7-Q4	DHM	253,261	Expression of Intent (EOI)	Quality Cost Based Selection (QCBS)	Yes	Yes-Pre	Y2-Q4	Y2-Q4	Y3-Q1	1 contract
38	Construction supervision and management of the lowering of the Hongu 2 Lake.	Y3-Q1 to Y7-Q4	DHM	214,107	Expression of Intent (EOI)	Quality Cost Based Selection (QCBS)	Yes	Yes-Pre	Y2-Q4	Y2-Q4	Y3-Q1	1 contract
39	Annual monitoring and evaluation works required during the construction phase of lowering the Thulagi Lake.	Y3-Q1 to Y7-Q4	DHM	71,783	Expression of Intent (EOI)	Quality Cost Based Selection (QCBS)	Yes	Yes-Pre	Y2-Q4	Y2-Q4	Y3-Q1	1 contract
40	Annual monitoring and evaluation works required during the construction phase of lowering the Lumding Tsho Lake.	Y3-Q1 to Y7-Q4	DHM	68,365	Expression of Intent (EOI)	Quality Cost Based Selection (QCBS)	Yes	Yes-Pre	Y2-Q4	Y2-Q4	Y3-Q1	1 contract
41	Annual monitoring and evaluation works required during the construction phase of lowering the Lower Barun Lake.	Y3-Q1 to Y7-Q4	DHM	68,054	Expression of Intent (EOI)	Quality Cost Based Selection (QCBS)	Yes	Yes-Pre	Y2-Q4	Y2-Q4	Y3-Q1	1 contract

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42	Annual monitoring and evaluation works required during the construction phase of lowering the Hongu 2 Lake.	Y3-Q1 to Y7-Q4	DHM	61,218	Expression of Intent (EOI)	Quality Cost Based Selection (QCBS)	Yes	Yes-Pre	Y2-Q4	Y2-Q4	Y3-Q1	1 contract
43	Professional services for ongoing training for technical staff at DHM on the construction processes and systems, as well as the continuous monitoring and evaluation of construction works during the pre- and post-construction phases.	Y3-Q1 to Y7-Q4	DHM	113,000	Expression of Intent (EOI)	Quality Cost Based Selection (QCBS)	Yes	Yes-Pre	Y2-Q4	Y2-Q4	Y3-Q1	1 contract
44	Professional services to conduct geophysical, topographic and bathymetric surveys	Y1-Q3 to Y2-Q3	DHM	50,000	Expression of Intent (EOI)	QCBS	Yes	Yes-Pre	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
45	Contractual services for the modelling and mapping of GLOF hazard prioritization and mapping other extreme events	Y4-Q1	DHM	50,000	Expression of Intent (EOI)	QCBS	Yes	Yes-Pre	Y3-Q4	Y3-Q4	Y4-Q1	1 contract; after completion of all ground survey
46	Professional Services to support the development and delivery of technical training on regular/operational monitoring for risk prioritization	Y2-Q1	UNDP	150,000	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q4	Y1-Q4	Y2-Q1	1 contract
47	Local Consultancy with DRR, Climate Change and Private Sector expertise to support the implementation of Sub-Activities 1.2.2 and 1.2.3	Y2 to Y6; Q2 of each year	DHM	95,000	Expression of Intent (EOI)	QCBS	Yes	Yes-Pre	Y2-Q1	Y2-Q1	Y2-Q2	1 contract
48	Local consultancy to develop Practical GESI Working Strategy Guideline for the project (Arun & Dudhkoshi watersheds for 12 Selected Municipalities and Establish a regular and systematic coaching/monitoring system on GESI within project through recruitment of senior level GESI advisor for the project; provision for incentives, recognition for male leadership to promote women's leadership/ roles.	Y2-Q1	UNDP	60,000	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q4	Y1-Q4	Y2-Q1	1 contract
49	Local consultancy to review from GESI perspectives, at least 5 key climate risk reduction related methods, tools, guidelines, documents etc.	Y1-Q4	UNDP	20,000	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q3	Y1-Q3	Y1-Q4	1 contract
50	Local consultancy to integrate GESI in climate change induced disasters/ hazards related training manuals; organize participatory training and coaching on integrating GESI in CC, DRR and GLOF risk management.	Y2-Q1	UNDP	175,000	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q4	Y1-Q4	Y2-Q1	1 contract
51	Procurement of contractual service to Integrate GESI in Output 1-Act 2. Specific deliverables will be mentioned in the Terms of Reference for: a) Sector-specific climate risk management plans; and b) Development of long-term integrated watershed management strategy for managing CC induced disaster risks for project watersheds.	Y2 to Y5; Q3 of each year	DoFSC	100,000	Expression of Intent (EOI)	QCBS	Yes	Yes-Pre	Y2 to Y5-Q2 of each year	Y2 to Y5-Q2 of each year	Y2 to Y5; Q3 of each year	4 contracts
52	Local consultancy to review institutional arrangements and capacity for GLOF from GESI perspectives.	Y2-Q1	UNDP	40,000	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q4	Y1-Q4	Y2-Q1	1 contract
53	Consultancy Firm for Water Quality Monitoring- including travel costs	Y5-Q2	DHM	50,000	Expression of Intent (EOI)	QCBS	Yes	Yes-Pre	Y5-Q1	Y5-Q1	Y5-Q2	1 contract
54	Professional services to integrate risk communication into the LEOCs in the Arun and Dudhkosi Sub-Basins and Marsyangdi Basin	Y2-Q2	NDRRMA	142,500	Expression of Intent (EOI)	Quality Cost Based Selection (QCBS)	No	Yes-Pre	Y2-Q1	Y2-Q1	Y2-Q2	1 contract
55	Professional services to map household data into the Bipad Portal for the application of DSS and CAP (cleaning; processing; import; verification) for the Arun and Dudhkosi Sub-Basins and Marsyangdi Basin (one import needed per location)	Y3-Q1	NDRRMA	75,000	National Competitive bidding (NCB)	Quality Cost Based Selection (QCBS)	No	Yes-Pre	Y2-Q4	Y2-Q4	Y3-Q1	1 contract
56	Importing household data to Bipad Portal for the application of DSS and CAP (cleaning; processing; import; verification) Dudhkoshi 1 Palika, Arun-1 Palika, Marsyangdi-1 Palika	Y3-Q1	NDRRMA	75,000	National Competitive bidding (NCB)	Quality Cost Based Selection (QCBS)	No	Yes-Pre	Y2-Q4	Y2-Q4	Y3-Q1	3 contracts
57	Professional services to update EWS knowledge products, training manuals, methods, and approaches to make it responsive to women and most vulnerable groups - such as Persons with Disabilities.	Y2-Q1	NDRRMA	30,000	National Competitive bidding (NCB)	Quality Cost Based Selection (QCBS)	No	Yes-Pre	Y1-Q4	Y1-Q4	Y3-Q1	1 contract

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58	Technician and seeds (10 K*2) (Consulting firm)	Y3 to Y7-Q2 of each year	DoFSC	24,860	Sealed Quotation (SQ)	Quality Cost Based Selection (QCBS)	No	NA	Y3 to Y7; Q1 of each year	Y3 to Y7; Q1 of each year	Y3 to Y7-Q2 of each year	5 contracts
59	Contractual services to develop a Watershed/Sub-watershed-level Climate-smart Agricultural Management Information System (AMIS) to be implemented in 8 watersheds in the Arun Sub-basin and 5 sub-watersheds in the Dudhkosi Sub-basin.	Y5-Q3	DHM	67,801	Expression of Intent (EOI)	QCBS	Yes	Yes-Pre	Y5-Q2	Y5-Q2	Y5-Q3	1 contract
60	Contractual services (including Agricultural Experts, Climate Change Adaptation Experts and MIS) to support the development and implementation of a climate-resilient agricultural management and information system	Y2-Q2	UNDP	60,000	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	NA	Yes-Post	Y2-Q1	Y2-Q1	Y2-Q2	1 contract
61	Professional services to Develop M&E framework and tracking and presentation tools including GIS, Training in M&E methods and approaches, Monitoring and data collection missions including Annual project audits.	Y1-Q3	UNDP	90,000	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
62	Consulting Firm to Set up and operation of the medical facilities, as well as administration required for the construction phase of lowering the Thulagi Lake.	Y2-Q1	UNDP	321,860	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q4	Y1-Q4	Y2-Q1	1 contract
63	Consulting Firm to Set up and operation of the medical facilities, as well as administration required for the construction phase of lowering the Lumding Tsho Lake.	Y2-Q1	UNDP	261,140	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q4	Y1-Q4	Y2-Q1	1 contract
64	Consulting Firm to Set up and operation of the medical facilities, as well as administration required for the construction phase of lowering the Lower Barun Lake.	Y2-Q1	UNDP	299,365	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q4	Y1-Q4	Y2-Q1	1 contract
65	Consulting Firm to Set up and operation of the medical facilities, as well as administration required for the construction phase of lowering the Hongu 2 Lake.	Y2-Q1	UNDP	258,445	Request for Proposal (RFP)	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q4	Y1-Q4	Y2-Q1	1 contract
Total:				7,027,552								
Goods												
1	Satellite Imagery and Software to support the development and delivery of technical training on regular/operational monitoring for risk prioritization	Y1-Q4	UNDP	200,000	Invitation to bids (ITB)	Least Cost Selection (LCS)	No	Yes-Post	Y1-Q3	Y1-Q3	Y1-Q4	1 contract
2	Training supplies; resources for sustainable GLOF and flood risk information services.	Y1-Q4	UNDP	17,500	Request for Quotation (RFQ)	Least Cost Selection (LCS)	No	NA	Y1-Q3	Y1-Q3	Y1-Q4	1 contract
3	Professional services for the assembly, testing, installation and commissioning for all stations under Activity 2.1.	Y3-Q3 to Y4-Q4	DHM	70,989	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	NA	Y3-Q2	Y3-Q2	Y3-Q3	1 contract
3	Computer; Laptop; Printer; Photocopy machine; Furniture for DHM	Y1-Q1	DHM	49,137	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	NA	Y1-Q1	Y1-Q1	Y1-Q1	2 contracts
4	Printer; Computer; Laptop for NDRRMA	Y1-Q1	NDRR MA	18,507								1 contract
5	Laptop (5); Desktop (8); Printer B/W (8); Color printer (1); Camera (1); Photocopy machine (1); Vacuum cleaner (2); furniture for DoFSC	Y1-Q1	DoFSC	45,000	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	NA	Y1-Q1	Y1-Q1	Y1-Q1	2 contracts
6	Training supplies; resources during climate-responsive Municipal Disaster Preparedness and Response Plans, as well as Local-level Climate-resilient Action Plans.	Y2-Q2	UNDP	17,500	Request for Quotation (RFQ)	Least Cost Selection (LCS)	No	NA	Y2-Q1	Y2-Q1	Y2-Q2	1 contract

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7	Training supplies: resources for climate-resilient agricultural management and information system and implement climate-resilient GLOF and flood risk reduction strategies.	Y2-Q2	UNDP	17,500	Request for Quotation (RFQ)	Least Cost Selection (LCS)	No	NA	Y2-Q1	Y2-Q1	Y2-Q2	1 contract
8	Stationaries; Publication and Office Materials for DHM over the project period.	Y1 to Y7-Q2 of each year	DHM	84,327	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y1 to Y7-Q1 of each year	Y1 to Y7-Q1 of each year	Y1 to Y7-Q2 of each year	Multiple contracts for multiple suppliers as per service across Y1-Y7.
9	Photocopy Paper; Water; Stationary for NDRRMA over the project period.	Y1 to Y7-Q2 of each year	NDRRMA	3,867	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y1 to Y7-Q1 of each year	Y1 to Y7-Q1 of each year	Y1 to Y7-Q2 of each year	Multiple contracts for multiple suppliers as per service across Y1-Y7.
10	Stationery; fuel; vehicle maintenance; Water (Tap) bill; Electricity bill; Telephone bill; Internet bill; courier service; website design; machinery maintenance; Plumber and electricity maintenance for DoFSC over the project period.	Y1 to Y7-Q2 of each year	DoFSC	79,172	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y1 to Y7-Q1 of each year	Y1 to Y7-Q1 of each year	Y1 to Y7-Q2 of each year	Multiple contracts for multiple suppliers as per service across Y1-Y7.
11	Four-wheel motor vehicles for field mobilization and monitoring (Rental)	Y1-Q2	UNDP	62,000	Request for Quotation (RFQ)	Least Cost Selection (LCS)	No	Yes-Post	Y1-Q1	Y1-Q1	Y1-Q2	1 contract
12	Equipment for the installation of 10 satellite communication terminal required for all stations under Activities 2.1.	Y2-Q3	DHM	2,320	Procuring Directly (DS)	Least Cost Selection (LCS)	No	NA	Y2-Q2	Y2-Q2	Y2-Q3	10 contracts Below Rs. 5 hundred thousand Rule 85
13	9 accompanying siren towers (USD 696 for each 9 sirens unit)	Y3-Q3	DHM	6,264	Sealed Quotation (SQ)	Least Cost Selection (LCS)	No	NA	Y3-Q2	Y3-Q2	Y3-Q3	1 contract
14	Technology Equipment (Drones for seeds sowing; USD 44,000 for each 2 unit	Y3-Q1	UNDP	88,000	Request for Quotation (RFQ)	Least Cost Selection (LCS)	No	Yes-Post	Y2-Q4	Y2-Q4	Y3-Q1	1 contract
15	Equipment for geophysical, glacio-hydrological surveying	Y1-Q3	DHM	42,180	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	Yes-Pre	Y1-Q2	Y1-Q2	Y1-Q3	1 contract
16	Equipment for the installation of 6 base stations at Pangboche, Jayaram Ghat - Middle Hill, Tumlingtar (Turkighat), Chatara, Dharapani and Muglin (2 in the Marsyangdi Basin, 2 in the Dudhkosi Sub-basin and 2 in the Arun Sub-basin).	Y3 to Y5-Q2	DHM	50,694	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	Yes-Pre	Y3-Q1	Y3-Q1	Y3-Q2	1 contract
17	Computing equipment required for the connection of the base and other stations. This includes a computer and peripherals at central office and two basin offices, as well as display systems at Emergency Operation Centre.	Y3 to Y5-Q2	DHM	74,237	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	Yes-Pre	Y3-Q1	Y3-Q1	Y3-Q2	1 contract

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18	Supply, delivery, installation and testing of hydromet equipment for Activities 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6	Y3 to Y5-Q2	DHM	838,309	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	Yes-Pre	Y3-Q1	Y3-Q1	Y3-Q2	1 contract
19	Equipment for the installation of 24 automatic weather stations (AWS) at key locations in GLOF watersheds (7 AWS in the Marsyangdi Basin, 5 in the Dudhkosi Sub-basin and 12 in the Arun Sub-basin).	Y3-Q2 to Y5-Q2	DHM	1,147,683	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	Yes-Pre	Y3-Q1	Y3-Q1	Y3-Q2	1 contract
20	Equipment: 4 tipping bucket rain gauges.	Y3-Q2 to Y5-Q2	DHM	17,817	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	Yes-Pre	Y3-Q1	Y3-Q1	Y3-Q2	1 contract
21	Equipment: 4 storage rain gauges.	Y3-Q2 to Y5-Q2	DHM	21,529	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	Yes-Pre	Y3-Q1	Y3-Q1	Y3-Q2	1 contract
22	Equipment: 27 radar-based water level sensors (RLS) at key locations in GLOF watersheds (11 in the Marsyangdi Basin, 8 in the Dudhkosi Sub-basin and 8 in the Arun Sub-basin).	Y3-Q2 to Y5-Q2	DHM	148,260	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	Yes-Pre	Y3-Q1	Y3-Q1	Y3-Q2	1 contract
23	1 Siren Central Station	Y3-Q4	DHM	46,398	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	Yes-Pre	Y3-Q3	Y3-Q3	Y3-Q4	1 contract
24	Security equipment required to prevent accidents around the construction sites. Such equipment will include appropriate signage, warnings, fencing and barriers.	Y3-Q1 to Y5-Q4	DHM	273,856	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	Yes-Pre	Y2-Q4	Y2-Q4	Y3-Q1	Embedded in the constructio n contract
25	Vehicle 4WD (4 Nos); Motorcycle (6 Nos.); Electric car (for city 2 nos)	Y2-Q1	UNDP	280,000	Request for Quotation (RFQ)	Least Cost Selection (LCS)	No	Yes-Post	Y1-Q4	Y1-Q4	Y2-Q1	3 contracts
Total:				4,772,867								
Works												
1	Professional services to construct 67 conservation ponds (38 in the Arun Sub-basin and 29 in the Dudhkosi Sub-basin).	Y3 to Y5; Q2 of each year	DoFSC	74,795	Procuring Directly (DS)	Users' Committee or beneficiary group	No	NA	Y3 to Y5; Q1 of each year	Y3 to Y5; Q1 of each year	Y3 to Y5; Q2 of each year	67 contracts
2	Professional services the civil work required for setting up all new stations under Activity 2.1. These works include ground clearance, fencing, structure and transportation, etc. at all sites.	Y3-Q2 to Y5-Q2	DHM	494,770	National Competitive bidding (NCB)	Least Cost Selection (LCS)	No	Yes-Pre	Y3-Q1	Y3-Q1	Y3-Q2	1 contract
3	Professional services to undertake the civil works required to lower the Thulagi Lake, such as excavation, and the construction of the coffer dam, canals, mechanical sluice gate, abutments, race floor and protection works.	Y3-Q2 to Y5-Q2	DHM	1,806,736	National Competitive bidding (NCB)	QCBS	No	Yes-Pre	Y3-Q1	Y3-Q1	Y3-Q2	1 contract
4	Professional services to undertake the civil works required to lower the Lumding Tsho Lake, such as excavation, and the construction of the coffer dam, canals, mechanical sluice gate, abutments, race floor and protection works.	Y3-Q2 to Y5-Q2	DHM	1,529,531	National Competitive bidding (NCB)	QCBS	No	Yes-Pre	Y3-Q1	Y3-Q1	Y3-Q2	1 contract
5	Professional services to undertake the civil works required to lower the Lower Barun Lake, such as excavation, and the construction of the coffer dam, canals, mechanical sluice gate, abutments, race floor and protection works.	Y4-Q2 to Y6-Q2	DHM	1,676,719	National Competitive bidding (NCB)	QCBS	No	Yes-Pre	Y4-Q1	Y4-Q1	Y4-Q2	1 contract
6	Professional services to undertake the civil works required to lower the Hongu 2 Lake, such as excavation, and the construction of the coffer dam, canals, mechanical sluice gate, abutments, race floor and protection works.	Y4-Q2 to Y6-Q2	DHM	1,647,821	National Competitive bidding (NCB)	QCBS	No	Yes-Pre	Y4-Q1	Y4-Q1	Y4-Q2	1 contract

Item No.	Description of works, goods, non-consultancy and consultancy services to be procured	Required Delivery / Commencement of Services time (weeks/ months after FP approval)	Procuring entity	Estimated cost (USD)	Procurement method[1]	Selection method[2]	Prequalification (Yes/No)	Review by AE (Prior/Post procurement process)	Tender issuing (e.g. weeks/months from the FP approval, etc)	Bid submission deadline (days/weeks after tender issuing day)	Evaluation and contract signing time (days/weeks after bid submission deadline)	Remarks
7	Professional services to undertake the hydromechanical works required to lower the Thulagi Lake.	Y3-Q2 to Y5-Q2	DHM	73,619	National Competitive bidding (NCB)	QCBS	No	Yes-Pre	Y3-Q1	Y3-Q1	Y3-Q2	Embedded in the respective contract related to civil works
8	Professional services to undertake the hydromechanical works required to lower the Lumding Tsho Lake.	Y3-Q2 to Y5-Q2	DHM	73,619	National Competitive bidding (NCB)	QCBS	No	Yes-Pre	Y3-Q1	Y3-Q1	Y3-Q2	Embedded in the respective contract related to civil works
9	Professional services to undertake the hydromechanical works required to lower the Lower Barun Lake.	Y4-Q2 to Y6-Q2	DHM	119,711	National Competitive bidding (NCB)	QCBS	No	Yes-Pre	Y3-Q1	Y3-Q1	Y4-Q2	Embedded in the respective contract related to civil works
10	Professional services to install 3,101.61 m3 of flood walls and RCC revetments.	Y3 to Y6; Q1 of each year	DoFSC	708,347	Procuring Directly (DS)	Users' Committee or beneficiary group	No	NA	Y2 to Y5; Q4 of each year	Y2 to Y5; Q4 of each year	Y3 to Y6; Q1 of each year	Multiple contracts as per across the project period
11	Professional services for plantation of 71.68 ha in the Dudhkosi Sub-basin along vulnerable riverbanks, sub-watershed areas and flood plains of river systems.	Y3 to Y6; Q1 of each year	DoFSC	392,914	Procuring Directly (DS)	Users' Committee or beneficiary group	No	NA	Y2 to Y5; Q4 of each year	Y2 to Y5; Q4 of each year	Y3 to Y6; Q1 of each year	Multiple contracts as per across the project period
12	Professional services for plantation of 81.6 ha in the Arun Sub-basin along vulnerable riverbanks, sub-watershed areas and flood plains of river systems.	Y3 to Y6; Q1 of each year	DoFSC	608,207	Procuring Directly (DS)	Users' Committee or beneficiary group	No	NA	Y2 to Y5; Q4 of each year	Y2 to Y5; Q4 of each year	Y3 to Y6; Q1 of each year	Multiple contracts as per across the project period
13	Professional services to establish 17,744 m3 of vegetative gabion walls (10,7961 m3 in the Arun Sub-basin and 6,948 m3 in the Dudhkosi Sub-basin).	Y3 to Y6; Q1 of each year	DoFSC	329,589	Procuring Directly (DS)	Users' Committee or beneficiary group	No	NA	Y2 to Y5; Q4 of each year	Y2 to Y5; Q4 of each year	Y3 to Y6; Q1 of each year	Multiple contracts as per across the project period
14	Professional services to install 15,298.94 m3 of vegetative gabion revetments (3,447.5 m3 in the Arun Sub-basin and 11,851.44 m3 in the Dudhkosi Sub-basin).	Y3 to Y6; Q1 of each year	DoFSC	978,538	Procuring Directly (DS)	Users' Committee or beneficiary group	No	NA	Y2 to Y5; Q4 of each year	Y2 to Y5; Q4 of each year	Y3 to Y6; Q1 of each year	Multiple contracts as per across the project period
15	Professional services to install a total of 7,246 m3 of vegetative gabion spurs (4,608 m3 in the Arun Sub-basin and 2,638 m3 in the Dudhkosi Sub-basin).	Y3 to Y6; Q1 of each year	DoFSC	446,855	Procuring Directly (DS)	Users' Committee or beneficiary group	No	NA	Y2 to Y5; Q4 of each year	Y2 to Y5; Q4 of each year	Y3 to Y6; Q1 of each year	Multiple contracts as per across the project period

Item No.	Description of works, goods, non-consultancy and consultancy services to be procured	Required Delivery / Commencement of Services time (weeks/ months after FP approval)	Procuring entity	Estimated cost (USD)	Procurement method[1]	Selection method[2]	Prequalification (Yes/No)	Review by AE (Prior/Post procurement process)	Tender issuing (e.g. weeks/months from the FP approval, etc)	Bid submission deadline (days/weeks after tender issuing day)	Evaluation and contract signing time (days/weeks after bid submission deadline)	Remarks
16	Professional services to install a total of 29,685 m3 of vegetative gabion check dams (21,960 m3 in the Arun Sub-basin and 7,725 m3 in the Dudhkosi Sub-basin).	Y3 to Y6; Q1 of each year	DoFSC	1,328,240	Procuring Directly (DS)	Users' Committee or beneficiary group	No	NA	Y2 to Y5; Q4 of each year	Y2 to Y5; Q4 of each year	Y3 to Y6; Q1 of each year	Multiple contracts as per across the project period
17	Professional services to install a total of 15,009.8 m3 of vegetative dry stone check dams (9,371.25 m3 in the Arun Sub-basin and 5,638.5 m3 in the Dudhkosi Sub-basin).	Y3 to Y6; Q1 of each year	DoFSC	416,373	Procuring Directly (DS)	Users' Committee or beneficiary group	No	NA	Y2 to Y5; Q4 of each year	Y2 to Y5; Q4 of each year	Y3 to Y6; Q1 of each year	Multiple contracts as per across the project period
18	Professional services to install 978,436 m of live check dams (955,396 m in the Arun Sub-basin and 23,040 m in the Dudhkosi Sub-basin).	Y3 to Y6; Q1 of each year	DoFSC	50,912	Procuring Directly (DS)	Users' Committee or beneficiary group	No	NA	Y2 to Y5; Q4 of each year	Y2 to Y5; Q4 of each year	Y3 to Y6; Q1 of each year	Multiple contracts as per across the project period
19	Professional services to install a total of 3,194 m2 of vegetative stone rip-rap (1,582.5 m2 in the Arun Sub-basin and 1,611.5 m2 in the Dudhkosi Sub-basin).	Y3 to Y6; Q1 of each year	DoFSC	12,962	Procuring Directly (DS)	Users' Committee or beneficiary group	No	NA	Y2 to Y5; Q4 of each year	Y2 to Y5; Q4 of each year	Y3 to Y6; Q1 of each year	Multiple contracts as per across the project period
20	Professional services to implement a total of 451,880 m of brush layering (36,750 m in the Arun Sub-basin and 8,438 m in the Dudhkosi Sub-basin).	Y3 to Y6; Q1 of each year	DoFSC	24,425	Procuring Directly (DS)	Users' Committee or beneficiary group	No	NA	Y2 to Y5; Q4 of each year	Y2 to Y5; Q4 of each year	Y3 to Y6; Q1 of each year	Multiple contracts as per across the project period
21	Professional services to plant a total of 298,162 m2 of grass seedlings (155,419 m2 in the Arun Sub-basin and 142,743 m2 in the Dudhkosi Sub-basin).	Y3 to Y6; Q1 of each year	DoFSC	60,538	Procuring Directly (DS)	Users' Committee or beneficiary group	No	NA	Y2 to Y5; Q4 of each year	Y2 to Y5; Q4 of each year	Y3 to Y6; Q1 of each year	Multiple contracts as per across the project period
Total:				**12,855,221**								
Individual consultants (if applicable)[3]												
1	Local consultant to provide support with the development of methods and SOPs as a glaciologist (Activity 1.1.1)	Y1-Q3	UNDP	6,000	Desk Review	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q2	Y1-Q2	Y1-Q3	1 open national contract
2	International consultant to support with the development of methods and SOPs as a GLOF expert (Activity 1.1.1)	Y1-Q2	UNDP	150,000	Open Competitive Process	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q1	Y1-Q1	Y1-Q2	1 open international contract
3	Local Consultant to support the introduction of methodology and SOPs (Activity 1.1.3)	Y1-Q2	UNDP	30,000	Open Competitive Process	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q1	Y1-Q1	Y1-Q2	1 open national contract
4	International Consultant to support the introduction of Methodology (Activity 1.1.3)	Y1-Q2	UNDP	90,000	Open Competitive Process	Quality Cost Based Selection (QCBS)	Yes	Yes-Post	Y1-Q1	Y1-Q1	Y1-Q2	1 open international contract
5	Local Consultant to support the implementation as a GIS expert (Activity 1.1.3)	Y2-Q1 to Y7-Q4	DHM	14,000	IC contracting	RFP	No	Yes-Pre	Y1-Q4	Y1-Q4	Y2-Q1	1 open national contract

Item No.	Description of works, goods, non-consultancy and consultancy services to be procured	Required Delivery / Commencement of Services time (weeks/ months after FP approval)	Procuring entity	Estimated cost (USD)	Procurement method[1]	Selection method[2]	Prequalification (Yes/No)	Review by AE (Prior/Post procurement process)	Tender issuing (e.g. weeks/months from the FP approval, etc)	Bid submission deadline (days/weeks after tender issuing day)	Evaluation and contract signing time (days/weeks after bid submission deadline)	Remarks
6	Local Consultant to support the implementation as a GIS expert (Activity 1.2.1)	Y2-Q1 to Y7-Q4	DHM	56,000	IC contracting	RFP	No	Yes-Pre	Y1-Q4	Y1-Q4	Y2-Q1	1 open national contract
7	International consultant to support the design and delivery of the trainings, as well as the preparation of the relevant training material. (Activity 2.2.1)	Y1-Q2	UNDP	12,750	Open Competitive Process	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q1	Y1-Q1	Y1-Q2	1 open international contract
8	Local Consultant to conduct outcomes mapping to measure changes: a) leadership practices of women and discriminated groups b) application of GESI knowledge and skills by SMs, c) application of GESI skills and knowledge by municipality and its partners institutions, and capture intended and unintended GESI outcomes (mid-term and final) (activity 2.2.6)	Y1-Q3	UNDP	150,000	Open Competitive Process	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q2	Y1-Q2	Y1-Q3	1 open national contract
9	Climate specialist to undertake a multi-hazard assessment of the national park areas in each of the Arun and Dudhkosi Sub-basins. (activity 3.3.10)	Y1-Q3	UNDP	15,000	Open Competitive Process	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q2	Y1-Q2	Y1-Q3	1 open international contract
10	International consultant to develop a climate- and gender-responsive Integrated Watershed Management Plan and Integrated National Park Management Plan for each of the Arun and Dudhkosi Sub-basins. (activity 3.3.10)	Y1-Q3	UNDP	11,250	Open Competitive Process	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q2	Y1-Q2	Y1-Q3	1 open international contract
11	Local consultant to support the international consultant with undertaking a multi-hazard assessment, as well as develop a climate- and gender-responsive Integrated Watershed Management Plan and Integrated National Park Management Plan for each of the Arun and Dudhkosi Sub-basins. (activity 3.3.10)	Y1-Q3	UNDP	18,000	Open Competitive Process	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q2	Y1-Q2	Y1-Q3	1 open national contract
12	Local consultant to develop a training programme on multi-hazard risk assessments and risk reduction measures (such as CCA, EbA, Eco-DRR measures) and how to use the Agricultural Management Information System (AMIS).	Y1-Q3	UNDP	12,000	Open Competitive Process	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q2	Y1-Q2	Y1-Q3	1 open national contract
13	Local consultant to develop curricular on climate change-related education and trainings on multi-hazards, CCA and Eco-DRR for high school teachers and students.	Y1-Q3	UNDP	6,000	Desk Review	Quality Cost Based Selection (QCBS)	No	No	Y1-Q2	Y1-Q2	Y1-Q3	1 open national contract
14	Local Consultant (IP Expert) - (1 year 40 days, 2-5 year 60 days, 6-7 40 days @ 20500)	Y1-Q3	UNDP	63,000	Open Competitive Process	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q2	Y1-Q2	Y1-Q3	1 open national contract
15	International consultant to support conduct training to introduce methods and tools for GLOF hazard prioritization as multi-hazard expert	Y1-Q3	UNDP	160,000	Open Competitive Process	Quality Cost Based Selection (QCBS)	No	Yes-Post	Y1-Q2	Y1-Q2	Y1-Q3	1 open international contract
16	Local Consultant to support the international consultant to conduct training to introduce methods and tools for GLOF hazard prioritization	Y1-Q3	UNDP	9,000	Open Competitive Process	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q2	Y1-Q2	Y1-Q3	1 open national contract
17	International Consultant to develop climate-induced hazard event recording and management database systems	Y1-Q3	UNDP	15,000	Open Competitive Process	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q2	Y1-Q2	Y1-Q3	1 open international contract
18	Local consultant to support the International Consultant develop climate-induced hazard event recording and management database systems	Y1-Q3	UNDP	7,000	Desk Review	Quality Cost Based Selection (QCBS)	No	NA	Y1-Q2	Y1-Q2	Y1-Q3	1 open national contract
19	Expert to support NDRRMA facilitated trainings and workshops Dudhkoshi - 5 Palika, Arun - 5 Palika, Marsyangdi - 5 Palika	Y2-Q1	NDRRMA	90,000	IC contracting	RFP	No	Yes-Pre	Y1-Q4	Y1-Q4	Y2-Q1	1 open national contract

Item No.	Description of works, goods, non-consultancy and consultancy services to be procured	Required Delivery / Commencement of Services time (weeks/ months after FP approval)	Procuring entity	Estimated cost (USD)	Procurement method[1]	Selection method[2]	Prequalification (Yes/No)	Review by AE (Prior/Post procurement process)	Tender issuing (e.g. weeks/months from the FP approval, etc)	Bid submission deadline (days/weeks after tender issuing day)	Evaluation and contract signing time (days/weeks after bid submission deadline)	Remarks
20	Local consultant to support Municipal Governments to develop Local Disaster Resilience Framework	Y2-Q1	NDRRMA	30,000	IC contracting	RFP	No	Yes-Pre	Y1-Q4	Y1-Q4	Y2-Q1	1 open national contract
21	Local consultant to develop the community response plans with DHM and NDRRMA and integrate them into the existing EWS and disaster response protocols.	Y2-Q1	NDRRMA	6,000	IC contracting	RFP	No	Yes-Pre	Y1-Q4	Y1-Q4	Y2-Q1	1 open national contract
22	Local consultant to develop Local Disaster Resilience Framework for municipalities in the Arun and Dudhkosi Sub-Basin and Marsyangdi Basin	Y2-Q1	NDRRMA	15,000	IC contracting	RFP	No	Yes-Pre	Y1-Q4	Y1-Q4	Y2-Q1	1 open national contract
23	Local consultant to develop a training programme for local communities living in the areas near the Thulagi, Lumding Tsho, Lower Barun and Hongu 2 Glacial Lakes on the construction process and systems required for lowering the glacial lakes.	Y2-Q1	DHM	13,560	IC contracting	RFP	No	Yes-Pre	Y1-Q4	Y1-Q4	Y2-Q1	1 open national contract
24	Local consultant to develop a training programme for communities living in the areas near the Thulagi, Lumding Tsho, Lower Barun and Hongu 2 Glacial Lakes on how to respond to accidental hazards associated with lowering the glacial lakes.	Y3-Q1	DHM	12,000	IC contracting	RFP	No	Yes-Pre	Y2-Q4	Y2-Q4	Y3-Q1	1 open national contract
Total:				**1,047,560**								

Sub-Annex F.1: UNDP Policy on Prior and Post Review

	Level 1 (Country Level): **Contracts, Assets and Procurement Committee**	**Level 2 (Regional):** **Regional Advisory Committee on Procurement**	**Level 3 (HQ):** **Advisory Committee on Procurement**
Competitive procurement process			
Any contract or series of contracts including amendments to be awarded to a vendor *in a calendar year* that in aggregate has a cumulative value:	Above US $50,000 (above US $100,000 for Individual Contracts) and up to the standard delegated procurement authority Direct Review by CAP Chairperson Above the standard delegated procurement authority and up to any increased delegated procurement authority by CAP Committee	Above the delegated procurement authority and up to $500,000 Direct Review by RACP Chairperson. Above $500,000 and up to US $2 million (applies per year for Long-Term Agreements)	Country offices: above US $2 million (applies per year for Long-Term Agreements)
Direct contracting			
Any contract or series of contracts, including amendments to be awarded to a vendor *in a calendar year* that in aggregate has a cumulative value:	Above US $50,000 and up to 50 percent of the standard delegated procurement authority Direct Review by CAP Chairperson Above 50 percent of the standard delegated procurement authority and up to 50 percent of any increased delegated procurement authority by CAP Committee	Above 50 percent of the delegated procurement authority and up to $500,000 direct review by RACP Chairperson. Above $500,000 and up to US $2 million by RACP Committee (applies per year for long-term agreements)	Headquarters units: above 50 percent of the delegated procurement authority up to $500,000 direct Review by ACP Chairperson. Above $500,000 and up to U $2million ACP Committee Country offices: above US $2 million (applies per year for long-term agreements)
Amendment of all contracts			
Any amendment or series of amendments to a contract which, in aggregate, increases the contract value by 20 percent or the delegated procurement authority, whichever is less:	Above US $50,000 and up to the standard delegated procurement authority Direct Review by CAP Chairperson. Above the standard delegated procurement authority and up to the increased delegated procurement authority - by CAP Committee	Above the delegated procurement authority and up to $500,000 Direct Review by RACP Chairperson. Above $500,000 up to US $2 million by RACP Committee (applies per year for long-term agreements)	Country offices: above US $2 million (applies per year for long-term agreements)
Ex ante review			
Ex ante review refers to the review of the procurement strategy roadmap prior to commencement of the procurement process for complex procurement actions with a value	N/A	Above US $1 million and up to US $2 million (applies per year for long-term agreements)	Above US $2 million (applies per year for long-term agreements)
Notes:	1. The procurement support unit shall participate when requested in the committee review of ex ante submissions.		

	Level 1 (Country Level): Contracts, Assets and Procurement Committee	Level 2 (Regional): Regional Advisory Committee on Procurement	Level 3 (HQ): Advisory Committee on Procurement
	2. An ex ante review is not required if: (a) The business unit has had a previous successful experience in the procurement of similar goods/services/works that was already subject to an ex ante review; or (b) There is sufficient specific corporate guidance and templates on the procurement of the said goods/services. 3. Irrespective of the above, the procurement authority may submit the cases for ex ante review if significant risks are perceived.		

Sub-Annex F.2: Government of Nepal Procurement Methods and Threshold

S. N	Procurement Methods	Contract Value	Type of Requirements	Method of Solicitation	Type of Competition	Ref (Public Procurement Regulation- 2064)	Remarks
1	International Competitive bidding (ICB)	Above Rs. 2 million	Goods, Works, and other services	Advertisement in international media	open bids at international level (ICB)	Rule 31	Local Suppliers not available, no bid was submitted in NCB, under an agreement entered with a donor party, Goods or Construction works, being of complex and special nature
2	National Competitive bidding (NCB)	Above Rs. 2 million	Goods, Works, and other services	Advertisement in National media	open bids at national level (NCB)	Rule 31	
3	Sealed Quotation (SQ)	Below Rs. 2 million Below Rs 5 million for medical equipment	Goods, Works, and other services	Notice in a national daily newspaper	Limited International or national	Rule 84	
4	Procuring Directly (DS)	Below Rs. 5 hundred Thousand Below Rs 2 million (medical goods) Below Rs 1.5 million (Goods Manufactured in Nepal)	work, goods, or consultancy service	Canvassing (by phone, Internet, Shopping)	Limited International or national	Rule 85	When only one supplier of technical competence is available, or small value of procurement
5	Users' Committee or beneficiary group	Below Rs. 10 million	construction work or other service related	users' committee or beneficiary community consisting only of the inhabitants residing in that place and from the community using such service	National	Rule 97	

6	Force account	Below Rs. 100,000	Any construction works to be carried out directly by a public entity itself	executed through negotiation after breaking it into pieces	National	Rule 98	
7	Expression of Intent (EOI)	National: Above 2 million to 100 Million International: above 100 hundred Million	Consultancy Services	notice inviting expression of intent in national and international newspaper	Open International or national	Rule 70	
8	Request for Proposal (RFP)	Short listed: Cost estimate up to 2 million Rupees 15 days & above 2 Million Rupees 30 days	Consultancy Services	sending them the documents relating to proposal by post, courier or in person or through electronic communication means	Open International or national	Rule 71	
9	Direct Negotiations	Up to Rs. (0.5 2) Million By the Chief of the Public Entity with the approval of one level higher authority	Special Trainings, symposia and seminars • Higher level of expertise is required • Consultancy is needed for a short period of time or time is short for the appointment of a consultant • Only some consultants are qualified to perform the required task	obtaining at least three proposals and holding direct negotiations with the proponent whose proposal is the most useful and offers the lowest price	Limited International or national	Rule 82	
10	Standing list	Less than NRs 2 million	Consultancy Services	inviting written technical and financial proposals from the consultants included in the standing list	Limited International or national	Rule 72	

References:

- Government of Nepal (2064), Public Procurement Guidelines.
- Alternative Energy Promotion Centre (2018), Procurement Guideline for Executing Entities.
- Ministry of Health & Population (2009) Public Procurement Guidelines

[1] As per applicable procurement policy. If method to be applied would be non-competitive (e.g. single sourcing, direct contracting) justification with concrete arguments must be provided under 'Remarks'

[2] Selection methods include Quality Cost Based Selection (QCBS), Quality Based Selection (QBS), Fixed Budget Selection (FBS), Least Cost Selection (LCS), Consultants Qualifications Selection (CQS), Single source selection (SSS)[3] If engagement of individual consultants is not processed under procurement (e.g. through human resources) indicate N/A

Annex G: Terms of References for Project Board and Project Team

G1. Project Board

Project Board of PIMS 6045: Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal

I. Background

All UNDP projects must be governed by a multi-stakeholder board or committee established to review performance based on established monitoring and evaluation metrics and high-level implementation issues to ensure quality delivery of results. For the purpose of this ToR and to ensure standardization, henceforth, as regards project documentation, such a body shall only be referred to Project Board. The Project Board the most senior, dedicated oversight body for a UNDP 'Development Project', which is defined in the PPM as an instrument where UNDP "Delivers outputs where UNDP has accountability for design, oversight and quality assurance of the entire project." The Project Board (PB) will be set up by the MoEWRI/DHM, the project Implementing Partner (Executing Entity), and chaired by National Project Director (NPD) from IP and Co-Chaired by UNDP Resident Representative.

II. Duties and Responsibilities

The two prominent (mandatory) roles of the Project Board are as follows:

2) **High-level oversight of the project** (as explained in the "Provide Oversight" section of the PPM). This is the primary function of the Project Board. The Project Board reviews evidence of project performance based on monitoring, evaluation and reporting, including progress reports, monitoring missions' reports, evaluations, risk logs, quality assessments, and the combined delivery report. The Project Board is the main body responsible for taking corrective actions as needed to ensure the project achieves the desired results. And its function includes oversight of annual (and as-needed) assessments of any major risks to the programme or project, and related decisions/agreements on any management actions or remedial measures to address them effectively.

   The Project Board also carries the role of quality assurance of the project taking decisions informed by, among other inputs, the project quality assessment. In this role the Board is supported by the quality assurer, whose function is to assess the quality of the project against the corporate standard criteria. This function is performed by a UNDP programme or monitoring and evaluation officer to maintain independence from the project manager regardless of the project 's implementation modality.

   The Project Board reviews updates to the project risk log.

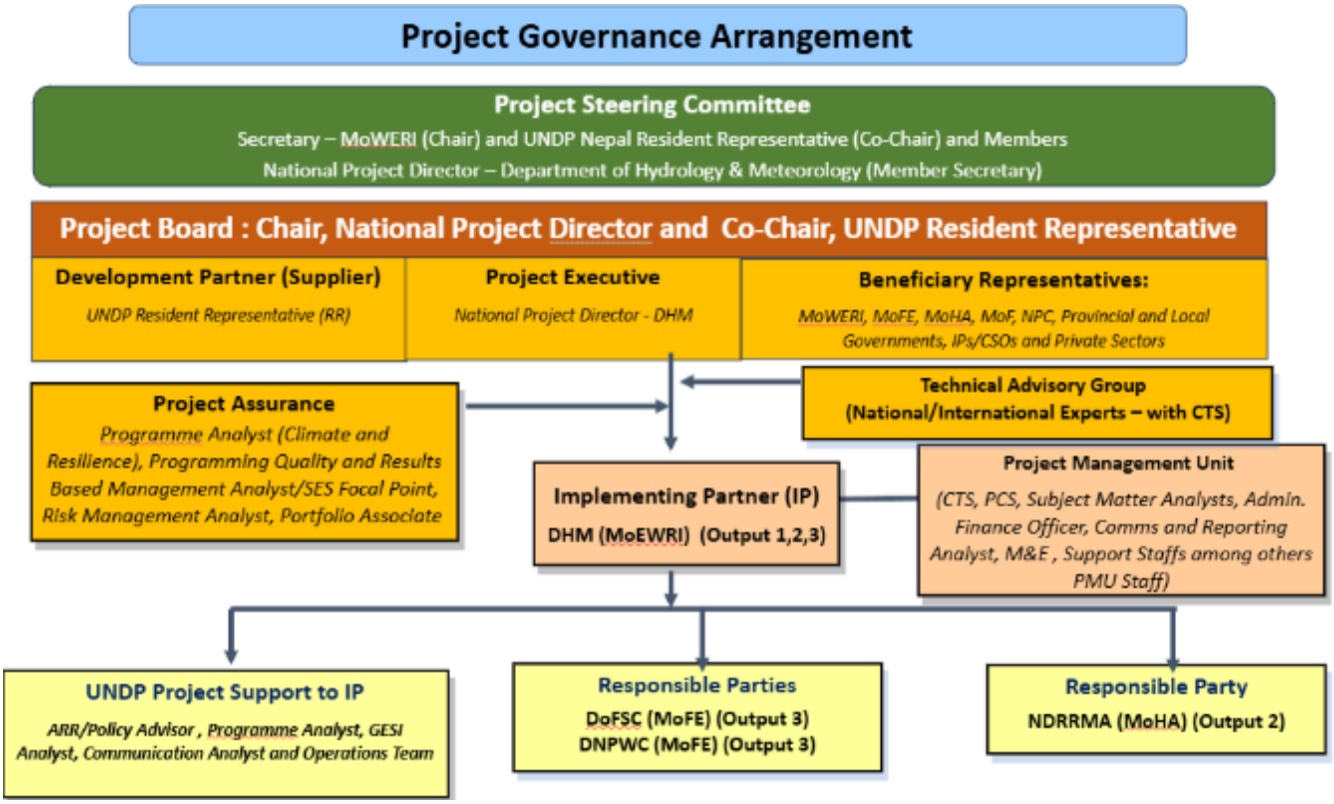
2) **Approval of key project execution decisions** (as explained in the "Manage Change" section of the PPM). The Project Board has an equally important, secondary role in approving certain adjustments above provided tolerance levels, including substantive programmatic revisions (major/minor amendments), budget revisions, requests for suspension or extension and other major changes (subject to additional funding partner/donor requirements).

The Project Board is responsible for making management decisions by consensus when required, including the approval of project plans and revisions, and the project manager's tolerances. The Project Board approves annual work plans and reviews updates to the project risk log.

Within the overall governance and management arrangements of the project, the role of the Project Board as regards these two key functions *('High-level oversight of the project' and 'Approval of key project execution decisions')* is distinct from the roles of entities involved in the implementation of the project, namely the implementing partner (IP), responsibilities parties (if applicable), service providers and project staff.

The diagram below outlines the main entities involved (and their respective responsibilities) in the 'oversight/approval of key execution decisions' layer and the 'implementation' layer of the project structure.

Diagram 1 Standard Figure of Project Organization Structure vis-à-vis oversight & approval and implementation roles



In order to ensure UNDP's ultimate accountability, the Project Board decisions should be made in accordance with the Quality Standards for Programming that shall ensure management for development results, best value money, fairness, integrity, transparency and effective national and international competition. An effective Project Board needs credible data, evidence, quality assurance and reporting to aid decision making (see next section on supporting functions to the Board). The Project Board also needs to be accountable to protect against conflicts of interest and fraud.

Specific responsibilities of the Project Board include the following :

- Provide overall guidance and direction to the project, ensuring it remains within any specified constraints, and promote gender equality and social inclusion (LNOB) in the project implementation;
- Review project performance based on monitoring, evaluation and reporting, including standard quality assurance checks, progress reports, risk logs, spot checks/audit reports and the combined delivery report;
- Address any high-level project issues as raised by the Project Coordination Specialist and project assurance;
- Provide guidance on emerging and/or pressing project risks and agree on possible mitigation and management actions to address specific risks (including ensuring compliance with UNDP's Social and Environmental Standards, Fraud/corruption, Sexual Exploitation and Abuse and Sexual Harassment);
- Agree or decide on Project Coordination Specialist's tolerances as required, within the parameters set by UNDP (Manage Change in the PPM) and the donor, and provide direction and decisions for exceptional situations when the project manager's tolerances are exceeded;
- Advise on major and minor amendments to the project within the parameters set by UNDP and the donor;
- Agree or decide on a project suspension or cancellation, if required; (note that for GEF and GCF projects it is UNDP that decides to suspend or cancel and project and the Project Board is informed/consulted only).
- Provide high-level direction and recommendations to the project management unit to ensure that the agreed deliverables are produced satisfactorily according to plans.
- Receive and address project level grievance, including overseeing whatever specific compliance and stakeholder response (or grievance) mechanisms have been put in place so that individuals and communities potentially affected by the project have access to effective mechanisms and procedures for raising concerns about the social and environmental performance of the project[1].
- Engage in the low value grant selection process where there is no Grant Selection Committee, as guided by the Low Value Grants UNDP Operational Guide.

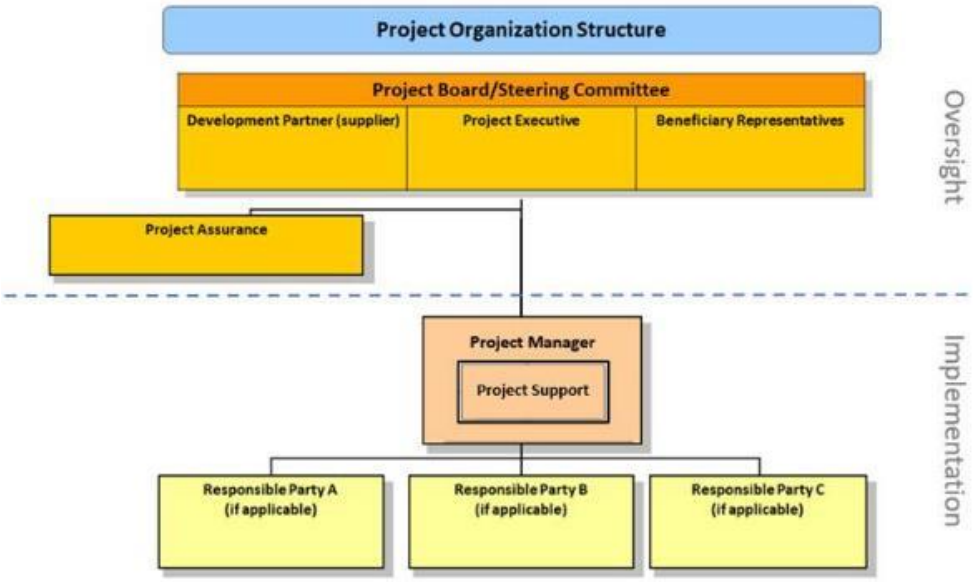
Additional responsibilities of the Project Board can include, but are not limited to, the following:

- Ensure coordination between the various donors and government-funded projects and programmes;
- Report to relevant inter-ministerial bodies or higher-level oversight bodies;
- Ensure coordination with multiple government agencies and their participation in project activities;
- Track and monitor co-financing for this project;
- Appraise the annual project implementation report, including the quality assessment rating report;
- Ensure commitment of human resources to support project implementation, arbitrating any issues within the project;
- Act as an informal consultation mechanism for stakeholders;
- Approve the Project Inception Report, Mid-term Review and Terminal Evaluation reports and corresponding management responses;
- Review the final project report package during an end-of-project review meeting to discuss lessons learned and opportunities for scaling up;
- Providing guidance or reporting protocols to technical committees or sub-bodies reporting to the Board (if applicable);

III. Composition of the Project Board

As noted in the diagram below, every Project Board in a UNDP project has three categories of formal members (e.g. voting members). The role of every formal Project Board member must correspond to one of these three roles and be identified accordingly in the project documentation.

Diagram 2 Standard Figure for a Project Organization Structure



The three categories of Project Board members are the following:

Project Director/Executive(s): This is an individual(s) who represents ownership of the project and chairs (or co-chairs) the Project Board. The executive usually is the most senior national counterpart for nationally implemented projects (typically from the same entity as the Implementing Partner). In exceptional cases, two individuals from different entities can co-share this role and/or co-chair the Project Board. If the project executive co-chairs the Project Board with a representative of another category, it typically does so with a development partner representative. The Project Executive is: National Project Director, DHM

2) **Beneficiary Representative(s):** This is an individual(s) representing the interests of those groups of stakeholders who will ultimately benefit from the project. Their primary function within the Board is to ensure the realization of project results from the perspective of project beneficiaries. Often representatives from civil society, industry associations,

community groups or other government entities benefiting from the project can fulfil this role. If the project has a specific geographic focus, representatives from the government entities in the targeted area/region will play this role. There can be multiple beneficiary representatives in a Project Board. The Beneficiary Representative(s) are:

a. Representative from Ministry of Energy, Water Resources and Irrigation (MoEWRI)
b. Representative from Ministry of Forests and Environment (MoFE),
c. Representative from Ministry of Home Affairs (MoHA)
d. Representative from Ministry of Finance (MoF)
e. Representative from National Planning Commission (NPC)
f. Representative from relevant provincial ministry/ies Koshi and Gandaki Provinces,
g. Representative from Local Governments (Municipalities with the 4 Glacial Lakes) ,
h. Representative from CSOs / IPs
i. Representative from private sector partners

2) **Development Partner(s):** Individuals representing the interests of the parties concerned that provide funding, strategic guidance and/or technical expertise to the project[2]. There can be multiple development partners representatives in a Project Board. The Development Partner(s) representative(s) is: *UNDP Resident Representative*

A **UNDP representative must always be represented in the Project Board** in either the project executive or development partner role.

Where applicable, representatives from responsible parties to the project cannot sit on the [Project Board or Project Steering Committee] as a formal voting member; they can (if requested) attend board meetings as observers. Since the chief responsibility of the Board is to provide high-level oversight of project implementation, to avoid any conflicts of interest, it is not appropriate for representatives of third party entities engaged by the project to provide services whether responsible parties or contractors/service providers to concurrently sit on the Board. Representatives of responsible parties can attend board meetings (as observers) but can have no official role in board decision-making. The same principle applies to the project manager who in attending and presenting at board meetings, does so in a non-voting capacity.

In cases where the inputs and guidance of responsible parties or other entities formally engaged in providing goods or services to the project are needed by the Board on a recurring basis, it is recommended to establish appropriate advisory or technical committees or working groups composed of those entities that can formally report to the Board, while ensuring the impartiality and integrity of board decisions happening independent of those bodies (see Section V of the ToR).

IV. Standard Project Board Protocols

The Project Board must meet twice annually at a minimum. It is recommended that the timing of board meetings be agreed upon in advance and corresponds to key project reporting or work planning milestones. This Project Board will meet two times annually according to this provisional schedule (insert scheduled meeting times if known).

Project Board members cannot receive remuneration from project funds for their participation in the Board. However, it is allowable for board members to be reimbursed from project funds for certain reasonable, qualified expeses related to travel or lodging to attend board meetings. Such protocols are outlined in this ToR and the benefits are applicable to all eligible board members.

All Project Boards must have rules for quorum and documentation/minuting of board decisions. All board decisions and minutes should be kept by the project management unit and UNDP. Guidelines on decisions taken in between board meetings or virtually should be clearly elaborated in the Terms of Reference (ToR) of the Project Board.

Unless otherwise specified, Project Board decisions are made by unanimous consensus. If a consensus cannot be reached within the Board, the final decision shall rest with the UNDP representative on the Project Board or a UNDP staff member with delegated authority as Project Coordination Specialist.[3]

It is required that as per internationally recognized professional standards and principles of sound governance, conflicts of interest affecting board members in performing their duties must be formally disclosed if not avoidable. Where a board member has a specific personal conflict of interest with a given matter before the board, he/she must recuse oneself from their participation in a decision. No board member can vote or deliberate on a question in which he/she has a direct personal or pecuniary interest not common to other members of the board.

All board members should be presented with a ToR for the Project Board, which will include the responsibilities already outlined and indicate agreed board practices and logistics.

Note: Designated Board members must sign or otherwise indicate written acceptance of the final ToR (via formal signature of the ToR, an exchange of letters or e-mail acknowledgment) for the Project Board as a precondition for serving on the

Project Board. Please see Annex A for possible options to codify this acceptance (which preferably would be done at the appraise and approve stage but which could also be done early in implementation). The formal written acceptance of the ToR by all board members will be documented and kept by UNDP.

V. Standard Outputs of Project Board Meetings

In its oversight function, the Project Board will (at a minimum) review and assess the following project-related evidence at each meeting:

- Assessment of project progress to date against project output indicators (as documented in the project document results framework)
- Approval/review of annual work plans
- Assessment of the relevant Monitoring & Evaluation mechanisms, including all evaluations[4]
- Review and assessment of the Project Risk Log (with updating/amendments as needed)
- Assessment of project spending, based on a review of the combined delivery report
- Review of required resources versus available funding (if applicabel) and steps taken to reduce funding gap identified at the project design stage

This will be in addition to the review and approval of any required project execution decisions.

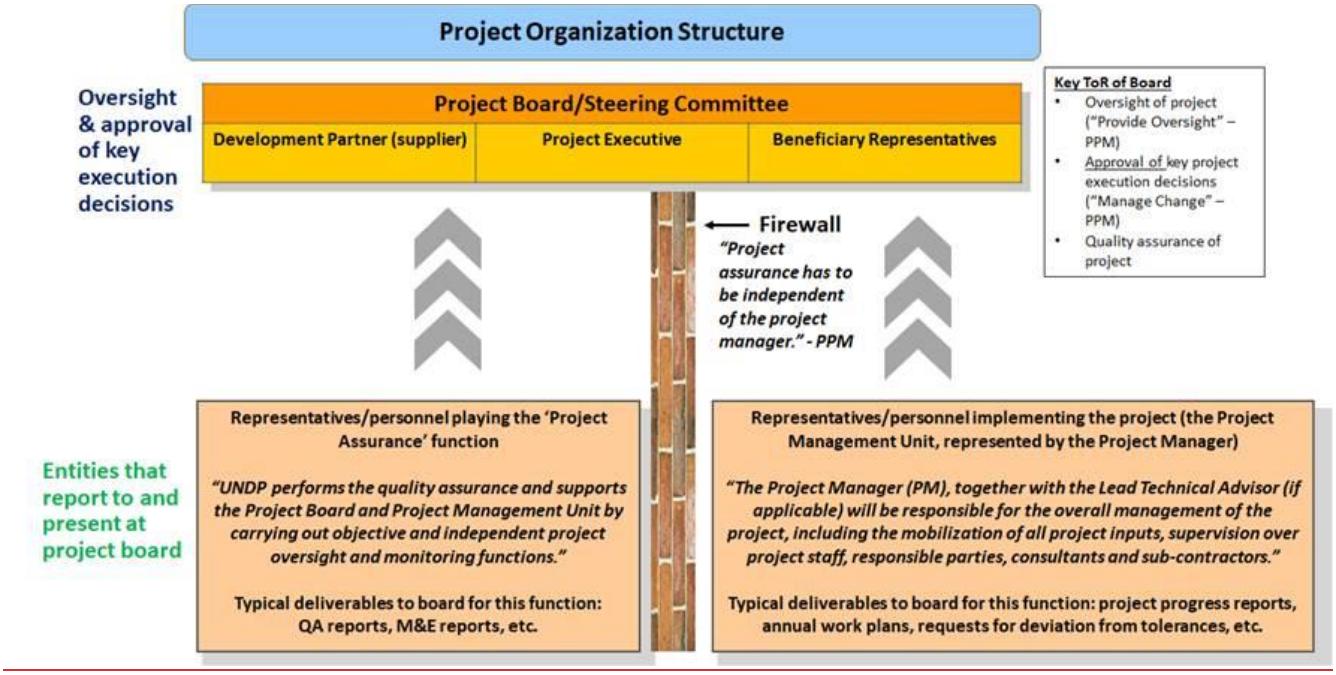
The output of every Project Board should be a written record (minutes) that captures the agenda and issues discussed and the agreed upon action items and decisions (if applicable). Each report should clearly document the members attending the meeting (as well as all participants in the meeting) and the modality used to agree on a certain action or decision (whether formal voting or no-objection or other mechanism). All records of board meetings should be documented and kept by UNDP in their quality assurance function (see next section).

VI. Support Functions to the Project Board

There are two main entities/functions outside the Project Board structure whose role is to report to the Project Board and support board members in effectively fulfilling their roles: project assurance and project management.

The diagram below explains the primary roles of these two entities in supporting Board operations. A description of these two entities follows.

Diagram 3 Standard Figure of Project Organization Structure Board Support Entities



Project Assurance: Project assurance is the responsibility of each Project Board member; however, UNDP has a distinct assurance role for all UNDP projects in carrying out objective and independent project oversight and monitoring functions. UNDP performs quality assurance and supports the Project Board (and Project Management Unit) by carrying out objective and independent project oversight and monitoring functions, including applying UNDP's social and environmental management system to ensure the SES are applied through the project cycle. The Project Board cannot delegate any of its

quality assurance responsibilities to the Project Coordination Specialist. Project assurance is totally independent of project execution. In the case where UNDP is also supporting project implementation, protocols should be put in place ensuring proper segregation between UNDP's role in the Board and in the function of project assurance, and any concurrent role in implementation.
A designated representative of UNDP playing the project assurance role is expected to attend all Project Board meetings and support board processes as a non-voting representative. It should be noted that while in certain cases UNDP's project assurance role across the project may encompass activities happening at several levels (e.g. global, regional), at least one UNDP representative playing that function must, as part of their duties, specifically attend board meetings and provide board members with the required documentation required to perform their duties. The UNDP representative playing the main project assurance function is UNDP programme analyst.
Project Support, this function is often covered by the Project Management Unit: The Project Coordination Specialist is the senior most representative of the Project Management Unit (PMU) and is responsible for the overall management of the project on behalf of the Implementing Partner, including the mobilization of all project inputs, supervision over project staff, responsible parties, consultants and sub-contractors. The Project Coordination Specialist typically presents key deliverables and documents to the Board for review and approval, including progress reports, annual work plans, adjustments to tolerance levels and risk logs.

A designated representative of the PMU is expected to attend all board meetings and present the required progress reports and other documentation needed to support board processes as a non-voting representative.

The primary PMU representative attending board meetings is: Project Coordination Specialist

[1] The board's responsibilities in this regard should follow UNDP's Social and Environmental Standards (SES) as codified in the PPM. It should be noted that while a project board can play a role in addressing or assisting with the compliance and stakeholder response (or grievance) mechanisms put in in place for a given project (as part of their quality assurance and oversight function), this will be in addition to and does not substitute for UNDP's core responsibility to ensure compliance with the SES throughout the project management cycle as part of UNDP's Programming Quality Assurance system.
[2] With the exception of responsible parties or any firms/entities engaged by the project to provide technical expertise with project funds
[3] UNDP has this special right since the ultimate legal and fiduciary accountability for a UNDP project, irrespective of modality, rests with UNDP and UNDP must (in line with its obligations to donors and to the Executive Board) be able to ensure that no action is taken by any body in a UNDP project that contravenes UNDP rules and regulations.
[4] Including audit reports and spot checks.

G2. PMU Staff

Terms of Reference (ToR)

Chief Technical Specialist

International Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Chief Technical Specialist - GLOF
Level	IPSA 11
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	[TBC based on FAA]
Expected Duration	1 year
Position Number	227726

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a

need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The Chief Technical Specialist will provide overall technical leadership and strategic guidance to the Nepal GLOF Project, ensuring the project is implemented in line with international best practices, UNDP/GCF standards, and national priorities. The CTS will advise on the technical direction of project activities, oversee quality assurance of outputs, and support the transfer of knowledge and capacity to national counterparts. The CTS will work closely with the Project Board, UNDP, and government stakeholders to ensure integration of project outcomes into national climate adaptation and disaster risk reduction strategies.

1. *Lead project management, monitoring, evaluation, and reporting and provide strategic technical leadership:*
    - Guide overall project direction on GLOF risk reduction, climate adaptation, and multi-hazard early warning systems.
    - Ensure alignment with international best practices, UNDP/GCF requirements, and national climate priorities.
    - Advise the Project Board and Project Coordination Specialist on technical and strategic decisions.
    - Provide strategic inputs during the development and review of annual workplans and budgets.
    - Guide and support the PMU to ensure that the projects are implemented as per the project document, letter of agreements and associated national implementation manuals, as well as all relevant UNDP and GCF policies and requirements.
    - Provide technical inputs for donor reports and evaluations.
    - Support adaptive management by identifying lessons and recommending corrective actions.
    - Contribute to knowledge dissemination at national, regional, and global forums.

2. *Lead capacity development and knowledge transfer:*
    - Mentor and train national counterparts and project personnel.
    - Promote South-South exchanges and international partnerships.
    - Facilitate institutional learning for long-term sustainability.
    - Ensure project reports capture results, lessons learned and good practices for possible wider application.

3. Provide technical guidance on digital, hydro-meteorological, and engineering solutions and ensure quality assurance of technical outputs:
    - Ensure integration of hydrological and meteorological monitoring into EWS.
    - Advise on ICT platforms and digital tools for risk forecasting.
    - Guide adaptation of engineering interventions to fragile mountain environments.
    - Review and validate engineering designs, hydrological studies, and management frameworks.
    - Provide peer review of reports, guidelines, and knowledge products.
    - Establish mechanisms for technical oversight and risk management.

4. *Strengthen sustainability and policy integration*
    - Advise on mainstreaming GLOF risk reduction into national adaptation policies.
    - Promote institutional ownership and financing pathways for scale-up.
    - Ensure gender and social inclusion principles are integrated.

5. Advise and contribute to the mainstreaming of Gender Equality and Social Inclusion (GESI) throughout program interventions:

- Drive the overall GESI agenda of the program, with support from the GESI Analyst and relevant team members and consultants/partners;
- Ensure that GESI is mainstreamed in all result areas of the project, based on solid analysis of inequality in power relations and their impact on federalism. Ensure targeted interventions are planned and implemented to promote inclusive governance and federalism, taking into account international best practices;
- Provide strategic guidance to team members to establish a system for collecting gender and social inclusion related disaggregated data, impact stories and results that benefit males, females, persons with disabilities, gender and sexual minorities, other marginalized, vulnerable groups.
- Advise in identifying the risks and challenges associated for their meaningful participation in the federalism process, particularly in service delivery.
- Ensure GESI is adequately captured in project progress reports, baseline survey and final project evaluation.
- Provide guidance to GESI Analysts to integrate transformative GESI approaches in the TA strategies that could be replicated in the governance system and process.
- Advise in creating a safe working environment by developing respectful and safe organizational culture and supporting practices.
- Strictly Comply with the policies, strategies, code of conduct, guidelines on Prevention of Sexual Exploitation and Abuse (PSEA).
- Strict compliance with the UNDP applicable rules, regulations and policies related to ethics and integrity

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the program.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS) and will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI. The CTS will work under overall oversight of the NPD and direct supervision of UNDP Deputy Resident Representative and in close coordination with Assistant Resident Representative (Resilience and Environment) and Portfolio Manager (Resilience and Environment).

5. Competencies

Core	
Achieve Results:	LEVEL 3: Set and align challenging, achievable objectives for multiple projects, have lasting impact
Think Innovatively:	LEVEL 3: Proactively mitigate potential risks, develop new ideas to solve complex problems
Learn Continuously:	LEVEL 3: Create and act on opportunities to expand horizons, diversify experiences
Adapt with Agility:	LEVEL 3: Proactively initiate and champion change, manage multiple competing demands
Act with Determination:	LEVEL 3: Think beyond immediate task/barriers and take action to achieve greater results
Engage and Partner:	LEVEL 3: Political savvy, navigate complex landscape, champion inter-agency collaboration
Enable Diversity and Inclusion:	LEVEL 3: Appreciate benefits of diverse workforce and champion inclusivity

People Management

UNDP People Management Competencies can be found in the dedicated site

Thematic Area	*Name*	*Definition*
Digital & Innovation	Geospatial analysis	Skilled in techniques which study entities using their topological, geometric, or geographic properties.
Business Management	Partnerships Management	Build and maintain partnerships with wide networks of stakeholders, Governments, civil society and private sector partners, experts and others in line with UNDP strategy and policies
Business Direction and Strategy	System Thinking	Ability to use objective problem analysis and judgement to understand how interrelated elements coexist within an overall process or system, and to consider how altering one element can impact on other parts of the system
Procurement	Strategic sourcing	Knowledge of strategic sourcing concepts, principles and methods, and ability to apply this to strategic and/or practical situations
2030 Agenda: Planet	Disaster Risk Reduction and Recovery	Mainstreaming/Integrating Disaster Risk Reduction and Climate Adaptation into Development
2030 Agenda: Peace	Governance	Participation and Inclusion
2030 Agenda: People	Gender	Innovation for Gender Equality

Please refer to the competency framework site for the entire list of competencies and further explanations.

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• Advanced University Degree (master's degree or equivalent) in Disaster Risk Management, Engineering, Environmental Sciences, or other relevant discipline is required. *or* • A first-level university degree (bachelor's degree) in the above-mentioned fields in combination with an additional 2 years of relevant experience will be given due consideration in lieu of master's degree.
Min. years of relevant work experience	A minimum of 7 years (with a master's degree) or 9 years (with a bachelor's degree) of relevant experience in Climate Adaptation, Engineering, or Disaster Risk Reduction.
Required skills	• Proven track record of strong networking with government, technical and community-level audiences. • Proven experience in managing multiple tasks, meeting deadlines, and maintaining attention to detail. • Demonstrated experience in coordinating with media, government counterparts, and diverse partners. • Demonstrated experience in working collaboratively in complex project environments. • Proficiency in using computer applications such as MS Word, Excel, PowerPoint, and other relevant software required for the role.
Desired skills in addition to the competencies covered in the Competencies section	• Proven leadership in climate adaptation, DRR, and GLOF/EWS management. • Strong ability to review technical outputs (engineering, hydro-met, ICT, safeguards).

	• Proven capacity to develop operational protocols and training. • Proven experience of gender and social inclusion in DRR and EWS • Familiarity with EcoDRR, EWS, WMO frameworks and Sendai DRR targets. • Experience in the Hindu Kush Himalayan context, GLOF risk reduction and monsoon flood risk reduction. • Proven publication/knowledge product record. • Experience working with UNDP, GCF, or other donor-funded projects, particularly in climate change adaptation or disaster risk reduction. • Proven track record of sound knowledge of environmental and climate change issues in Nepal, including GLOFs, Eco-DRR, and early warning systems.
Required Language(s)	Fluency in English and required.
Professional Certificates	

7. The following documents shall be required from the applicants:

a) **Personal CV or P11**, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.
b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.
c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)

This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Project Coordination Specialist

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Project Coordination Specialist
Level	NPSA 10
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	[TBC based on FAA]
Expected Duration	7 Years
Position Number	227725

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving

as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The Project Coordination Specialist (PCS) will lead the project management unit and oversee day-to-day implementation under the guidance of the Project Board (PB) for Nepal. The PCS will be responsible for ensuring that project results are delivered in line with the approved project document, meeting agreed standards of quality, timeframes, and budget. Key duties include preparing annual work plans and budgets for Board approval, as well as quarterly and annual progress reports outlining achievements, challenges, and necessary adjustments. The PCS will manage procurement and recruitment of national and international service providers and specialist expertise in consultation with the Board. Given that the project is implemented in partnership with the Government of Nepal and various stakeholders, the PCS will also play a central role in coordinating the efforts of all partners to ensure coherent and effective delivery. The PCS function will end when the final project terminal evaluation report and other documentation required by the GCF and UNDP have been completed and submitted to UNDP (including operational closure of the project).

The Project Coordination Specialist will be responsible for the following key functions:

1. Project Management:

- Develop annual work plans, budgets, and targets in line with the Project Document and Board guidance.
- Monitor progress against plans, identify bottlenecks, and propose corrective measures to ensure timely delivery.
- Support the Project Board with regular updates, background materials, and reporting for decision-making.
- Lead and supervise the Project Management Unit, setting clear objectives and providing performance guidance.
- Oversee procurement, contracting, and recruitment processes, including drafting TORs and technical specifications.
- Prepare and maintain accurate accounting records in line with UNDP and GCF requirements.
- Ensure the effective and accountable use of project resources in line with GCF/UNDP standards.
- In collaboration with other PMU members, draft Terms of Reference (TORs), technical specifications, and related documentation to guide procurement and recruitment processes.
- Identify, contract, and supervise consultants, suppliers, and service providers to ensure quality and timely delivery of outputs.
- Coordinate and oversee the timely execution of project activities by the PMU, consultants, and suppliers.
- Monitor the quality of technical outputs, ensuring compliance with approved standards.
- Support oversight of cross-cutting requirements such as the Environmental and Social Management Framework and Gender Action Plan.
- Establish and maintain systems for monitoring progress, risks, and results.
- Prepare quarterly operational and annual progress reports for submission to the Project Board and UNDP.
- Support audits and ensure timely follow-up on recommendations.

2. Coordination, Partnerships and Stakeholder Engagement:

- Serve as the central point of coordination and maintain strong working relationships with project partners at national, state, and community levels, ensuring effective liaison with government counterparts, UN agencies, and other responsible parties involved in implementation.
- Liaise closely with Responsible Parties for the implementation of specific interventions.
- Facilitate the technical advisory group and ensure effective inputs are integrated into project delivery.

3. Communications and Knowledge Management:

- Maintain regular communication with Government, national stakeholders, and partners on project progress and emerging issues.
- Support project visibility and communications activities in coordination with UNDP and national partners.

- Act as a focal point for stakeholder feedback and local concerns related to project activities.
- Promote knowledge exchange and capacity development with Government counterparts and local stakeholders.
- Document and disseminate lessons learned and best practices within Nepal and across region.

4. Capacity Building:

- Facilitate linkages with regional and international platforms to draw on global expertise and share project experiences.
- Coordinate the design and implementation of the project's capacity development activities, ensuring alignment with national priorities and project outcomes.
- Ensure that technical service providers incorporate on-the-job training and knowledge transfer components into their workplans and deliverables.
- Promote local ownership and sustainability by supporting institutionalization of new tools, systems, and standard operating procedures developed under the project.
- Coordinate documentation of lessons learned, training materials, and best practices, and support dissemination across national and regional platforms.

5. Mainstreaming Gender Equality and Social Inclusion:

- Ensure mainstreaming of Gender Equality and Social Inclusion (GESI) principles throughout project planning, implementation, monitoring, and reporting in line with national policies and Green Climate Fund (GCF) gender and social safeguards requirements.
- Facilitate the integration of gender-responsive and inclusive climate actions in project interventions, ensuring that women, indigenous peoples, persons with disabilities, and marginalized groups actively participate and benefit equitably.
- Coordinate with GESI experts and technical teams to develop and implement the project's Gender and Social Inclusion Action Plan (GESIAP) and monitor progress against its targets and indicators.
- Promote capacity development on GESI and climate resilience for project staff, implementing partners, and local stakeholders, ensuring inclusive participation and gender-balanced representation.
- Ensure that data collection and reporting are sex-, age-, and disability-disaggregated, and that progress reports adequately reflect gender equality and social inclusion outcomes.
- Identify and address potential gender and social risks associated with project activities, proposing mitigation measures in coordination with relevant stakeholders.
- Support the documentation and dissemination of good practices, lessons learned, and success stories that highlight gender-responsive and socially inclusive climate actions.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organization.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The PCS will report directly to the Chief Technical Advisor and work on day-to-day basis with Portfolio Manager (Resilience and Environment) and Programme Analyst (Climate Change and Resilience). The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI.

5. Competencies

Core	
Achieve Results:	LEVEL 3: Set and align challenging, achievable objectives for multiple projects, have lasting impact
Think Innovatively:	LEVEL 3: Proactively mitigate potential risks, develop new ideas to solve complex problems
Learn Continuously:	LEVEL 3: Create and act on opportunities to expand horizons, diversify experiences

Adapt with Agility:	LEVEL 3: Proactively initiate and champion change, manage multiple competing demands
Act with Determination:	LEVEL 3: Think beyond immediate task/barriers and take action to achieve greater results
Engage and Partner:	LEVEL 3: Political savvy, navigate complex landscape, champion inter-agency collaboration
Enable Diversity and Inclusion:	LEVEL 3: Appreciate benefits of diverse workforce and champion inclusivity

People Management (Insert below standard sentence if the position has direct reports.)
to People Management Competencies

UNDP People Management Competencies can be found in the dedicated site.

Cross-Functional & Technical competencies (insert up to 7 competencies)

Thematic Area	***Name***	***Definition***
2030 Agenda: Planet	Disaster Risk Reduction and Recovery	• Early Warning, Anticipation and Preparedness • Mainstreaming/Integrating Disaster Risk Reduction and Climate Adaptation into Development • Risk Governance: Disaster and Climate Risk Governance
Procurement	Strategic sourcing	Knowledge of strategic sourcing concepts, principles and methods, and ability to apply this to strategic and/or practical situations
Business Management	Project Management	Ability to plan, organize, prioritize and control resources, procedures and protocols to achieve specific goals
	Partnerships Management	Build and maintain partnerships with wide networks of stakeholders, Governments, civil society and private sector partners, experts and others in line with UNDP strategy and policies
	Risk Management	Identify and organize action around reducing, mitigating and proactively managing risks
2030 Agenda: People	Gender	Innovation for Gender Equality
Business Direction & Strategy	System Thinking	Ability to use objective problem analysis and judgement to understand how interrelated elements coexist within an overall process or system, and to consider how altering one element can impact on other parts of the system

Please refer to the competency framework site for the entire list of competencies and further explanations.

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• Advanced University Degree (Master s degree or equivalent) in Environmental Management, Development Studies, Project Management, Business or Public Sector Administration, International Relations, Political Science, or other relevant discipline. *or* • A first-level university degree (bachelor's degree) in the above-mentioned fields in combination with an additional 2 years of relevant experience will be given due consideration in lieu of the advanced university degree.
Min. years of relevant work experience	A minimum of 5 years (with a master's degree) or 7 years (with a bachelor's degree) of relevant experience in project implementation and management, with a focus on planning, monitoring, reporting, and stakeholder and team coordination.
Required skills	• Good computer literacy MS office applications, web-based management information systems.

	• Highly organized with strong ability to set priorities, deliver quality outputs, meet deadlines, and manage time effectively. • Proactive and self-motivated, with the ability to maintain an overview in complex work situations. • Strong analytical skills with the ability to gather, process, and interpret data and information. • Excellent interpersonal skills for effective networking within the national team and with external institutions. • Clear and effective communicator, maintaining professionalism in both written and verbal correspondence with diverse stakeholders.
Desired skills in addition to the competencies covered in the Competencies section	• Technical experience with early warning systems, emergency communications, disaster risk reduction and management, anticipatory action and climate change adaptation is highly desirable; • Prior experience in managing high-value, donor-funded projects is highly desirable. • Extensive managerial experience, including experience in leading multi-cultural teams, is highly desirable. • Demonstrated leadership in multi-stakeholder coordination (government, civil society, private sector, and international organizations) is highly desirable. • Strong project management skills (planning, implementation, monitoring, and reporting) are highly desirable. • Ability to draft high-quality reports, policy briefs, and official communications. • Budget management and oversight experience are highly desirable. • Familiarity with government procedures, donor compliance requirements, and project governance frameworks is highly desirable. • Prior experience with UNDP projects would be an asset. • Proven experience in working with government counterparts, donors, and development partners at policy/strategic level is highly desirable.
Required Language(s)	Good command of English and Nepali is required.

7. The following documents shall be required from the applicants:

a) Personal CV or P11, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.
b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.
c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)

This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Administrative and Finance Analyst

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Administrative and Finance Analyst
Level	NPSA 8
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	[TBC based on FAA]
Expected Duration	7 Years
Position Number	227719

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The Administrative and Finance Analyst (AFA) will provide comprehensive financial, administrative, and operational support to ensure efficient and transparent implementation of the Nepal GLOF Project. The AF Analyst will oversee project financial planning, monitoring, and reporting in line with UNDP and donor requirements, while ensuring effective budget management, compliance with internal controls, and timely support to audits. The role will also be responsible for coordinating day-to-day administrative operations, procurement processes, travel, logistics, and asset management to enable smooth project delivery. By guiding national and provincial partners on financial and administrative procedures, the AF Analyst will play a critical role in strengthening accountability, building capacity, and ensuring compliance with UNDP policies, GCF standards, and national regulations.

1. Ensure effective administrative coordination and logistical management for smooth project operations:

- Oversee the overall administrative management of the project, ensuring all correspondence, documentation, and office processes are systematically organized, properly filed, and accessible to relevant personnel.
- Plan, coordinate, and arrange security, travel, accommodation, and local transport for project staff, partners, and consultants, ensuring compliance with UNDP procedures and safety standards.
- Provide guidance and training to project personnel on Travel & Expense (T&E) processes, review and certify Travel Requests in UNALL Travel, and ensure timely submission for approval and reimbursement.
- Support the processing of travel documents for Technical Assistance (TA) and associated government officials, ensuring adherence to project policies and donor requirements.
- Assist UNDP in managing contracts with implementing partners (governmental and non-governmental organizations) and service providers, including monitoring deliverables, deadlines, and compliance with contractual obligations.
- Ensure systematic maintenance of vehicle logbooks, oversee the proper functioning and servicing of vehicles, and monitor availability and usage of office supplies to support uninterrupted operations.

2. Provide comprehensive financial oversight, planning, monitoring, and reporting in line with UNDP and donor requirements:

- Ensure full compliance with UNDP financial rules, regulations, policies, and internal control procedures while supporting project financial operations.
- Review, monitor, and analyze financial performance, budgets, and expenditures, including investigating exception reports, unusual transactions, and discrepancies, providing recommendations for corrective action.
- Prepare accurate and timely financial forecasts, cash flow statements, disbursement requests, and interim and final financial reports for submission to GCF, UNDP, and other relevant stakeholders.
- Support grant negotiations, amendments, and donor reporting requirements by providing detailed financial inputs, justifications, and analysis.
- Facilitate the timely preparation, validation, and filing of interim and final financial reports, ensuring all supporting documents are complete, accurate, and properly archived.
- Support in the preparation, monitoring, and revision of annual/revised budgets and Combined Delivery Reports (CDR) in Quantum, ensuring alignment with project objectives and approved work plans.
- Support in the development of Annual Work Plans (AWPs) and quarterly work plans, including procurement and HR plans, providing guidance to ensure compliance with UNDP standards and donor requirements.
- Review and validate TA budgets, amendments, and no-cost extension requests, ensuring that proposed changes

are justified and properly documented.
- Monitor GCF contributions, transfers, and receipts, ensuring timely bank transactions, accurate recording, and effective cash management.
- Prepare quarterly and biannual forecasts, budget reallocations, and support justifications in line with donor regulations and UNDP requirements.
- Ensure budget alignment in Quantum and Hyperion Planning and Budgeting systems with approved work plans and financial strategies.

3. Ensure compliance, audit facilitation, and proactive risk management for transparent programme implementation:
- Support and coordinate the planning and execution of programme and partner audits, ensuring all audit requirements and documentation are prepared in a timely manner.
- Conduct micro-capacity assessments of implementing partners at sub-national levels, identifying gaps and providing recommendations for operational improvements.
- Ensure timely follow-up and implementation of audit recommendations and recovery actions, maintain records of compliance and reporting progress to supervisors.
- Support programme audits and investigations in coordination with the Country Office, Regional Bureau, and Office of Audit and Investigations (OAI), ensuring proper documentation and adherence to UNDP protocols.
- Facilitate risk management processes, review anomalies or unusual transactions, and recommend corrective measures to strengthen internal controls and minimize financial or operational risks.

4. Contribute to capacity development, knowledge sharing, and strategic partnerships for strengthened programme delivery:
- Provide operational guidance to provincial teams, Programme Analysts, and ISTA members in the preparation of work plans, budgets, and reporting, ensuring alignment with UNDP standards.
- Support capacity development of national and provincial partners through training, coaching, and mentoring on financial, administrative, and operational management processes.
- Conduct training sessions for PMU and relevant stakeholders on financial oversight, compliance, and reporting requirements.
- Strengthen partnerships with government institutions, NGOs, CSOs, donors, and UN agencies, ensuring transparent and effective management, and high-quality service delivery.
- Actively participate in UNDP and external networks/forums to promote knowledge sharing, contribute lessons learned, and disseminate best practices.

5. Gender Equality and Social Inclusion (GESI):
- Ensure GESI considerations are mainstreamed in budgets, AWPs, procurement, HR plans, and other Facilitate in creating an environment to address GESI issues in operations.
- Ensure GESI is mainstreamed in the budget, AWP, procurement and HR plans, and all other administrative work to be undertaken by the project in coordination with Community, Rights and Gender Analyst and GESI Analyst of UNDP CO.
- Fully comply with UNDP's GESI policy and ensure contribute to the zero tolerance for discrimination, harassment, sexual harassment, sexual exploitation, and abuse.
- Promote gender equality and social inclusion (GESI) throughout programme implementation.
- Create a safe working environment by developing respectful and safe organizational culture and supporting practices.
- Collaborates with team members, programme partners, and sub-grantees to ensure safe implementation of programmes at the community level applying Do No Harm approach.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organisation.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The Administrative and Finance Analyst will report directly to the Project Coordination Specialist. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI.

5. Competencies

Core	
Achieve Results:	LEVEL 2: Scale up solutions and simplify processes, balances speed and accuracy in doing work
Think Innovatively:	LEVEL 2: Offer new ideas/open to new approaches, demonstrate systemic/integrated thinking
Learn Continuously:	LEVEL 2: Go outside comfort zone, learn from others and support their learning
Adapt with Agility:	LEVEL 2: Adapt processes/approaches to new situations, involve others in change process
Act with Determination:	LEVEL 2: Able to persevere and deal with multiple sources of pressure simultaneously
Engage and Partner:	LEVEL 2: Is facilitator/integrator, bring people together, build/maintain coalitions/partnerships
Enable Diversity and Inclusion:	LEVEL 2: Facilitate conversations to bridge differences, considers in decision making

People Management (Insert below standard sentence if the position has direct reports.)
UNDP People Management Competencies can be found in the dedicated

Cross-Functional & Technical competencies:

Thematic Area	***Name***	***Definition***
Administration & Operations	Documents and records management	• Overall document (hard or electronic) management; registry and retention policy including storing and archiving
	Assets management	• Knowledge of policy & procedures on PP&E; ability to prepare financial statements on PP&E; maintain Asset Management Module in ATLAS, Asset Dashboard; develop supporting tools for assets certification and further enhancements for AM module; design and run training programs, etc. on assets management and assets recording; run AP- AM interface; perform AP-AM-GL reconciliation; perform analytical review of AM reports and asset information to ensure completeness and accuracy of asset information
Finance	Budget management	• Ability to support budgetary aspects of work planning process, drawing and management of team budgets
Audit & Investigation - General	Financial and Managerial Accounting and Finance key concepts	• Key concepts and principles of financial accounting, interpret financial analysis, managerial accounting, etc.
Business Management	Communication	• Ability to communicate in a clear, concise and unambiguous manner both through written and verbal communication; to tailor messages and choose communication methods depending on the

		audience
2030 Agenda: People	Gender	• Gender Mainstreaming
2030 Agenda: Peace	Governance	• Inclusion and Participation

Please refer to the competency framework site for the entire list of competencies and further explanations.

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• A professional accounting qualification from an internationally accredited institute of accountancy, and/or • Advanced (Master's) University Degree in Finance and/or Accounting is required. OR • A first-level university degree (bachelor's degree) in combination with an additional two years of qualifying • experience will be given due consideration in lieu of the advanced university degree. • Candidates with professional accounting qualifications from an internationally accredited institute of accountancy will have a distinct advantage. • Candidates with no professional accountancy qualifications, but with degrees that major in accountancy and/or finance must complete the Finance Training and Certification Programme (FTCP), if recruited. • Candidates satisfying the two above criteria are exempted from undertaking the UNDP Advanced Accountancy and Finance Test (AAFT). • Candidates with MBA or masters in finance with no accountancy qualification but with relevant experience must successfully undertake the UNDP Advanced Accountancy and Finance Test (AAFT) to be eligible for shortlisting.
Min. years of relevant work experience	• Applicants with master's degree (or equivalent) in a relevant field of study are not required to have professional work experience. Applicants with a bachelor's degree (or equivalent) are required to have a minimum of two (2) years of working experience in administration and finance. • Experience of IPSAS and/or IFRS is required for external candidates.
Required skills	• Proficiency in MS Office (particularly Excel, Word, PowerPoint) and financial reporting tools. • Commitment to upholding transparency, accountability, integrity, and UNDP values. • Excellent organizational skills with the ability to manage multiple tasks, deadlines, and priorities effectively.
Desired skills in addition to the competencies covered in the Competencies section	• Demonstrated experience providing operational and administrative support in development or project settings. • Strong experience in financial management, including budget preparation, monitoring, and reporting in line with donor and organizational requirements. • Demonstrated ability to ensure compliance with financial regulations, internal control procedures, and audit standards. • Proficiency in using financial and enterprise resource planning systems (e.g., UNDP Quantum or equivalent). • Solid understanding of procurement, contracting, and administrative processes in development projects. • Strong analytical and problem-solving skills/experience for identifying financial discrepancies, risks, and corrective measures.

	• Prior experience with UNDP financial and administrative systems, rules, and procedures. • Proven knowledge of donor reporting requirements, especially GCF or other climate finance mechanisms. • Proven familiarity with national government financial systems and institutional structures. • Experience facilitating audits, micro-capacity assessments, and risk management processes. • Demonstrated ability to train and mentor staff or partners in financial and administrative management. • Experience supporting large-scale, multi-stakeholder programmes with multiple tiers of government. • Proven understanding of gender-responsive budgeting, social inclusion, and safeguarding principles. • Experience building partnerships with government, CSOs, and international development partners.
Required Language(s)	Good command of English and Nepali is required. Knowledge of any other national language will be an asset.
Professional Certificates	*N/A*

7. The following documents shall be required from the applicants:

a) **Personal CV or P11**, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.
b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.
c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)

This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Civil Engineer

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Civil Engineer
Level	NPSA 8
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	As soon as possible
Expected Duration	1 year (with possible extension)
Position Number	227826

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving

as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

1. Support technical studies and assessments

- Provide engineering input into site-specific feasibility and risk assessments;
- Review detail design (Invistigation, Design, Preparation of Engineering Drawings and Details Estimate, Construction supervision and Quality Control) on EcoDRR activities from consultants hired by UNDP on the first year of project and provide insightful comments and feedbacks for effective implementation of activities,
- Conduct field visits and prepare technical site reports;
- Develop knowledge management products on the application for the identified interventions and create awareness among communities, relevant professionals, institutions.
- Provide simple definition or redescription of the engineering related technical terms in technical studies and assessments such that it is understandable to Contractors or beneficiary user groups or relevant stakeholder.

2. Supervise the design and implementation of engineering interventions

- Oversee preparation and review of designs, technical specifications, BoQs, cost estimates, and technical drawings for GLOF risk reduction and Eco-DRR works;
- Draft/review Terms of Reference and bidding documents including the evaluation criteria for detailed design and procurement of engineering interventions;
- Support bid evaluations and selection of best bidder for engineering works as per the Request for Proposal/Invitation to Bid requirements, ensuring quality, safety, climate resilience, and compliance with and integration of environmental, social, and gender safeguards;
- Ensure the contract documents (related to both contractual works and user group works) are thoroughly reviewed, enabling the risk and probable conflict resolution,
- Provide support and guidance to the project implementing partners as well as responsible partners on contract management, and resolution of site-related issues with contractors, partners, and communities;
- Supervise and inspect construction works;
- Conduct field visits, provide technical assistance, and recommend best-practice solutions for timely delivery;
- Ensure the proper documentation for final handover upon completion of all project engineering works in coordination with the relevant counterparts, officials, communities, groups;
- Ensure that engineering designs, construction works, and infrastructure interventions are gender-responsive and socially inclusive, addressing the specific needs and priorities of women, men, persons with disabilities, and marginalized groups;
- Incorporate universal design and accessibility standards in all infrastructure planning and implementation to enhance safe and equitable access for all community members;
- Engage with local communities, especially women's groups, indigenous peoples, and socially excluded groups, during site selection, design, and implementation to ensure their perspectives are reflected in project decisions.

3. Oversight and reporting

- Oversee EcoDRR infrastructural interventions, verifying quality of materials, techniques, and final finishes.
- Certify completion and quality of works, ensuring documentation, as per the GON rules and regulations, is in place for payments, handovers, and audit requirements;
- Maintain construction records, compile periodic technical reports, and provide updates to PMU/PIU in line with UNDP/GON/GEF standards;
- Ensure that all project data, information on physical and financial progress are duly maintained with transparently,

expediently, and effectively in line with UNDP rules and regulations;
- Contribute to annual workplans and budgeting within the PMU as related to engineering works, applying adaptive management principles;
- Monitor the progress of engineering works according to annual work plan, ensuring that targets are fully met and the reporting requirements are fulfilled;
- Document lessons learned, good practices, and case studies to inform replication and scale-up, including consideration of potential impacts of the project;
- Maintain records, compile periodic reports and any specific reports required by GON, UNDP, and GCF standard procedures.
- Assist in planning the annual program, especially for EcoDRR activities, for the next fiscal year as per the progress and requirements of site,
- Review if the feasibility of project sites identified in the first year of the project still comprehend on different time scale during the project period and incorporate the principle of adaptive management.

4. Ensure environmental and social safeguards
- Contribute to Environmental and Social Management Plans (ESMPs) for infrastructure;
- Monitor contractors' and User group's compliance with safeguards at the field level in close coordination with concerned officials;
- Ensure community and workers safety during construction;
- Work closely with the project's GESI and environmental specialists to assess and mitigate potential gender disability and social risks, and to promote equitable participation and benefit-sharing in project outcomes.

5. Build local capacity for infrastructure management
- Organize and facilitate related training, exposure visits, and other project activities, including on the on operation and maintenance of project works;
- Develop guidelines and manuals for infrastructure sustainability;
- Ensure gender, disability and social inclusiveness is integrated and applied throughout the construction process.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organization.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The Civil Engineer will report directly to the Project Coordination Specialist. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements
Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback
Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident

Engage and Partner:	LEVEL 1: Demonstrates compassion/understanding towards others, forms positive relationships
Enable Diversity and Inclusion:	LEVEL 1: Appreciate/respect differences, aware of unconscious bias, confront discrimination

Cross-Functional & Technical competencies

Thematic Area	***Name***	***Definition***
Business Management	Partnerships Management	Build and maintain partnerships with wide networks of stakeholders, Governments, civil society and private sector partners, experts and others in line with UNDP strategy and policies
	Resource Management	Allocate and use resources in a strategic or tactical way in line with project needs and priorities and principles of accountability and integrity
	Risk Management	Identify and organize action around reducing, mitigating and proactively managing risks
Procurement	Strategic sourcing	Knowledge of strategic sourcing concepts, principles and methods, and ability to apply this to strategic and/or practical situations
2030 Agenda: Planet	Disaster Risk Reduction and Recovery	Disaster Risk Reduction: Capacity development
2030 Agenda: Peace	Governance	Inclusion and Participation of Marginalised Groups
2030 Agenda: People	Gender	Innovation for Gender Equality

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• Advanced University Degree (Master´s degree or equivalent) in Civil/Structural Engineering, or Water Resource Engineering or Construction Management other relevant discipline is required. *or* • A first-level university degree (bachelor's degree) in the above-mentioned fields in combination with additional 2 years of relevant experience will be given due consideration in lieu of master's degree.
Min. years of relevant work experience	Applicants with master's degree (or equivalent) in a relevant field of study are not required to have professional work experience. Applicants with a bachelor's degree (or equivalent) are required to have a minimum of two (2) years of working experience at strategic level in civil engineering design and project management.
Desired skills in addition to the competencies covered in the Competencies section	• Experience in computer applications like Microsoft (Word, Excel and Ppt). • Working experience in civil engineering. • Experience in hydrological and civil engineering design. • Experience with infrastructure in fragile mountain environments. • Experience using AutoCAD and related design tools. • Experience in climate-resilient infrastructure design. • Prior experience in disaster risk reduction or water resource management projects, with experience in glacial lake lowering. • Experience with UNDP and GON procurement and contracting processes. • Experience working with UNDP, GCF, or other donor-funded projects, particularly in climate change adaptation or disaster risk reduction. • Experience in environmental and climate change issues in Nepal, including GLOFs, Eco-DRR, and early warning systems.

Required Language(s)	Fluency in English and Nepali is required. Knowledge of any other national language will be an asset.
Professional Certificates	

7. The following documents shall be required from the applicants:

a) **Personal CV or P11**, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.
b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.
c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)

This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Communication and Reporting Analyst

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Communication and Reporting Analyst
Level	NPSA 8
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	As soon as possible
Expected Duration	1 year (with possibility of extension)
Position Number	227825

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving

as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The Communications and Reporting Analyst will be responsible for designing and implementing a comprehensive communications and visibility strategy that effectively showcases the results, innovations, and lessons of the Nepal GLOF project. The Analyst will develop and manage communication materials, coordinate outreach with national and international stakeholders, and ensure alignment with UNDP and GCF branding requirements. Key duties include documenting project achievements, producing multimedia content, strengthening media and partner networks, and supporting advocacy and knowledge exchange at national, regional, and global levels. The Analyst will also facilitate South-South knowledge dissemination by highlighting Nepal's leadership in GLOF risk reduction and climate adaptation. The role will conclude with the preparation of consolidated communication products and final knowledge outputs for dissemination through UNDP, GCF, and global platforms.

1. Design, Develop, implement and manage the project communication strategy:

- Finalize, implement, and update a communications and visibility strategy aligned with UNDP and GCF standards.
- Ensure coverage of all project components (lake lowering, Eco-DRR, early warning systems, capacity building) and integration of GESI and safeguards dimensions.
- Produce high-quality materials, including press releases, newsletters, infographics, reports, case studies, photo essays, and short videos.
- Oversee the design, layout, and production of communication outputs, ensuring adherence to UN editorial and branding guidelines.
- Maintain a digital library of media, photographs, and knowledge products.
- Track communication outputs, media coverage, and audience engagement.
- Provide quarterly updates and inputs to project progress reports, highlighting communication milestones and results.
- Recommend adjustments to enhance visibility, outreach, and impact.
- Integrate GESI principles in all planning, implementation, and monitoring processes to ensure equitable participation and benefits for women, men, persons with disabilities, and marginalized groups.

2. Strengthen media engagement and partnerships:

- Establish and maintain relationships with national and international media outlets, journalists, and influencers to raise awareness of project outcomes.
- Facilitate media coverage of key milestones, site visits, and events related to GLOF risk reduction and climate adaptation.
- Support advocacy campaigns linked to global events (e.g., COP, UNFCCC).
- Provide technical guidance and capacity building to staff, partners, and stakeholders on applying gender and social inclusion approaches in project interventions.

3. Support knowledge management and dissemination:

- Document project progress, achievements, and lessons learned through accessible communication formats.
- Translate technical findings into clear and engaging knowledge products for diverse audiences, including policymakers, communities, and global partners.
- Contribute to South-South exchanges by preparing content for ICIMOD, UNDP, and GCF platforms.
- Collect, analyze, and report disaggregated data (by sex, age, disability, and other relevant factors) to identify gaps and recommend strategies for inclusive programming.

4. Coordinate outreach and advocacy activities:

- Organize public events, workshops, and campaigns to showcase project achievements.
- Provide communication support for donor engagement, joint monitoring missions, and stakeholder consultations.
- Ensure advocacy efforts highlight the inclusion of vulnerable groups, climate resilience, and sustainable development linkages.

5. Ensure internal and partner communication alignment:

- Maintain close collaboration with UNDP, government counterparts, and partner institutions' communication focal points.
- Ensure consistency of project messaging across all channels and partners.
- Support resource mobilization by producing compelling content for partners and donors.
- Ensure GESI priorities to promote coherence, accountability, and consistency in messaging and implementation.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organization.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The Communication and Reporting Analyst will report directly to the Project Coordination Specialist. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI. The Communication and Reporting Analyst will work closely with the Communication Analyst of CO, Environmental and Social Safeguards, and GESI Analyst.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements
Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback
Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident
Engage and Partner:	LEVEL 1: Demonstrates compassion/understanding towards others, forms positive relationships
Enable Diversity and Inclusion:	LEVEL 1: Appreciate/respect differences, aware of unconscious bias, confront discrimination

Cross-Functional & Technical competencies

Thematic Area	***Name***	***Definition***
Business Management	Partnerships Management	Build and maintain partnerships with wide networks of stakeholders, Governments, civil society and private sector partners, experts and others in line with UNDP strategy and policies
	Communication	Communicate in a clear, concise and unambiguous manner both through written and verbal communication; to tailor messages and choose communication methods depending on the audience. Ability to manage

		communications internally and externally, through media, social media and other appropriate channels
Digital	Behaviour change communication/communication for development	Knowledge of appropriate digital communication methodologies for development and behaviour change, and ability to apply them practically
	Data storytelling and communications	Skilled in building a narrative around a set of data and its accompanying visualizations to help convey the meaning of that data in a powerful and compelling fashion.
Communications	Multimedia production	Ability to create and combine images, text and audio-visuals to produce multimedia content
2030 Agenda: Peace	Governance	Inclusion and Participation of Marginalised Groups
2030 Agenda: People	Gender	Innovation for Gender Equality

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• Advanced University Degree (Master´s degree or equivalent) in Communication, Journalism, Media Relations, External Relations, Public Affairs, International Development, Social Sciences, Climate Change, or other relevant area is required, *or* • A first-level university degree (bachelor's degree) in the above-mentioned fields in combination with additional 2 years of relevant experience will be given due consideration in lieu of master's degree.
Min. years of relevant work experience	Applicants with master's degree (or equivalent) in a relevant field of study are not required to have professional work experience. Applicants with a bachelor's degree (or equivalent) are required to have a minimum of two (2) years of working experience at strategic level in communication, reporting and outreach.
Desired skills in addition to the competencies covered in the Competencies section	• Excellent knowledge of MS Office and design/multimedia tools (e.g., Adobe Creative Suite, Canva, video editing software). • Strong experience in developing and implementing communications strategies, preferably for development or climate-related projects. • Experience working with UNDP, GCF, or other donor-funded projects, particularly in climate change adaptation or disaster risk reduction. • Knowledge of environmental and climate change issues in Nepal, including GLOFs, Eco-DRR, and early warning systems. • Experience managing social media platforms and digital campaigns for development projects. • Experience with government communication processes and donor visibility requirements. • Demonstrated experience in knowledge management and capturing lessons learned. • Experience in South-South cooperation, regional knowledge exchange, or global advocacy platforms. • Knowledge of gender and social inclusion in communication and advocacy. • Experience supporting resource mobilization and donor engagement through strategic communication products.
Required Language(s)	Fluency in English and Nepali is required.

	Knowledge of any other national language will be an asset.
Professional Certificates	

7. The following documents shall be required from the applicants:

a) **Personal CV or P11**, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.
b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.
c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)

This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Disaster Risk Reduction/Management and Early Warning System Analyst

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Disaster Risk Reduction / Management and Early Warning System Analyst
Level	NPSA 8
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	As soon as possible
Expected Duration	1 year
Position Number	227827

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving

as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The DRR/M-EWS Analyst will ensure that the project's multi-hazard EWS interventions are technically sound, socially inclusive, and institutionally sustainable. Service providers will design and install systems, while the Analyst ensures quality assurance, coordination, and integration into national DRR frameworks.

1. Provide technical oversight of EWS design:

- Oversee interventions related to the generation and dissemination of early warnings, verifying quality of materials, techniques, and final finishes.
- Review and validate EWS designs, SOPs, and protocols.
- Ensure early warnings are inclusive and reach vulnerable communities.
- In collaboration with the Hydrological and Meteorological experts, support the technical and institutional capacity development of DHM to produce early warnings and disseminate them to government agencies and productive sectors.
- Oversee the development of community-based response plans, multi-hazard-based risk assessments (integrating community knowledge and science-based assessments), and training of communities on disaster risk management.
- Oversee the development of climate-responsive Municipal Disaster Preparedness and Response Plans.

2. Oversee system installation and operation:

- In collaboration with the Hydrological and Meteorological experts, monitor and guide contractors during installation and commissioning of EWS components.
- Certify deliverables and ensure proper documentation for payments.

3. Contribute to knowledge management and build institutional and community capacity:

- Conduct training for government personnel and community groups.
- Support drills, simulations, and awareness campaigns.
- Develop knowledge and awareness material on access and response to early warnings, including for the establishment and mobilisation of youth groups and volunteer's corps.
- Document good practices and lessons for replication.

4. Oversight and reporting:

- Certify completion and quality of works related to the installation and operation of hydrological equipment, ensuring documentation is in place for payments, handovers, and audit requirements.
- Maintain equipment records, compile periodic technical reports, and provide updates to PMU/PIU in line with UNDP/GON/GEF standards.
- Ensure that all project data and information on physical and financial progress related to DRM and EWS systems are duly maintained with transparently, expediently, and effectively in line with UNDP rules and regulations
- Contribute to annual workplans and budgeting within the PMU as related to DRM and EWS systems, applying adaptive management principles.
- Monitor the progress of DRM and EWS interventions according to annual work plan, ensuring that targets are fully met and the reporting requirements are fulfilled, and provide technical inputs to donor reports and evaluations.
- Contribute to the inclusion of EWS in Environmental and Social Management Plans (ESMPs).

5. Ensure Gender and Social inclusion considerations in the project and facilitate knowledge sharing

- Mainstream GESI considerations in disaster risk reduction (DRR) and early warning systems (EWS) by ensuring risk assessments, preparedness, and response strategies address the specific needs of women, men, youth, elderly persons, persons with disabilities, and marginalized communities.
- Strengthen inclusive participation by engaging diverse community groupsincluding women's groups, disability organizations, and indigenous representativesin the design, testing, and dissemination of community based EWS and DRR interventions.
- Ensure accessibility of information and communication systems by developing and promoting gender- and disability-responsive early warning messages in local languages and formats that are understandable and usable by all.
- Collect and utilize sex, age, and disability disaggregated data to identify differential vulnerabilities and capacities, ensuring evidence-based recommendations for inclusive DRR and climate resilience planning.
- Identify, synthesize and document best practices and lessons learned that are generated from the project and implementing partners.

6. Disaster Information Management System (DIMS) and Data Management for Early Warning Systems

- Lead and support the planning, development, and operationalization of a Disaster Information Management System (DIMS) to systematically manage data generated from Early Warning Systems (EWS), hydrometeorological monitoring, risk assessments, and community-based DRM interventions.
- Establish data management frameworks, standards, and protocols to ensure the consistent collection, validation, storage, analysis, visualization, and dissemination of disaster risk and early warning data in line with national systems and international best practices.
- Ensure interoperability and integration of EWS-related data with existing national platforms and information systems of the Department of Hydrology and Meteorology (DHM) and other relevant government entities.
- Support the development of dashboards, decision-support tools, and reporting mechanisms to enable timely, evidence-based decision-making for preparedness, response, and anticipatory action.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organisation

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The Disaster Risk Reduction/Management and Early Warning System Analyst will report directly to the Project Coordination Specialist. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements
Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback
Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident
Engage and Partner:	LEVEL 1: Demonstrates compassion/understanding towards others, forms positive relationships

Enable Diversity and Inclusion:	LEVEL 1: Appreciate/respect differences, aware of unconscious bias, confront discrimination

Cross-Functional & Technical competencies

Thematic Area	***Name***	***Definition***
Digital	Geospatial analysis	Skilled in techniques which study entities using their topological, geometric, or geographic properties.
Business Management	Partnerships Management	Build and maintain partnerships with wide networks of stakeholders, Governments, civil society and private sector partners, experts and others in line with UNDP strategy and policies
	Risk Management	Identify and organize action around reducing, mitigating and proactively managing risks
Procurement	Strategic sourcing	Knowledge of strategic sourcing concepts, principles and methods, and ability to apply this to strategic and/or practical situations
2030 Agenda: Planet	Disaster Risk Reduction and Recovery	Disaster Risk Reduction: Mainstreaming/Integrating Disaster Risk Reduction and Climate Adaptation into Development
2030 Agenda: Peace	Governance	Inclusion and Participation of Marginalised Groups
2030 Agenda: People	Gender	Innovation for Gender Equality

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• Advanced University Degree (master's degree or equivalent) in Disaster Risk Management, Engineering, Environmental Sciences, or other relevant discipline is required. *or* • A first-level university degree (bachelor's degree) in the above-mentioned fields in combination with additional 2 years of relevant experience will be given due consideration in lieu of master's degree.
Min. years of relevant work experience	• Applicants with master's degree (or equivalent) in a relevant field of study are not required to have professional work experience. • Applicants with a bachelor's degree (or equivalent) are required to have a minimum of two (2) years of working experience in disaster risk management and early warning systems
Desired skills in addition to the competencies covered in the Competencies section	• Experience in DRR, EWS, and hazard risk management.-20 • Experience in developing operational protocols and training.-15 • Experience and understanding of gender and social inclusion in early warning systems and anticipatory action • Experience with World Meteorological Organization (WMO) frameworks and Sendai DRR targets.-10(5-10) • Experience in the Hindu Kush Himalayan context, GLOF risk reduction and monsoon flood risk reduction.-10 • Experience working with UNDP, GCF, or other donor-funded projects, particularly in climate change adaptation or disaster risk reduction.15 • Experience in environmental and climate change issues in Nepal, including GLOFs, Eco-DRR, and early warning systems.-20
Required Language(s)	Fluency in English and Nepali is required. Knowledge of any other local language will be an asset.

Professional Certificates	

7. The following documents shall be required from the applicants:

a) **Personal CV or P11**, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.
b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.
c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)

This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Environmental and Social Safeguard (ESS) Analyst

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Environmental & Social Safeguards (ESS) Analyst
Level	NPSA 9
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	As soon as possible
Expected Duration	1 Year (with possibility of extension)
Position Number	227823

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides, and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures, which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, the risk of GLOF will be high, and GLOF can adversely impact the downstream vulnerable communities.

In response to this risk, USD36 million in GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring, and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyze a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal acting as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The Environmental and Social Safeguards (ESS) Analyst will be responsible for ensuring that all project activities comply with the Environmental and Social Management Framework (ESMF) and related safeguard standards of UNDP and the GCF. The Analyst will oversee the preparation and implementation of site-specific Environmental and Social Management Plans (ESMPs), Indigenous Peoples' Plan , monitor compliance, and provide technical advice to mitigate risks associated with lake lowering, Eco-DRR measures, and early warning system interventions. Key duties include supporting risk assessments, establishing and operating the grievance redress mechanism, strengthening the capacity of implementing partners and communities on safeguards, and reporting on safeguards performance to the Project Management Unit, UNDP, and GCF. The Analyst will also document good practices and contribute to knowledge-sharing platforms to promote replication of safeguards approaches across the region. The role will conclude with the submission of final safeguards performance reports and integration of lessons into the project's terminal evaluation and closure. The ESS Analyst will be responsible for the following key functions:

1. Prepare, implement and monitor Environmental and Social Management Plans (ESMPs) and Indigenous Peoples Plan (IPP):

- Oversee the preparation of site-specific ESMPs in line with the project's Environmental and Social Management Framework (ESMF) and IPP based on the project's IPPF.
- Ensure ESMPs and IPP address potential risks related to lake-lowering works, Eco-DRR interventions, early warning systems, and community-based activities.
- Oversee the integration of mitigation measures into contractor agreements and project implementation processes.
- Track implementation of ESMP and IPP commitments across all project sites and ensure compliance with UNDP's Social and Environmental Standards and GCF requirements.
- Conduct regular field visits, inspections, and monitoring of contractors, communities, and implementing partners.
- Prepare compliance reports and recommend corrective actions where risks or non-compliance are identified.

2. Undertaking of risk assessments and impact analysis:

- Conduct environmental and social screening of activities to identify potential risks, cumulative impacts, and opportunities for risk reduction.
- Ensure assessments cover biodiversity, water quality, ecosystem services, cultural heritage, labor and working conditions, and community health and safety.
- Advise on adaptive management strategies to address emerging risks during implementation.

3. Strengthening of institutional and community capacity on safeguards:

- Provide technical support to government partners (DHM, DoFSC, MoFE) and local authorities on environmental and social safeguards.
- Build community awareness on environmental protection, occupational health and safety, and social risk management.
- Develop toolkits and guidelines for safeguard implementation and monitoring.

4. Support grievance redress and stakeholder engagement:

- Operationalize the project's Grievance Redress Mechanism (GRM), ensuring accessibility for women, indigenous peoples, and vulnerable groups.
- Monitor and document stakeholder engagement activities and ensure compliance with the Stakeholder

Engagement Plan.
- Provide technical advice on conflict-sensitive approaches and resolution of safeguard-related grievances.

5. Plan, monitor, report and document on safeguards implementation and lessons on safeguards:
- Integrate safeguards commitments into project annual workplans, budgets, and MEL framework.
- Provide regular updates on safeguards performance to the Project Management Unit (PMU), Project Board, UNDP, and GCF.
- Support mid-term and final evaluations by ensuring environmental and social performance is comprehensively assessed.
- Capture good practices, lessons learned, and innovations in safeguards implementation.
- Contribute to project knowledge products, case studies, and regional exchanges to support replication of safeguards approaches.
- Ensure reporting reflects alignment with international standards, including the Sendai Framework and Nepal's environmental policies.
- Integrate GESI perspectives into safeguard assessments and compliance monitoring, ensuring environmental and social safeguard standards address the rights and needs of women, men, persons with disabilities, indigenous peoples, and marginalized groups.
- Develop and apply GESI-sensitive safeguard tools and frameworks to identify, mitigate, and monitor potential social risks and adverse impacts on vulnerable groups in project interventions.
- Facilitate meaningful stakeholder engagement, ensuring that women, youth, indigenous communities, and socially excluded groups are actively consulted and their voices reflected in safeguard planning and decision-making.
- Ensure inclusive grievance redress mechanisms, accessible to all groupsincluding those with low literacy, language barriers, or mobility constraintsto strengthen accountability and trust.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organization.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The ESS Analyst will report directly to the Project Coordination Specialist. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI. The ESS Analyst will work closely with the GESI and M&E Evaluation Analyst.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements
Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback
Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident
Engage and Partner:	LEVEL 1: Demonstrates compassion/understanding towards others, forms positive relationships
Enable Diversity and Inclusion:	LEVEL 1: Appreciate/respect differences, aware of unconscious bias, confront discrimination

Cross-Functional & Technical competencies

Thematic Area	***Name***	***Definition***
Business Management	Partnerships Management	Build and maintain partnerships with wide networks of stakeholders, Governments, civil society and private sector partners, experts and others in line with UNDP strategy and policies
	Communication	Communicate in a clear, concise, and unambiguous manner both through written and verbal communication; to tailor messages and choose communication methods depending on the audience. Manage communications internally and externally, through media, social media, and other appropriate channels.
	Risk Management	Identify and organize action around reducing, mitigating and proactively managing risks
Business Direction & Strategy	System Thinking	Ability to use objective problem analysis and judgement to understand how interrelated elements coexist within an overall process or system, and to consider how altering one element can impact on other parts of the system.
2030 Agenda: Peace	Rule of Law, Security and Human Rights	Safeguarding human rights and protecting vulnerable groups
2030 Agenda: People	Gender	Innovation for Gender Equality
2030 Agenda: Prosperity	Inclusive Growth	Social Inclusion

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• Advanced University Degree (Master´s degree or equivalent) in Development Studies, Social Science, Political Science, Environmental Science or other relevant discipline is required, *or* • A first-level university degree (bachelor's degree) in the above-mentioned fields in combination with additional 2 years of relevant experience will be given due consideration in lieu of master's degree.
Min. years of relevant work experience	A minimum of 2 years (with a master's degree) or 4 years (with a bachelor's degree) of relevant experience at strategic level in environmental and social safeguards or related fields.
Required skills	• Excellent knowledge of MS Office (Word, Excel, PowerPoint) and familiarity with GIS, remote sensing, and other digital tools for environmental and social monitoring.
Desired skills in addition to the competencies covered in the Competencies section	• Experience in coordinating with diverse stakeholders (government, contractors, communities, development partners) to facilitate safeguards compliance and risk management. • Proven knowledge of environmental and social safeguards frameworks, including Social and Environmental Standards (SES) and GCF requirements. • Experience preparing Environmental and Social Management Plans (ESMPs) and implementing Environmental and Social Management Frameworks (ESMFs) is highly desirable. • Practical experience with occupational health and safety (OHS) standards, labor management, and community health and safety safeguards. • Knowledge of biodiversity conservation, ecosystem services, and environmental protection relevant to mountain and high-altitude ecosystems. • Experience operationalizing and monitoring grievance redress mechanisms

	(GRMs) and facilitating stakeholder engagement processes. • Knowledge of climate change adaptation projects, including Eco-DRR measures, early warning systems, and water-related infrastructure. • Experience working with government agencies at national and local levels, ideally in Nepal or similar federal contexts. • Experience with donor compliance requirements, safeguards audit processes, and project governance frameworks. • Prior experience with UNDP or GCF-financed projects. • Experience in demonstrating ability to document lessons learned and contributing to knowledge products on safeguards implementation.
Required Language(s)	Fluency in English and Nepali is required. Knowledge of any other national language will be an asset.
Professional Certificates	

7. The following documents shall be required from the applicants:

a) Personal CV or P11, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.

b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.

c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)

This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Gender and Social Inclusion (GESI) Analyst

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Gender and Social Inclusion (GESI) Analyst
Level	NPSA 9
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	As soon as possible
Expected Duration	1 year (with possible extension)
Position Number	227822

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving

as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The Gender and Social Inclusion (GESI) Analyst will be responsible for leading the implementation of the project's Gender Action Plan (GAP) and ensuring that gender equality and social inclusion are fully integrated into all project activities. The Analyst will provide technical guidance and capacity-building support to government counterparts, implementing partners, and communities to address the differentiated needs of women, indigenous peoples, and other vulnerable groups. Key duties include embedding GESI considerations into workplans, budgets, and monitoring frameworks; reporting on GAP progress and results; and ensuring that all aspects of the project are delivered inclusively. The Analyst will also facilitate stakeholder engagement, document lessons learned and contribute to South-South learning by showcasing Nepal's innovative approaches to GESI-responsive climate risk management. The role will conclude with the submission of final GAP implementation reports and integration of lessons into project closure documentation. The GESI Analyst will be responsible for the following key functions:

1. Lead the implementation of the Gender Action Plan (GAP) ensuring Gender responsive design and delivery of GLOF risk reduction measures:

- Oversee the integration of GAP commitments into all project components, ensuring alignment with GCF and UNDP requirements.
- Track progress against GAP indicators, collect disaggregated data (sex, age, ethnicity, disability), and prepare periodic progress reports.
- Provide recommendations for adaptive management to address emerging gender and social inclusion gaps during implementation.
- Provide technical input to ensure lake lowering, Eco-DRR, and early warning interventions are inclusive and address the specific needs of women, indigenous peoples, and marginalized groups.
- Assess differential impacts of project activities on vulnerable groups and develop mitigation measures.
- Support the integration of gender-sensitive safeguards, including prevention of sexual exploitation, abuse and harassment (PSEAH).

2. Strengthen institutional capacity for GESI mainstreaming:

- Support the integration of gender-sensitivity into climate and disaster risk reduction training for the Department of Hydrology and Meteorology (DHM), Department of Forests and Soil Conservation (DoFSC), and local authorities.
- Develop guidance materials, toolkits, and training modules to institutionalize GESI approaches in planning, monitoring, and budgeting processes.
- Facilitate community-based training that enhances women's leadership and indigenous participation in disaster preparedness.

3. Support inclusive early warning systems and risk communication:

- Ensure warning messages and dissemination channels are tailored to reach diverse groups, including women, elderly, persons with disabilities, and remote indigenous communities.
- Provide technical advice on community engagement strategies that build trust and participation across genders and social groups.
- Monitor the accessibility and effectiveness of early warning communication and propose improvements.

4. Facilitate monitoring, and reporting and knowledge management of GESI activities:

- Provide inputs to project workplans, budgets, and MEL framework to ensure transformative GESI integration.

- Contribute to baseline, mid-term, and final evaluations by ensuring gender and inclusion dimensions are fully captured.
- Coordinate the inclusion of GESI perspectives in laws, policies, and project deliverables aligned with Nepal's international commitments (e.g., CEDAW, SDGs, Sendai Framework).
- Capture and disseminate good practices, success stories, and lessons learned from GESI-responsive interventions.
- Contribute to knowledge products and South-South learning exchanges to showcase Nepal's leadership in inclusive climate adaptation.
- Ensure that knowledge management reflects intersectionality and transformative gender outcomes.

5. Strengthen partnerships and stakeholder engagement on GESI:

- Coordinate with women's groups, indigenous organizations, civil society, and private sector stakeholders to promote inclusive participation in project activities.
- Support collaboration with development partners, UN agencies, and regional platforms (e.g., ICIMOD) to share lessons on GESI-responsive GLOF risk management.
- Build networks and communities of practice to sustain GESI engagement beyond the project's lifespan.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organization.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The GESI Analyst will report directly to the Project Coordination Specialist. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI. The GESI Analyst will work closely with the GESI Analyst and RBM Analyst of CO, Environmental and Social Safeguards Analyst, and Monitoring and Evaluation Analyst.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements
Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback
Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident
Engage and Partner:	LEVEL 1: Demonstrates compassion/understanding towards others, forms positive relationships
Enable Diversity and Inclusion:	LEVEL 1: Appreciate/respect differences, aware of unconscious bias, confront discrimination

Cross-Functional & Technical competencies

Thematic Area	***Name***	***Definition***
Business Management	Partnerships Management	Build and maintain partnerships with wide networks of stakeholders, Governments, civil society and private sector partners, experts and others in line with UNDP strategy and policies
	Communication	Communicate in a clear, concise, and unambiguous manner both through written and verbal communication; to tailor messages and

		choose communication methods depending on the audience. Manage communications internally and externally, through media, social media, and other appropriate channels.
	Risk Management	Identify and organize action around reducing, mitigating and proactively managing risks
Business Direction & Strategy	System Thinking	Ability to use objective problem analysis and judgement to understand how interrelated elements coexist within an overall process or system, and to consider how altering one element can impact on other parts of the system.
2030 Agenda: Peace	Governance	Inclusion and Participation of Marginalised Groups
2030 Agenda: People	Gender	Innovation for Gender Equality
2030 Agenda: Prosperity	Inclusive Growth	Social Inclusion

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• Advanced University Degree (Master´s degree or equivalent) in Gender Studies, Development Studies, Social Science, Political Science, or other relevant discipline is required, *or* • A first-level university degree (bachelor's degree) in the above-mentioned fields in combination with additional 2 years of relevant experience will be given due consideration in lieu of master's degree.
Min. years of relevant work experience	• A minimum of 2 years (with a master's degree) or 4 years (with a bachelor's degree) of relevant experience at strategic level in gender equality, social inclusion and public outreach.
Required skills	• Excellent knowledge of MS Office (Word, Excel, Power Point etc.) and web-based management and analytical tools.
Desired skills in addition to the competencies covered in the Competencies section	• Experience in coordinating with different stakeholders and facilitating discussions. • Experience in gathering, processing, and interpreting data and information, as well as preparing quality reports and other knowledge products. • Knowledge of local governance and federalism, working in complex, Government-led programmes. • Experience of formulating capacity building strategies and leading training. • Experience of conducting review and analysis on laws, policies and programmes from GESI perspective. • Experience working on governance-related issues. • Experience of monitoring and reporting in line with Human Rights-based Approaches. • Experience of working with three tiers of government. • Experience in providing strategic level guidance, GESI tools, guidelines for behaviors change. • Experience in conducting research and analysis on GESI issues. • Technical experience with early warning system communications and climate change adaptation; • Prior experience with UNDP projects. • Proven experience in working with government counterparts, donors, and development partners at policy/strategic level.
Required Language(s)	Fluency in English and Nepali is required.

	Knowledge of any other national language will be an asset.
Professional Certificates	N/A

7. The following documents shall be required from the applicants:

a) Personal CV or P11, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.

b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.

c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)

This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Hydrologist

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Hydrologist
Level	NPSA 7
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	227846
Expected Duration	1 year (with possibility of extension)
Position Number	227846

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, the risk of GLOF will be high and GLOF can adversely impacts the downstream vulnerable communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal acting

as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The Hydrologist will provide technical expertise on hydrological monitoring, modelling, and analysis for assessing GLOF risks and implementing EcoDRR flood mitigation measures. The role includes support for the installation and maintenance of hydrological instruments, flood modelling, and integration of hydrological data into early warning systems.

1. Conduct hydrological assessments and manage hydrological data and modelling:

- Analyse hydrological regimes of target glacial lakes and downstream catchments.
- Contribute to hazard mapping and modelling.
- Support risk assessments for engineering designs.
- Process, validate, and archive hydrological datasets.
- Support DHM in the development of models for flood forecasting and scenario development.
- Support the integration of hydrological data into EWS.

2. Install and maintain monitoring systems:

- Oversee the deployment and calibration of hydrological equipment in mountain catchments.
- Ensure regular data collection and maintenance.
- Troubleshoot field monitoring challenges.

3. Build capacity of partners:

- Train government and local partners in hydrological monitoring and data management, including on the long-term operation and maintenance of hydrological monitoring stations and equipment.
- Support development of data protocols and guidelines.

4. Contribute to knowledge products and reporting:

- Draft technical notes, maps, and reports on hydrological aspects.
- Contribute to donor reports and lessons learned, documenting success stories and case studies on effective hydrological practices.

5. Oversight, monitoring and reporting:

- Oversee hydrological interventions, verifying quality of materials, techniques, and final finishes.
- Certify completion and quality of works related to the installation and operation of hydrological equipment, ensuring documentation is in place for payments, handovers, and audit requirements.
- Maintain equipment records, compile periodic technical reports, and provide updates to PMU/PIU in line with UNDP/GoN/GCF standards.
- Ensure that all project data and information on physical and financial progress related to hydrological equipment are duly maintained transparently, expediently, and effectively in line with UNDP rules and regulations.
- Contribute to annual workplans and budgeting within the PMU as related to hydrological systems, applying adaptive management principles.
- Monitor the progress of hydrological works according to annual work plan, ensuring that targets are fully met and the reporting requirements are fulfilled.
- Contribute to the inclusion of hydrological equipment and flood risk in Environmental and Social Management Plans (ESMPs).
- Monitor contractors' compliance with safeguards at the field level in close coordination with concerned officials.
- Incorporate GESI considerations in hydrological assessments and modelling, ensuring that water resource planning and management reflect the differentiated needs and vulnerabilities of women, men, persons with disabilities, and marginalized groups.
- Promote inclusive participation in water management processes by engaging women's groups, indigenous peoples, and disadvantaged communities in discussions on water use, allocation, and climate resilience strategies.

- Ensure accessibility of hydrological data and information, including translating technical findings into user-friendly formats (local languages, visual aids, community radio, etc.) to reach diverse groups equitably.
- Apply sex, age, and disability-disaggregated data (SADDD) in water-related risk assessments (e.g., floods, droughts) to identify differential impacts and inform inclusive adaptation measures.
- Synthesize the inputs provided by the team (PIU/PMU) and ensure timely delivery of outputs and preparation of reports

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organization.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The Hydrologist will report directly to the Project Coordination Specialist. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI. The Hydrologist will work closely with the Civil Engineer and Meteorologist.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements
Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback
Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident
Engage and Partner:	LEVEL 1: Demonstrates compassion/understanding towards others, forms positive relationships
Enable Diversity and Inclusion:	LEVEL 1: Appreciate/respect differences, aware of unconscious bias, confront discrimination

Cross-Functional & Technical competencies

Thematic Area	***Name***	***Definition***
Digital	Geospatial analysis	Skilled in techniques which study entities using their topological, geometric, or geographic properties.
Business Management	Partnerships Management	Build and maintain partnerships with wide networks of stakeholders, Governments, civil society and private sector partners, experts and others in line with UNDP strategy and policies
	Risk Management	Identify and organize action around reducing, mitigating and proactively managing risks
Procurement	Strategic sourcing	Knowledge of strategic sourcing concepts, principles and methods, and ability to apply this to strategic and/or practical situations
2030 Agenda: Planet	Disaster Risk Reduction and Recovery	Disaster Risk Reduction: Mainstreaming/Integrating Disaster Risk Reduction and Climate Adaptation into Development
2030 Agenda: Peace	Governance	Inclusion and Participation of Marginalised Groups
2030 Agenda: People	Gender	Innovation for Gender Equality

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• Secondary education is required. • University Degree (bachelor's degree) in Hydrology, Water Resources Management, Environmental Science, or related filed will be given due consideration but is not a requirement.
Min. years of relevant work experience	• A minimum 7 years (with secondary education) or 4 years (with bachelor's degree) of relevant experience in hydrology.
Required skills	• Proficiency in computer applications like MS Word, Excel and PPT • Strong knowledge of hydrological processes and modelling. • Experience with GIS, remote sensing, and flood modelling software. • Experience in field hydrological monitoring. • Knowledge of hydrometeorological early warning systems
Desired skills in addition to the competencies covered in the Competencies section	• At least 4 years of experience in the field of Hydrology after Masters degree is preferred. • Experience working with UNDP, GCF, or other donor-funded projects, particularly in climate change adaptation or disaster risk reduction. • Knowledge of environmental and climate change issues in Nepal, including GLOFs, Eco-DRR, and early warning systems. • Experience working in glacial/mountain hydrology. • Experience in preparing of Terms of Reference (ToR) and procurement related documents. • Knowledge on specifications of the hydro-meteorological equipment, hydrological and hydraulic modeling software
Required Language(s)	Fluency in English and Nepali is required. Knowledge of any other national language will be an asset.

7. The following documents shall be required from the applicants:

a) Personal CV or P11, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.

b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.

c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)
This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative
Date of Approval _____

Terms of Reference (ToR)

ICT Associate

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	ICT Associate
Level	NPSA 7
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	As soon as possible
Expected Duration	1 year (with possibility of extension)
Position Number	227848

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving

as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The ICT Associate will oversee the design, integration, and sustainability of ICT systems that support hazard monitoring and early warning dissemination. Technical development will be undertaken by specialized firms, while the ICT Associate ensures quality assurance, cybersecurity, and user capacity.

1. Provide oversight of ICT system development:

- Actively partake in planning and implementation of project activities related to data management (collection, analysis, and visualization) and digital innovation.
- Take lead in procuring software and hardware for automated and/or manual data collection, analysis, mapping, and visualization, as needed for project activities.
- Review ICT architecture, applications, and tools developed by service providers, including knowledge management platforms.
- Ensure all ICT systems meet user requirements and UNDP standards.
- Ensure ICT Systems follow modular, scalable, and open standards-based design principles to support future integration and extensibility.
- Conduct regular monitoring and check-ups to identify gaps and challenges in adopting digital technologies introduced through the project, and propose solutions based on best practice.
- Oversee testing and integration of ICT platforms with hydro-met data systems.

2. Strengthen capacity and sustainability:

- Train government staff and end-users on ICT tools and digital platforms, and technical guidance and support to stakeholders and implementing partners in adopting digital technology.
- Translate complex technical system designs into user-friendly guidance and training materials tailored for government officials and non-technical stakeholders.
- Assist in developing data visualization training materials for implementing partners and stakeholders.
- Assist in developing manuals and guidelines to ensure long-term usability.

3. Support knowledge management and sharing:

- Contribute ICT lessons to donor reports and knowledge platforms.
- Highlight innovative digital solutions for scaling up.
- Lead the documentation of ICT system architecture, lessons learned, and technical best practices for inclusion in donor reports, knowledge repositories, and future project replication.
- Ensure adequate monitoring and reporting on digital innovation activities and provide guidance and recommendations for improvement of the project strategies and plans
- Regularly study and adopt international best practices on digital transformation through learning events organized by UNDP and other partners
- Provide evidence-based technical advice to the project team and implementing partner in relation to the ICT related decision making

4. Oversight and reporting:

- Certify completion and quality of works related to ICT equipment, ensuring documentation is in place for payments, handovers, and audit requirements.
- Maintain equipment records, compile periodic technical reports, and provide updates to PMU/PIU in line with

UNDP/GON/GEF standards.
- Contribute to annual workplans and budgeting within the PMU as related to ICT systems, applying adaptive management principles.
- Monitor the progress of ICT systems according to annual work plan, ensuring that targets are fully met and the reporting requirements are fulfilled.

5. Integration of Gender and Social Inclusion in ICT:
- Ensure digital accessibility and inclusiveness by designing and maintaining ICT systems, databases, and platforms that are user-friendly and accessible to women, persons with disabilities, and other marginalized groups involved in project implementation.
- Promote gender-responsive and inclusive data management by supporting the collection, disaggregation, and analysis of project data (by sex, age, ethnicity, and disability) to inform equitable decision-making and reporting.
- Support capacity-building initiatives by facilitating digital literacy and ICT training for project staff, local partners, and community membersparticularly targeting women, youth, and marginalized groups to enhance their participation in climate-related initiatives.
- Integrate GESI considerations into the design of communication tools and knowledge products, ensuring that visuals, language, and dissemination channels are inclusive and sensitive to diverse audiences.
- Collaborate with the GESI Specialist and project team to apply inclusive ICT solutions that enhance participation, feedback, and accountability mechanisms for all stakeholders, especially those from disadvantaged backgrounds.

6. Integration with Disaster Information Management Systems:
- Ensure integration of data, analysis outputs, and key findings generated through project-supported ICT systems into the national Disaster Information Management System (DIMS) and other relevant Government platforms.
- Establish a structured data management and planning framework to support the development of an Early Warning System, ensuring that generated data are systematically organized, analyzed, and integrated into the Disaster Information Management System.
- Coordinate with relevant government agencies to ensure interoperability, data standards compliance, and secure data exchange.
- Ensure that integrated data supports evidence-based decision-making, preparedness planning, response coordination, and reporting at local, provincial and federal levels.
- Support the development and implementation of data-sharing protocols, API, and metadata standards to enable timely, accurate, and automated flow of hazard, exposure, vulnerability, and impact information.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organization.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The ICT Associate will report directly to the Project Coordination Specialist. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements
Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback

Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident
Engage and Partner:	LEVEL 1: Demonstrates compassion/understanding towards others, forms positive relationships
Enable Diversity and Inclusion:	LEVEL 1: Appreciate/respect differences, aware of unconscious bias, confront discrimination

Cross-Functional & Technical competencies

Thematic Area	***Name***	***Definition***
Business Management	Partnerships Management	Build and maintain partnerships with wide networks of stakeholders, Governments, civil society and private sector partners, experts and others in line with UNDP strategy and policies
	Risk Management	Identify and organize action around reducing, mitigating and proactively managing risks
Information Management & Technology	Information and Technology Strategy - Portfolio management and governance	Knowledge of developing and implementing ICT strategy, portfolio and project management services, governance, and policies. Knowledge of project management principle. PMP or PRINCE2 certification of equivalent desirable.
	IT Project Management	Capacity to manage ICT projects, using IT methodologies and approaches such as agile deployment and/or waterfall system development methods. PMP and PRINCE2 certification or equivalent desirable.
2030 Agenda: Planet	Disaster Risk Reduction and Recovery	Disaster Risk Reduction: Mainstreaming/Integrating Disaster Risk Reduction and Climate Adaptation into Development
2030 Agenda: Peace	Governance	Inclusion and Participation of Marginalised Groups
2030 Agenda: People	Gender	Innovation for Gender Equality

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• Secondary education is required with formal training in IT systems, business software and/or web-based applications. • A university degree (bachelor´s degree) in ICT, Information Management, Computer Science or other relevant disciplines will be given due consideration but is not a requirement.
Min. years of relevant work experience	A minimum of 7 years (with secondary education) or 4 years (with bachelor's degree) of relevant experience in ICT systems management, preferably in development or DRR context.
Required skills	• Experience in ICT systems administration, databases, and networks.
Desired skills in addition to the competencies covered in the Competencies section	• Experience with software for data visualization and communication (GIS, dashboards, apps). • Experience in ICT in the development sector in Nepal. • Experience with cybersecurity standards. • Experience working with UNDP, or other donor-funded projects, particularly in climate change adaptation or disaster risk reduction. • Experience in environmental and climate change issues, with knowledge of early warning systems being an asset.

	• Demonstrated experience in knowledge management and capturing lessons learned. • Certifications in CCNA, MSCA, MCSE or MCP are an asset. • Experience in gender and social inclusion in ICT systems.
Required Language(s)	Fluency in English and Nepali is required. Knowledge of any other national language will be an asset.
Professional Certificates	

7. The following documents shall be required from the applicants:

a) **Personal CV or P11**, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.
b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.
c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)

This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Monitoring and Evaluation (M&E) Analyst

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Monitoring and Evaluation (M&E) Analyst
Level	NPSA 8
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	As soon as possible
Expected Duration	1 year (with possibility of extension)
Position Number	227824

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving

as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The Monitoring and Evaluation (M&E) Analyst will be responsible for designing, coordinating, and implementing the project's monitoring, evaluation, and learning (MEL) framework to ensure robust tracking of progress toward outputs, outcomes, and impact. The Analyst will support evidence-based decision-making by developing tools, collecting and analyzing data, and preparing regular performance reports in line with UNDP and GCF requirements. Key duties include managing the project's monitoring system, coordinating baseline, mid-term, and terminal evaluations, ensuring data quality and disaggregation, and facilitating adaptive management by communicating findings to the Project Management Unit (PMU), government partners, and stakeholders. The M&E Analyst will also play a critical role in documenting lessons learned, supporting knowledge management, and ensuring reporting reflects cross-cutting priorities such as gender equality, social inclusion, and environmental safeguards. The role will conclude with the integration of final M&E results and lessons into the terminal evaluation and project closure documentation.

1. Develop and implement the Monitoring, Evaluation, and Learning (MEL) framework:

- Operationalize the project's MEL framework in line with UNDP and GCF requirements, including indicators, baselines, and targets.
- Formulate project-specific MEL tools, templates, and checklists aligned with the approved results framework.
- Ensure indicators include disaggregated data (sex, age, ethnicity, disability) and cover outputs, outcomes, and impacts.
- Coordinate baseline surveys and support risk monitoring, including maintaining and updating the project risk log.

2. Support planning, coordination and monitor progress of M&E activities ensuring data quality:

- Develop annual monitoring plan and ensure the effective accomplishment of the deliverables set in the results frameworks.
- Integrate MEL activities into annual and quarterly workplans and budgets.
- Provide technical inputs to ensure project scope, outputs, and indicators remain consistent with GCF and UNDP requirements.
- Assist in organizing joint monitoring visits with government, development partners, and other stakeholders.
- Ensure systematic data collection, analysis, and reporting across all project components.
- Periodically track implementation progress at national and sub-national levels, reviewing consistency across project components.
- Introduce systems for regular data collection, analysis, and triangulation of quantitative and qualitative results.
- Conduct regular data quality checks and ensure accuracy, integrity, consistency, and timely availability of information.

3. Strengthen capacity for monitoring and reporting:

- Provide training and guidance to government counterparts, community partners, and project staff on M&E methods and tools.
- Develop user-friendly guidelines, manuals, and orientation sessions to improve understanding of MEL systems.
- Identify capacity gaps through needs assessments and deliver tailored training packages to address them.
- Integrate Gender Equality and Social Inclusion (GESI) indicators into the project's monitoring and evaluation framework to ensure that outcomes and impacts reflect the participation and benefits of women, men, youth, persons with disabilities, and marginalized groups.
- Ensure sex-, age-, and disability-disaggregated data collection and analysis across all project components, and use this data to inform adaptive management, reporting, and learning processes.
- Develop and apply GESI-responsive monitoring tools and methodologies that capture qualitative and quantitative changes in inclusion, empowerment, and equitable access to climate resilience benefits.

- Build capacity of implementing partners and local institutions on integrating GESI in data collection, analysis, and reporting to enhance ownership and sustainability of inclusive monitoring systems.

4. Provide oversight of performance monitoring and reporting and document knowledge and lessons learned:

- Lead the preparation of quarterly, mid-year, and annual progress reports in coordination with government and project units.
- Ensure reports capture both results achieved and implementation challenges, offering evidence-based recommendations.
- Contribute to donor and government reporting processes, ensuring compliance with national procedures and international standards/commitments (e.g., SDGs, Sendai Framework).
- Capture and disseminate good practices, case studies, and innovations from project implementation, particularly around GLOF risk reduction, Eco-DRR, and early warning systems.
- Support inputs for South-South learning and global knowledge platforms by preparing evidence-based summaries and stories of impact.
- Ensure knowledge products reflect cross-cutting issues, including GESI and safeguards.
- Support evidence-based learning and knowledge management by documenting and disseminating good practices, lessons learned, and success stories highlighting inclusive approaches and the participation of underrepresented groups.
- Collaborate closely with the GESI Specialist and technical teams to ensure GESI perspectives are embedded in evaluation designs, field monitoring missions, and progress reports.
- Facilitate participatory monitoring and feedback mechanisms that enable the voices of women, indigenous peoples, and vulnerable communities to be meaningfully reflected in project decision-making and performance assessments.

5. Support evaluation, learning and adaptive management processes:

- Support design and execution of baseline surveys and evaluation studies.
- Facilitate mid-term reviews, third-party monitoring, and terminal evaluation by preparing documentation and serving as focal point.
- Draft ToRs, collate supporting evidence, and liaise with evaluators to ensure comprehensive assessments.
- Liaise with external evaluators, provide necessary documentation, and ensure findings are integrated into adaptive management.
- Provide evidence-based recommendations to the PMU and Project Board for adaptive management.
- Facilitate periodic reflection workshops and lessons-learned exercises to promote organizational learning and adaptive management.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organization.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The Monitoring and Evaluation (M&E) Analyst will report directly to the Project Coordination Specialist. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI. The M&E Analyst will work closely with the RBM Analyst of CO, Environmental and Social Safeguards, and GESI Analyst.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements

Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback
Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident
Engage and Partner:	LEVEL 1: Demonstrates compassion/understanding towards others, forms positive relationships
Enable Diversity and Inclusion:	LEVEL 1: Appreciate/respect differences, aware of unconscious bias, confront discrimination

Cross-Functional & Technical competencies

Thematic Area	***Name***	***Definition***
Business Management	Partnerships Management	Build and maintain partnerships with wide networks of stakeholders, Governments, civil society and private sector partners, experts and others in line with UNDP strategy and policies
	Results-based Management	Ability to manage the implementation of strategies, programmes, and projects with a focus at improved performance and demonstrable results. Knowledge and understanding of relevant theories, concepts, methodologies, instruments, and tools.
	Working with Evidence and Data	Abilit to inspect, cleanse, transform and model data with the goal of discovering useful information, informing conclusions and supporting decision-making
	Monitoring and Evaluation	Ability to systematically monitor results of strategies, programmes, and activities with a view to make sure that they are being implemented effectively; Ability to provide managers and key stakeholders with regular feedback and reporting on the consistency or discrepancy between planned activities and programme management and results. Ability to make independent judgment of the management and results of strategies, programmes and activities based on set criteria and benchmark, keeping in mind the needs and concerns of client, current and upcoming. Knowledge and understanding of monitoring and evaluation frameworks, concepts, methodologies, systems, processes, and tools. Ability to make an independent judgement based on set criteria and benchmarks. Ability to anticipate client's upcoming needs and concerns.
Business Direction & Strategy	System Thinking	Ability to use objective problem analysis and judgement to understand how interrelated elements coexist within an overall process or system, and to consider how altering one element can impact on other parts of the system.
2030 Agenda: Peace	Governance	Inclusion and Participation of Marginalised Groups
2030 Agenda: People	Gender	Innovation for Gender Equality

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• Advanced University Degree (Master level or equivalent) in Statistics, International Development, Sociology, Social Sciences or other relevant area or other relevant discipline is required, *or* • A first-level university degree (bachelor's degree) in the above-mentioned fields in combination with additional 2 years of relevant experience will be given due consideration in lieu of master's degree.

Min. years of relevant work experience	• Applicants with Master's degree (or equivalent) in a relevant field of study are not required to have professional work experience. • Applicants with a bachelor's degree (or equivalent) are required to have a minimum of two (2) years of working experience in monitoring, evaluation and reporting.
Desired skills in addition to the competencies covered in the Competencies section	• Proven experience of institutional capacity development related to monitoring, evaluation and reporting, preferably with sub-national governments or with other well recognized national institutions and/or international agencies is required. • Strong experience in developing and implementing MEL frameworks, including logical frameworks, indicator tracking, and results-based management. • Experience in designing and conducting surveys, data collection, and analysis using both quantitative and qualitative methods. • Experience in managing databases, using monitoring tools, and digital platforms (Excel, PowerBI, SPSS, or similar). • Experience with monitoring and reporting in GCF, UNDP, or other donor-financed projects is highly desirable. • Knowledge of environmental and social safeguards monitoring and integration of cross-cutting themes (GESI, climate resilience). • Knowledge of Nepal's governance and institutional structures, including local government systems. • Experience in capacity building for M&E at institutional and community levels. • Practical knowledge of GIS, remote sensing, and digital tools for climate and environmental monitoring. • Experience working in climate change adaptation, disaster risk reduction, or related thematic areas. • Prior experience engaging with three tiers of government in Nepal or similar federal contexts. • Experience with donor compliance requirements and project governance frameworks.
Required Language(s)	Fluency in English and Nepali is required. Knowledge of any other national language will be an asset.

7. The following documents shall be required from the applicants:

a) Personal CV or P11, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.

b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.

c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)
This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Meteorologist

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Meteorologist
Level	NPSA 7
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	As soon as possible
Expected Duration	1 year (with possibility of extension)
Position Number	227847

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, the risk of GLOF will be high and GLOF can adversely impacts the downstream vulnerable communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

In addition to this, Systematic Observations Financing Facility (SOFF) in meeting the requirements of the Global Basic Observing Network (GBON) under the World Meteorological Organization (WMO) is in pipeline. It provides technical and

financial assistance to strengthen surface and upper-air meteorological observations and ensure international data exchange. Strengthened observing networks ensures the accurate and timely weather data for aviation safety, agriculture planning, and disaster preparedness along with climate adaptation, and Nepal's contribution in sharing quality data to the global weather prediction system.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal with the role of the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The Meteorologist will provide technical oversight and guidance on the strengthening of meteorological monitoring and forecasting for the project. While equipment procurement and installation will be contracted out, the Meteorologist will ensure data quality, system integration, achieving and sustaining compliance with the Global Basic Observing Network (GBON) requirements and institutional uptake. The role will also build national and local capacity to interpret forecasts for GLOF risk reduction.

1. Meteorological assessments:

- Support DHM in the analysis of historical and real-time meteorological to support GLOF and flood risk modelling.
- Contribute climate trend analysis for inclusion in ESMPs and hazard assessments.
- Ensure outputs are technically robust and relevant for GLOF risk reduction.
- Integrate gender and social inclusion perspectives in climate and weather data collection, analysis, and dissemination to ensure that climate information services address the specific needs of women, men, youth, persons with disabilities, and marginalized communities.
- Ensure GESI-sensitive data disaggregation and analysis when preparing climate impact assessments, ensuring that differences in exposure, vulnerability, and adaptive capacity between social groups are reflected in findings and recommendations.

2. Strengthen monitoring systems:

- Oversee installation and calibration of automated weather stations and comparison of meteorological parameters, whichever possible, with manual observation.
- Ensure accuracy and quality control of meteorological data.
- Promote inclusive participation in user-feedback sessions, community consultations, and validation workshops to capture diverse experiences and improve the effectiveness of meteorological services.

3. GBON Compliance and Monitoring

- Monitoring of the AWS stations installed under the project to meet GBON technical requirements regarding parameters, observation frequency, timeliness, and data availability.
- Regularly monitor national surface observation performance against GBON indicators (data completeness, timeliness, accuracy, and transmission to global networks).
- Track station performance using WMO monitoring tools (e.g., OSCAR/Surface and WIS dashboards).
- Prepare periodic GBON compliance status reports for DHM management and SOFF reporting.
- Implement Standard Operating Procedures (SOPs) for real-time and delayed-mode quality control of AWS data.
- Conduct periodic technical review of AWS station functionality including sensor performance,
- power systems, and communication modules.
- Recommend preventive and corrective maintenance actions based on QC findings.

- Contribute to SOFF progress reporting related to observing system performance and GBON compliance.

4. Provide forecasting services:

- Support integration of forecasts into early warning messages.
- Support development and delivery of inclusive early warning systems (EWS) by ensuring that forecasts and alerts are accessible, understandable, and actionable for diverse user groups, including those with limited literacy or access to digital platforms.
- Collaborate with the GESI Specialist and communication team to design and tailor climate information products (bulletins, advisories, SMS alerts, radio messages) that reach vulnerable populations, especially women farmers, indigenous groups, and remote communities.
- Advocate for gender-responsive climate services by identifying barriers faced by women and marginalized groups in accessing and using weather and climate information and recommending practical measures to overcome them.

5. Build capacity of counterparts:

- Train government staff in meteorological monitoring and forecasting, including short- and medium-term forecasts relevant to glacial and river systems.
- Train DHM staff and local stakeholders in data interpretation and use in EWS.
- Develop user-friendly materials for decision-makers and communities, including simplified climate information products for end-users.
- Contribute to capacity-building initiatives by participating in training and awareness programmes that enhance the ability of local stakeholders particularly women and marginalized groups to interpret and use climate and weather information for risk reduction and livelihood planning.

6. Knowledge products, oversight and reporting:

- Draft technical reports, bulletins, and weather updates for decision-makers.
- Contribute to donor reports, lessons learned, and case studies.
- Contribute to technical reports and early warning bulletins.
- Synthesize the inputs provided by the team (PIU/PMU) and ensure timely delivery of outputs and preparation of reports
- Document climate trends and their implications for GLOFs.
- Certify installation/operation of meteorological equipment and prepare related documentation for audits and payments.
- Monitor contractors' compliance with safeguards and technical standards.
- Maintain records of equipment performance, site visits, and data quality.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organization.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The Meteorologist will report directly to the Project Coordination Specialist. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI. The Meteorologist will work closely with Civil Engineer, and Hydrologist.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements

Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback
Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident
Engage and Partner:	LEVEL 1: Demonstrates compassion/understanding towards others, forms positive relationships
Enable Diversity and Inclusion:	LEVEL 1: Appreciate/respect differences, aware of unconscious bias, confront discrimination

Cross-Functional & Technical competencies

Thematic Area	***Name***	***Definition***
Digital	Geospatial analysis	Skilled in techniques which study entities using their topological, geometric, or geographic properties.
Business Management	Partnerships Management	Build and maintain partnerships with wide networks of stakeholders, Governments, civil society and private sector partners, experts and others in line with UNDP strategy and policies
	Risk Management	Identify and organize action around reducing, mitigating and proactively managing risks
Procurement	Strategic sourcing	Knowledge of strategic sourcing concepts, principles and methods, and ability to apply this to strategic and/or practical situations
2030 Agenda: Planet	Disaster Risk Reduction and Recovery	Disaster Risk Reduction: Mainstreaming/Integrating Disaster Risk Reduction and Climate Adaptation into Development
2030 Agenda: Peace	Governance	Inclusion and Participation of Marginalised Groups
2030 Agenda: People	Gender	Innovation for Gender Equality

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• Secondary education is required. • A first-level university degree (bachelor's degree) in Meteorology, Water Resources Management, Environmental Science, or related fields will be given due consideration but is not a requirement.
Min. years of relevant work experience	A minimum of 7 years (with secondary education) or 4 years (with a bachelor's degree) of relevant experience in meteorology.
Required skills	• At least 4 years of experience in the area of meteorology. • Experience using computer applications like MS Word, Excel and PPT.
Desired skills in addition to the competencies covered in the Competencies section	• Experience in installing and maintaining meteorological equipment. • Experience in meteorological analysis and forecasting methods. • Experience with climate modeling and data management. • Experience in weather data analysis, forecasting, and climate services. • Experience with WMO standards and regional climate centers. • Prior experience in multi-hazard early warning systems. • Experience working with UNDP, GCF, or other donor-funded projects, particularly in climate change adaptation or disaster risk reduction. • Experience in environmental and climate change issues in Nepal, including GLOFs, Eco-DRR, and early warning systems.

	• Experience in preparing of Terms of Reference (ToR) and procurement related documents." • Experience preparing specifications of the hydro-meteorological equipment, hydrological and hydraulic modeling softwares"
Required Language(s)	Fluency in English and Nepali is required. Knowledge of any other national language will be an asset.
Professional Certificates	

7. The following documents shall be required from the applicants:

a) Personal CV or P11, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.

b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.

c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)

This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Procurement and Operations Associate

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Procurement and Operations Associate
Level	NPSA 7
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	[TBC based on FAA]
Expected Duration	4 Years
Position Number	227724

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving

as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The Procurement and Operations Associate will play a key role in supporting the financial, procurement, and operational management of the Nepal GLOF Project. S/he will be responsible for ensuring effective planning, execution, and monitoring of procurement and logistics in compliance with UNDP and donor regulations, while providing comprehensive administrative and financial support to maintain transparency, accountability, and efficiency in project delivery. The Associate will also support budget monitoring, financial reporting, audits, and compliance processes, as well as contribute to knowledge management, capacity building, and stakeholder engagement. By ensuring the smooth functioning of project operations, procurement systems, and financial processes, the Associate will help strengthen the project's ability to deliver results effectively, while promoting gender equality, social inclusion, and adherence to UNDP values.

1. Ensure effective procurement planning, execution, and logistics management to support project operations

- Ensure full compliance of procurement activities with UNDP rules, regulations, policies, and strategies, including adherence to internal control systems and audit requirements.
- Prepare, monitor, and update procurement plans for both the project and office, ensuring alignment with approved budgets, work plans, and project timelines.
- Organize and manage procurement processes, including preparation and conduct of RFQs, ITBs, and RFPs; receive, evaluate, and document bids/proposals; and negotiate contractual terms and conditions in line with UNDP procurement rules.
- Prepare purchase orders and contracts in Quantum, including recurring purchase orders and ensuring accurate and timely supplier profile updates.
- Submit procurement cases to Contract, Asset, and Procurement Committee (CAP) and Advisory Committee on Procurement (ACP) and ensure timely corrective actions on purchase orders with budget or technical errors.
- Implement joint procurement processes with other UN agencies where applicable and prepare cost-recovery bills for services provided by UNDP.
- Maintain a systematic filing system, inventory records, and documentation of all procurement and logistical activities to support transparency, accountability, and audit readiness.
- Act as the focal point for procurement, supply and asset management of the project, ensuring all assets and office equipment are properly accounted for and maintained.
- Coordinate the timely preparation and submission of periodic inventory reports, including updates on office equipment, furniture, and project assets.
- Oversee the storage, handling, release, and transfer of title for all project assets, ensuring proper documentation and compliance with UNDP policies.
- Coordinate with suppliers, government authorities, and other stakeholders regarding importation, tax exemptions, inspections, warehouse testing, and regional deliveries of project equipment and supplies.
- Ensure the reliable provision and replenishment of office supplies to support smooth project operations.
- Prepare and maintain asset statements and supporting documents and oversee maintenance of records for incoming/outgoing goods, equipment, and delivery tracking.

2. Provide comprehensive financial and administrative support to ensure accountable project management

- Assist in the preparation and monitoring of Annual and Quarterly Work Plans (AWP/QWP), ensuring alignment with budgets, project goals, and operational requirements.
- Monitor budget expenditure, analyze Combined Delivery Reports (CDRs), and prepare quarterly financial reports, entering data accurately in Quantum.

- Provide support for drafting MoUs, contracts, and payment processing for implementing partners, service providers, and suppliers, ensuring compliance with UNDP financial procedures.
- Undertake routine administrative and finance procedures, such as travel processing, cash advance liquidation, payment of utilities, and raising requisitions, while maintaining accuracy and proper filing.
- Ensure proper maintenance of financial, procurement, and personnel records to support transparency and audit readiness.
- Coordinate travel arrangements for project staff, consultants, and partners, including preparation of travel requests, booking tickets, securing visas, and obtaining authorizations.
- Organize workshops, training sessions, meetings, and conferences, including venue booking, logistics planning, transportation arrangements, and preparation of supporting documents.
- Provide logistical support for Project Board and stakeholder meetings, ensuring proper documentation, minute-taking, and follow-up on action points.
- Support day-to-day operational management, including vehicle bookings, room reservations, security clearances, and maintenance of office equipment and facilities.
- Maintain an organized and reliable filing system for project-related correspondence, reports, and operational documents.

3. Strengthen capacity development, knowledge management, and strategic partnerships for enhanced project delivery

- Synthesize lessons learned and best practices in procurement, logistics, and finance to contribute to knowledge networks, digital platforms, and communities of practice.
- Provide guidance and training to implementing partners on procurement and supply chain.
- Support the drafting of internal and external correspondence related to procurement, partnerships, and resource mobilization activities.
- Facilitate and maintain strong working relationships with government authorities, private sector actors, UN agencies, donors, and civil society organizations to support effective project delivery.

4. Ensure compliance, monitoring, and reporting for accountability and risk mitigation

- Ensure that all procurement, finance, and administrative activities comply with UNDP policies, DIM/NIM guidelines, and donor requirements.
- Regularly monitor the progress of procurement requests, delivery of goods, and payment processes, ensuring timely completion and proper documentation.
- Assist in preparing progress updates, relevant monitoring dashboards, and status reports in Quantum to facilitate timely decision-making by supervisors and management.
- Support responses to audit queries, donor reviews, and government compliance checks, ensuring that required documentation and corrective actions are completed on time.
- Provide inputs to strengthen accountability, internal controls, risk management, and continuous improvement of administrative and financial processes.

5. Promotes gender equality and social inclusion (GESI) in project operations

- Ensure GESI considerations are systematically incorporated into procurement, budgeting, planning, and implementation of project activities.
- Fully comply with UNDP's GESI policy and uphold zero-tolerance standards for sexual and gender-based violence in the workplace and in project operations.
- Promote and maintain a safe, inclusive, and respectful working environment through the adoption of inclusive practices and organizational culture initiatives.
- Collaborate with project team members, implementing partners, and sub-grantees to ensure safe, inclusive, and "Do No Harm"-compliant implementation of project activities at community levels.
- Support awareness-raising and training initiatives to strengthen GESI integration across all project functions.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organisation.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The Procurement and Operations Associate will report directly to the Administrative and Finance Analyst. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements
Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback
Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident
Engage and Partner:	LEVEL 1: Demonstrates compassion/understanding towards others, forms positive relationships
Enable Diversity and Inclusion:	LEVEL 1: Appreciate/respect differences, aware of unconscious bias, confront discrimination

Cross-Functional & Technical competencies

Thematic Area	***Name***	***Definition***
Administration & Operations	Documents and records management	• Overall document (hard or electronic) management; registry and retention policy including storing and archiving
	Assets management	• Knowledge of policy & procedures on PP&E; ability to prepare financial statements on PP&E; maintain Asset Management Module in ATLAS, Asset Dashboard; develop supporting tools for assets certification and further enhancements for AM module; design and run training programs, etc. on assets management and assets recording; run AP- AM interface; perform AP-AM-GL reconciliation; perform analytical review of AM reports and asset information to ensure completeness and accuracy of asset information
Finance	Budget management	• Ability to support budgetary aspects of work planning process, drawing and management of team budgets
Audit & Investigation - General	Financial and Managerial Accounting and Finance key concepts	• Key concepts and principles of financial accounting, interpret financial analysis, managerial accounting, etc.
Business Management	Communication	• Ability to communicate in a clear, concise and unambiguous manner both through written and verbal communication; to tailor messages and choose communication methods depending on the audience

2030 Agenda: People	Gender	• Gender Mainstreaming
2030 Agenda: Peace	Governance	• Inclusion and Participation

Please refer to the competency framework site for the entire list of competencies and further explanations.

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• Secondary education is required. OR • A first-level university degree (bachelor's degree) in Business administration, Public Administration, Finance, Economics or equivalent will be given due consideration, but it is not a requirement. • CIPS level 3 is highly desirable for this position and candidates holding this level at the time of application will have a distinct advantage. If the desired certification is not available at the time of recruitment, it should be obtained within one year of recruitment. Candidates holding a CIPS certification at any level below at the time of application will have a proportionate advantage.
Min. years of relevant work experience	Minimum of 7 years (with high school diploma) or 4 years (with bachelor's degree) of relevant progressively responsible administrative experience is required at the national and international level. At least 3 years in managing public sector procurement of goods and services would be an advantage.
Required skills	• Demonstrated experience providing operational, procurement, administration, logistics, or supply chain management in development or project settings. • Strong analytical and problem-solving skills for identifying financial discrepancies, risks, and corrective measures. • Proficiency in MS Office (particularly Excel, Word, PowerPoint) and financial reporting tools. • High level of integrity, professionalism, and accountability. • Ability to work under pressure and deliver within deadlines. • Strong problem-solving skills and results-oriented mindset. • Commitment to diversity, gender equality, and inclusion principles.
Desired skills in addition to the competencies covered in the Competencies section	• Commitment to upholding transparency, accountability, integrity, and UNDP values • Proven experience in vendor management, procurement processes, and contract administration. • Ability to coordinate effectively with internal clients, vendors, and service providers. • Demonstrated client-oriented approach and ability to work collaboratively in a multicultural environment. • Strong ability to analyze quotations, evaluate bids, and prepare clear documentation. • Excellent attention to detail and ability to maintain accurate and compliant procurement records. • Strong planning and time-management skills, with the ability to prioritize multiple tasks. • Strong understanding of procurement rules, regulations, and best practices. • Experience in preparing RFQs, RFPs, bid analyses, purchase orders, and contract management. • Familiarity with e-procurement systems (e.g., Quantum/Atlas/SAP).

	• Strong administrative skills, including office management, travel arrangements, inventory management, and asset tracking. • Excellent organizational skills with the ability to manage multiple tasks, deadlines, and priorities effectively. • Experience supporting large-scale Procurement for multi-stakeholder programmes with multiple tiers of government. • Experience building partnerships with government, CSOs, and international development partners.
Required Language(s)	• Good command of English and Nepali is required. • Knowledge of any other national language will be an asset. • Proficiency in using computer applications such as word, excel etc.
Professional Certificates	

7. The following documents shall be required from the applicants:

a) Personal CV or P11, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.

b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.

c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)

This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Watershed Management Analyst

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Watershed Management Analyst
Level	NPSA 8
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	As soon as possible
Expected Duration	1 Year with possibility of extension
Position Number	227828

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving

as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The Watershed Management Analyst will provide technical oversight of restoration and Eco-DRR interventions in the entire project area. While service providers or beneficiary communities will implement field work, the Analyst will ensure compliance with approved technical specifications, safeguards, quality standards, and integration of local soil conservation and watershed management practices. The role will also strengthen capacity of communities and institutions to sustain interventions.

1. Provide oversight of watershed and restoration activities:

- Validate and refine site selection for Eco-DRR and restoration interventions, accounting for water induced disasters such as flood and landslide, land degradation, erosion, ensuring proper vegetative cover, and water flow in priority watersheds.
- Technically support the refinement of slope stabilization, reforestation, and bioengineering works.
- Review technical proposals and designs from service providers for the implementation of EcoDRR measures in vulnerable target catchments.
- Support field level staffs for explaination of planned interventions to the local community and beneficial users,
- Supervise implementation in line with ESMPs, safeguards and climate-resilient practices.
- In collaboration with the ICT Associate, oversee the development and implementation of a climate-resilient agricultural management and information system.
- Support the development of integrated, climate- and gender-responsive watershed and national park management plans, including the integration of these plans into local and national level plans and budgets.

2. Build community and institutional capacity:

- Train local user committees and institutions in implementation of Integrated watershed management, including on the understanding and implementation of multi-hazard risk assessments, use of climate-resilient agricultural management and information system,
- Provide technical assistance and capacity development support to government agencies to integrate Eco-DRR into government budgets.
- Support the development of participatory monitoring tools for long-term sustainability of implemented interventions
- Develop knowledge and awareness material on EcoDRR practices.

3. Document and share lessons/knowledge :

- Compile case studies and best practices on Eco-DRR.
- Contribute technical inputs to donor reports and knowledge platforms.
- Document good practices and lessons for replication.

4. Oversight, monitoring and reporting:

- Conduct field visits to oversee contractors' or beneficiary user groups' performance.
- Based on the annual progress, assist respective RP for planning of next years' program with fruitful recommendations,
- Analyse annually the gaps between target program and progress thereby recommending the essential measures for effective and efficient implementation of next years' program.
- Certify completion and quality of works related to the EcoDRR measure, ensuring documentation is in place for payments, handovers, and audit requirements.
- Maintain equipment records, compile periodic technical reports, and provide updates to PMU/PIU in line with

UNDP/GoN/GCF standards.

- Ensure that all project data and information on physical and financial progress related to EcoDRR measures are duly maintained with transparently, expediently, and effectively in line with UNDP as well and GON rules and regulations.
- Contribute to annual workplans and budgeting within the PMU as related to EcoDRR, applying adaptive management principles.
- Monitor the progress of EcoDRR interventions according to annual work plan, ensuring that targets are fully met and the reporting requirements are fulfilled, and provide technical inputs to donor reports and evaluations.
- Contribute to the inclusion of EcoDRR measures in Environmental and Social Management Plans (ESMPs).

5. Mainstream Gender and Social inclusion in the project:

- Ensure that watershed management planning and implementation integrate gender equality and social inclusion principles, promoting equitable participation and benefits for women, men, persons with disabilities, and marginalized groups.
- Facilitate inclusive community consultations and decision-making processes, ensuring representation of diverse social groups in identifying watershed priorities and management practices.
- Promote women's leadership and capacity building in natural resource management, climate-resilient livelihood activities, and community-based watershed governance structures.
- Coordinate with GESI and environmental experts to monitor social and gender impacts of watershed interventions and document lessons learned, success stories, and best practices that highlight inclusive and sustainable watershed management.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organization.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The Watershed Management Analyst will report directly to the Project Coordination Specialist. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements
Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback
Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident
Engage and Partner:	LEVEL 1: Demonstrates compassion/understanding towards others, forms positive relationships
Enable Diversity and Inclusion:	LEVEL 1: Appreciate/respect differences, aware of unconscious bias, confront discrimination

Cross-Functional & Technical competencies

Thematic Area	***Name***	***Definition***
Digital	Geospatial analysis	Skilled in techniques which study entities using their topological, geometric, or geographic properties.
Business Management	Partnerships Management	Build and maintain partnerships with wide networks of stakeholders, Governments, civil society and private sector partners, experts and others in line with UNDP strategy and policies
	Risk Management	Identify and organize action around reducing, mitigating and proactively managing risks
Procurement	Strategic sourcing	Knowledge of strategic sourcing concepts, principles and methods, and ability to apply this to strategic and/or practical situations
2030 Agenda: Planet	Disaster Risk Reduction and Recovery	Disaster Risk Reduction and Disaster Risk Management
2030 Agenda: Peace	Governance	Inclusion and participation of marginalized groups
2030 Agenda: People	Gender	Innovation for Gender Equality

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	• Advanced University Degree (master's degree or equivalent) in Forestry, Watershed Management, Disaster Risk Management, Water Resource Engineering/ Management, Environmental Sciences, or other relevant discipline is required. Or • A first-level university degree (bachelor's degree) in the above-mentioned fields in combination with additional 2 years of relevant experience will be given due consideration in lieu of master's degree.
Min. years of relevant work experience	• Applicants with a Master's degree (or equivalent) in a relevant field of study are not required to have professional work experience. • Applicants with a Bachelor's degree (or equivalent) are required to have a minimum of two (2) years of relevant professional experience in EcoDRR, integrated watershed management, and ecosystem restoration.
Desired skills in addition to the competencies covered in the Competencies section	• Experience in the field of watershed management. • Proficiency in computer applications like MS Word, Excel and PPT. • Strong technical expertise in watershed management, land restoration, or Eco-DRR. • Experience in supervising field-based interventions. • Experience to engage and train communities. • Proven experience to develop operational protocols and training. • Experience with NbS for climate adaptation and DRR. • Experience in the Hindu Kush Himalayan context and the mountain ecosystems in Nepal. • Experience working with GON, UNDP, GCF, or other donor-funded projects, particularly in climate change adaptation or disaster risk reduction. • Experience and knowledge of environmental and climate change issues in Nepal, including GLOFs, Eco-DRR, and early warning systems.
Required Language(s)	Fluency in English and Nepali is required.

	Knowledge of any other national language will be an asset.
Professional Certificates	

7. The following documents shall be required from the applicants:

a) **Personal CV or P11**, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.
b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.
c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)

This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Project Assistant/Receptionist

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Project Assistant/Receptionist
Level	NPSA 5
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	As soon as possible
Expected Duration	1 year (with possible extension)
Position Number	227849

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving

as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The Project Assistant/Receptionist will provide day-to-day operational, administrative, and coordination support to ensure smooth implementation of the Nepal GLOF Project. The role will focus on facilitating project activities in line with approved work plans, supporting monitoring and reporting processes, strengthening stakeholder engagement, and maintaining compliance with UNDP and donor requirements. The Assistant will be responsible for managing documentation, logistics, and office information systems, while also contributing to knowledge management, visibility, and the integration of gender equality and social inclusion (GESI) across project operations. By ensuring effective coordination and efficient office support, the Assistant will play a key role in enabling the project team to deliver results on time and to standard.

1. Facilitation and Coordination of Daily Project Operations:

- Provide day-to-day operational support to ensure effective implementation of project activities in line with annual and quarterly work plans, timelines, and UNDP/GCF standards.
- Compile, summarize, and organize input for project documents, proposals, and budgets in consultation with the project team, ensuring completeness and accuracy.
- Review project-related documents and submissions for compliance with UNDP rules, donor requirements, and internal procedures, identifying inconsistencies and referring them to supervisors for resolution.
- Provide logistical, administrative, and procurement support to facilitate smooth execution of project events, workshops, field visits, and technical missions, ensuring all arrangements adhere to UNDP protocols.
- Support data collection and reporting for gender equality, social inclusion, and other cross-cutting issues within project activities, ensuring data quality and alignment with project indicators.
- Manage incoming and outgoing correspondence through the e-registry system, ensuring accuracy, confidentiality, and timely distribution to relevant offices.
- Maintain accurate records of file movements, bids, tenders, and other sensitive documents in line with UNDP policies, procedures, and retention schedules.
- Provide courteous and professional front-desk services, including receiving visitors, directing inquiries, and operating the office switchboard according to UNDP standards.
- Maintain up-to-date contact lists, directories, and stakeholder information for UN staff, project partners, and community counterparts.
- Support routine administrative tasks including inventory management, preparation of meeting minutes, and coordination of office logistics.

2. Strengthening Partnerships, Communication, and Stakeholder Engagement:

- Maintain and regularly update a comprehensive database of government counterparts, development partners, NGOs, and community beneficiaries relevant to the project.
- Assist in the management of contracts with implementing partners, monitoring deliverables, timelines, and compliance with agreed terms.
- Support effective communication and coordination with stakeholders through timely correspondence, information sharing, and dissemination of project materials, reports, and visibility content.
- Facilitate dissemination of project outcomes, lessons learned, and good practices to partners, communities, and broader networks to enhance visibility and stakeholder engagement.

3. Monitoring, Reporting, and Compliance Support:

- Assist in implementing the project's monitoring and evaluation framework to track progress against defined indicators, outputs, and targets.
- Collect, analyze, and summarize data to support internal and external reporting, audits, and donor requirements, ensuring accuracy and timeliness.
- Support the organization and facilitation of monitoring visits, evaluation exercises, workshops, and stakeholder consultations to assess project progress and identify implementation gaps.
- Contribute to the preparation of progress reports, briefing notes, and updates for supervisors, donors, and other relevant stakeholders.
- Maintain accurate expenditure and reporting records, ensuring compliance with UNDP procedures, donor guidelines, and internal control standards.

4. *Knowledge Management, Documentation, and Learning Support:*

- Maintain systematic filing, archiving, and documentation of project data, reports, case studies, photographs, and visibility materials for easy retrieval and reference.
- Document lessons learned, success stories, and best practices to inform future programming, project planning, and decision-making processes.
- Contribute to digital knowledge platforms, communities of practice, and networks relevant to climate action, GESI, and UNDP project operations.
- Support planning, coordination, and facilitation of training sessions and capacity-building activities for project staff, partners, and stakeholders.

5. Integration of Gender Equality, Social Inclusion, and Safe Practices:

- Assist in preparing periodic Gender Equality and Social Inclusion (GESI) reports, ensuring alignment with UNDP, donor requirements, and internal monitoring frameworks.
- Promote a respectful, inclusive, and safe workplace culture through daily interactions, team collaboration, and adherence to organizational policies.
- Support the integration of gender equality, social inclusion, and Do No Harm principles into all project operations and community-level activities.
- Ensure safe implementation of project interventions at the community level, working closely with partners and sub-grantees to uphold safeguarding standards.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organization.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The Project Assistant/Receptionist will report directly to Administrative and Finance Analyst. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements
Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback

Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident
Engage and Partner:	LEVEL 1: Demonstrates compassion/understanding towards others, forms positive relationships
Enable Diversity and Inclusion:	LEVEL 1: Appreciate/respect differences, aware of unconscious bias, confront discrimination

Cross-Functional & Technical competencies

Thematic Area	***Name***	***Definition***
Administration & Operations	Documents and records management	• Overall document (hard or electronic) management; registry and retention policy including storing and archiving
	Events Management (including retreats, trainings and meetings)	• Support office with event management including venue identification, accommodation, logistics, catering, transportation, and cash disbursements, etc.
	Asset Management	• Knowledge of policy & procedures on PP&E; ability to prepare financial statements on PP&E; maintain Asset Management Module in Quantum , Asset Dashboard; develop supporting tools for assets certification and further enhancements for AM module; design and run training programs, etc. on assets management and assets recording; run AP-AM interface; perform AP-AM-GL reconciliation; perform analytical review of AM reports and asset information to ensure completeness and accuracy of asset information
Business Management	Communication	• Communicate in a clear, concise and unambiguous manner both through written and verbal communication; to tailor messages and choose communication methods depending on the audience
	Customer Satisfaction/ Client Management	• Respond timely and appropriately with a sense of urgency, provide consistent solutions, and deliver timely and quality results and/or solutions to fulfil and understand the real customers' needs; • Provide inputs to the development of customer service strategy; • Look for ways to add value beyond clients' immediate requests; • Anticipate client's upcoming needs and concerns.
2030 Agenda: Peace	Governance	Inclusion and Participation of Marginalised Groups
2030 Agenda: People	Gender	Innovation for Gender Equality

Please refer to the competency framework site for the entire list of competencies and further explanations.

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	High School degree is required. or A first-level university degree (bachelor's degree) in Public/ Business Administration, social sciences or related field will be given due consideration, but it is not a requirement.

Min. years of relevant work experience	A minimum of 5 years (with high school diploma) or 2 years (with bachelor's degree) of relevant progressively responsible secretarial and/or administrative service experience is required at the national and/or international level.
Required Skills	• Proficiency in MS Office applications (Word, Excel, PowerPoint, Outlook) and ability to use online information management systems. • Strong ICT skills, including the application of digital tools in day-to-day work.
Desired Skills in addition to the competencies covered in the Competencies section	• Demonstrated experience providing operational and administrative support in development or project settings. • Experience in similar assignments at the development cooperation agency or international organizations/ companies. • Knowledge of project administration processes, including procurement, logistics, reporting, and compliance with donor procedures. • Prior knowledge and experience of managing program related budgets with basic knowledge of programme management. • Prior experience in organizing events, workshops, or field visits. • Knowledge of gender equality, social inclusion, and safeguarding principles, with ability to apply them in project operations. • Prior experience of handling telecoms, and reception related functions. • Experience using digital knowledge platforms, registry systems, or ERP software for project administration. • Adapt quickly to changing priorities and support coordination in fast-paced project environments.
Required Language(s)	Fluency in of English and Nepali is required. Knowledge of any other national language will be an asset.
Professional Certificates	

7. The following documents shall be required from the applicants:

a) **Personal CV or P11**, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.
b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.
c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (indicate *name and title of Approving Manager*)
This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Terms of Reference (ToR)

Office Support Clerk

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Office Support Clerk
Level	NPSA 3
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	As soon as possible
Expected Duration	1 year (with possible extension)
Position Number	227850

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The Office Support Clerk will provide reliable administrative, logistical, and operational support to ensure the smooth functioning of the Nepal GLOF Project PMU. The incumbent will be responsible for maintaining safe and clean office premises, supporting meetings and events, managing deliveries and dispatches, and assisting with procurement, assets, and inventory management. The role includes facilitating office operations, supporting knowledge sharing, and ensuring respectful, inclusive workplace practices in line with UNDP values. By providing timely and efficient support services, the Office Support Clerk will help ensure that project staff, partners, and visitors are able to work effectively and safely.

1. Ensures provision of reliable and safe office support services:

- Timely opening, closing, and securing of office premises ensuring the safety of staff and visitors.
- Maintenance of cleanliness in office rooms, meeting spaces, and common areas in line with health and safety standards.
- Preparation and arrangement of meeting rooms for official events, workshops, and conferences, including seating arrangements, refreshments, and supplies.
- Assist with photocopying, scanning, binding, and other routine administrative tasks assigned by supervisors.

2. Provides logistical and messenger support:

- Collection and distribution of incoming/outgoing mails, parcels, newspapers, and other communications within the office and external stakeholders.
- Timely delivery and pickup of official documents, letters, and supplies to government counterparts, UN agencies, partners, and vendors.
- Support in maintaining an updated log of all deliveries and dispatches to ensure accountability.

3. Ensures efficient support to procurement, assets, and inventory management:

- Provide support in receiving deliveries of goods and equipment, inspecting items, and ensuring proper handover to responsible staff.
- Assist in storage, labeling, and safe keeping of office supplies and project equipment.
- Maintain records of office supplies usage and promptly inform the supervisor for replenishment needs.
- Support in conducting periodic inventory of office assets and supplies.

4. Provides support to effective office operations:

- Support in setting up project events, meetings, and field visits through logistical and administrative assistance.
- Assist in movement of office furniture, equipment, and supplies as required.
- Operate office equipment (photocopiers, scanners, printers, etc.) responsibly and report technical issues promptly.
- Maintain readiness of office stationery and supplies for smooth day-to-day operations.
- Provide logistical and administrative support for in-house training and workshops.
- Assist in organizing, arranging, and documenting meetings when required.
- Share practical knowledge on office procedures and support new or temporary staff in adapting to office protocols.

5. Gender Equality and Social Inclusion (GESI):

- Ensure respectful communication and cooperation with colleagues, visitors, and partners in line with UNDP's values.
- Support in creating an inclusive and safe workplace free from harassment, discrimination, and gender-based violence.
- Apply "Do No Harm" principles while performing duties, particularly during interactions with external stakeholders.
- Participate in orientation or training related to gender equality, inclusion, and safe office practices.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organization

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The Office Support Clerk will report directly to the Administrative and Finance Analyst. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements
Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback
Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident
Engage and Partner:	LEVEL 1: Demonstrates compassion/understanding towards others, forms positive relationships
Enable Diversity and Inclusion:	LEVEL 1: Appreciate/respect differences, aware of unconscious bias, confront discrimination

Cross-Functional & Technical competencies

Thematic Area	***Name***	***Definition***
Business direction and strategy	Effective Decision Making	Ability to take decisions in a timely and efficient manner in line with one's authority, area of expertise and resources
Administration & Operations	Documents and records management	Overall document (hard or electronic) management; registry and retention policy including storing and archiving
	Events Management (including retreats, trainings and meetings)	Support office with event management including venue identification, accommodation, logistics, catering, transportation, and cash disbursements, etc.
	Asset Management	Knowledge of policy & procedures on PP&E; ability to prepare financial statements on PP&E; maintain Asset Management Module in Quantum , Asset Dashboard; develop supporting tools for assets certification and further enhancements for AM module; design and run training programs, etc. on assets management and assets recording; run AP-AM interface; perform AP-AM-GL reconciliation; perform analytical review of AM reports and asset information to ensure completeness and accuracy of asset information
Technical Competencies	UN policy knowledge-ethics	Knowledge and understanding of the UN Staff Regulations and Rules and other policies relating to ethics and integrity
2030 Agenda: People	Gender	Innovation for Gender Equality
2030 Agenda: Peace	Governance	Inclusion and Participation of Marginalised Groups

Please refer to the competency framework site for the entire list of competencies and further explanations.

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	Completion of High school is required. or A First level university degree (bachelor) in Management, Administration, Public Administration, Finance, Accounting, or equivalent field will be given due consideration, but it is not a requirement.
Min. years of relevant work experience	Minimum of 3 years of relevant experience for High School degree in administrative, clerical, or logistical support services. Applicants with Bachelor's degree in a relevant field of study are not required to have professional work experience.
	• Proficiency in computer applications like Microsoft (Word, Excel and PowerPoint) is required.
Desired skills in addition to the competencies covered in the Competencies section	• Experience of providing administrative and logistical support in a professional office environment. • Strong organizational skills with attention to detail in managing supplies, inventory, and routine office tasks. • Experience of performing basic clerical tasks (photocopying, scanning, filing) and operate office equipment responsibly. • Previous experience providing administrative or logistical support to UN agencies, NGOs, or government projects. • Knowledge of procurement, asset management, and inventory procedures. • Experience of supporting the organization of official events, workshops, or field visits. • Basic knowledge of record-keeping and maintaining delivery or inventory logs. • Knowledge of workplace safety, gender equality, and inclusion principles. • Adapt quickly to changing priorities and support a multicultural team environment.
Required Language(s)	Fluency in English and Nepali is required. Knowledge of any other national language will be an asset.
Professional Certificates	

7. The following documents shall be required from the applicants:

a) **Personal CV or P11**, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.
b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.
c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)
This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative
Date of Approval _____

Terms of Reference (ToR)

Driver

National Personnel Service Agreement

1. Position Information

Office/Unit/Project	Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal
Title	Driver
Level	NPSA 2
Duty station (City and Country)	Kathmandu, Nepal
Type (Regular or Short term)	Regular
Office- or Home-based	Office-based
Expected starting date	As soon as possible
Expected Duration	1 year (with possible extension)
Position Number	227851

2. Project Description

While climate change is observed across Nepal, the rate of temperature increase is more pronounced at higher altitudes. This temperature rise accelerates the rate of glacial retreat, increasing the size of glacial lakes located in these high-altitude areas and, in turn, their likelihood of breaching in the form of Glacial Lake Outburst Floods (GLOF) which cause severe flooding, landslides and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supplies from hydropower plants and tourism activities. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations. The risk of GLOFs is further exacerbated by increasing temperatures which increase the rate of snow and ice melt and the proportion of precipitation falling as rain, which increases the volume of the lakes, thereby reducing the amount of 'freeboard', which increases the likelihood of overflow and the intensity of resulting floods.

The Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes are at exceptionally high risk of breaching having already exhibited considerable increases in volume, accelerated degradation of their ice-cored moraines, and a reduced amount of 'freeboard' as a result of climate change. Combined, these factors have destabilized the lakes, exposing the Gandaki Basin and the Dudhkoshi and Arun Sub-basins to the threat of a GLOF event. Without intervention, these glacial lakes could breach at any given moment, adversely impacting vulnerable Nepalese communities.

In response to this risk, USD36 millions of GCF funds, alongside USD14 million in cofinance, will be directed to reduce the risk and impacts of GLOFs at the four priority glacial lakes by shifting towards a proactive approach to GLOF risk reduction in Nepal. The proposed project presents an integrated approach to GLOF risk management in Nepal by addressing institutional and technical capacities, physical protection (both grey and green infrastructure approaches), hazard monitoring and early warning. This integrated approach will utilise GCF funds to: i) lower the water levels of four glacial lakes to reduce their risk of breaching; ii) implement Eco-Disaster Risk Reduction interventions in mountain ecosystems to mitigate the residual flood impacts from a GLOF; iii) establish and implement early warning systems to alleviate damages and prevent the loss of lives from GLOFs; and iv) strengthen the technical and institutional capacity of Nepal's Department of Hydrology and Meteorology to plan for and respond to GLOFs and floods. These interventions will catalyse a shift from a need- and project-based approach towards proactive and pre-emptive approaches, engendered through strengthened capacity among institutions and communities.

The project will be implemented following UNDP's support to National Implementation Modality (NIM), with Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal serving as the Implementing Partner. Under this modality, UNDP is supporting DHM in recruiting key positions for the establishment of a Project Management Unit, which will be based in Kathmandu, Nepal. Members of the PMU will collectively be responsible for overall planning and budgeting, collaborating with other ministries, sectors and government entities to implement the project performance management system; bidding for the provision of project consultancy services; coordination with the responsible parties in terms of bidding of goods and services; disbursement and implementation of project audits, operation of accounts, monitoring and preparation of overall project reports (annual), and safeguards policy monitoring reports.

3. Scope of Work

The incumbent under the overall supervision of Project Coordination Specialist and direct supervision of Administrative and Finance Analyst, will be responsible for safely driving the UNDP vehicle and make sure day-to-day maintenance of the assigned vehicle. S/he will also ensure administrative support and logistics management for events.

1. Perform Operation and Maintenance of Vehicle:

- Ensure compliance with rules and provision of reliable and safe driving services by:
    1. Driving programme vehicles for the transport for programme personnel and visitors and delivery and collection of mail, documents and other items.
    2. Meeting official personnel and visitors at the airport including visa and customs formalities arrangement when required.
- Ensure cost efficiency, cost savings through proper use of vehicle through accurate maintenance of daily vehicle logs, provision of inputs to preparation of the vehicle maintenance plans and reports.
- Ensures proper day-to-day maintenance of the assigned vehicle through timely minor repairs, arrangements for major repairs, timely changes of oil, check of tires, brakes, car washing, etc.
- Ensures availability of all the required documents/supplies including vehicle insurance, vehicle logs, office directory, map of the city/country, first aid kit, and necessary spare parts in the assigned vehicle.
- Ensure that all immediate actions required by rules and regulations are taken in case of involvement in accidents.
- Ensure that vehicle logbooks are systematically maintained, vehicles are in proper condition.

2. Logistics management support function:

- Supports the programme for any logistics management of office and events.
- Delivery and collection of mail, documents, and other items as per the needs of the office.
- Travel to field locations with project staff.
- Receiving official personnel and visitors at the airport
- Support the visa and customs formalities when required.
- Provide administrative and logistical support services as required e.g., photocopying, scanning, messenger services, loading/unloading vehicles, setting up workshops, etc.

3. Gender and Social Inclusion (GESI):

- Ensures sensitivity towards Gender and Social Inclusion issues.
- Create a safe working environment by developing respectful and safe organizational culture and supporting practices.
- Comply with the provisions of various policies including Prevention of Sexual Exploitation and Abuse (PSEA), GESI, promotion of inclusion and diversity in the workplace.
- Fully accept and value all people, creating an inclusive environment
- Understand that inclusion is multi-faceted (e.g. race, gender, age, disability, culture, etc.) and appreciate issues from the perspective of others.
- Collaborates with team members, programme partners, and sub-grantees to ensure safe implementation of programmes at the community level applying the Do No Harm approach.
- Ensure respectful and inclusive behavior towards all passengers and colleagues, upholding organizational values on

gender equality and social inclusion at all times.
- Support the accessibility needs of passengers, including people with disabilities, elderly staff, and others requiring assistance during travel.

4. Other:
- Strict compliance with the UNDP applicable rules, regulations and policies related to ethics and integrity.
- The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the programme.

The incumbent performs other duties within their functional profile as deemed necessary for the efficient functioning of the Office and the Organization.

4. Institutional Arrangement

The PMU will be headed by the Project Coordination Specialist (PCS). The Driver will report directly to the Administrative and Finance Analyst. The PMU will operate under the overall guidance of the National Project Director (NPD) as assigned by MoEWRI.

5. Competencies

Core	
Achieve Results:	LEVEL 1: Plans and monitors own work, pays attention to details, delivers quality work by deadline
Think Innovatively:	LEVEL 1: Open to creative ideas/known risks, is pragmatic problem solver, makes improvements
Learn Continuously:	LEVEL 1: Open minded and curious, shares knowledge, learns from mistakes, asks for feedback
Adapt with Agility:	LEVEL 1: Adapts to change, constructively handles ambiguity/uncertainty, is flexible
Act with Determination:	LEVEL 1: Shows drive and motivation, able to deliver calmly in face of adversity, confident
2030 Agenda: Peace	Inclusion and Participation of Marginalised Groups
2030 Agenda: People	Innovation for Gender Equality

Please refer to the competency framework site for the entire list of competencies and further explanations.

6. Minimum Qualifications of the Successful NPSA

Min. Education requirements	Completion of School Leaving Certificate (SLC) or Secondary Education Examination (SEE).
Min. years of relevant work experience	• Minimum 2 years' work experience as a driver. • Additional experience in the above area will be an added advantage. • Valid Driver's license is required

Required skills	• Gender and Social Inclusion sensitivity. • Demonstrates professionalism, reliability, and a strong sense of responsibility in carrying out driving and vehicle maintenance duties. • Maintains a courteous and respectful attitude toward passengers, colleagues, and external partners, upholding organizational values at all times. • Shows alertness, patience, and good judgment in handling road situations and ensuring safety under all driving conditions.
Desired skills in addition to the competencies covered in the Competencies section	• Experience to maintain and manage vehicle log-books efficiently. • Safe driving record is preferable. • Knowledge of driving rules and regulations and skills in minor vehicle repair and mechanics. • Experience of providing logistic support during events. • Work experience in the United Nations, international NGOs or diplomatic missions is preferred. • Basic computer literacy is added advantage.
Required Language(s)	• Knowledge of English and Nepali language is required. • Knowledge of any national language will be an added advantage.

7. The following documents shall be required from the applicants:

a) **Personal CV or P11**, indicating all past positions held and their main underlying functions, their durations (month/year), the qualifications, as well as the contact details (email and telephone number) of the Candidate, and at least three (3) the most recent professional references of previous supervisors. References may also include peers.

b) A cover letter (maximum length: 1 page) indicating why the candidate considers him-/herself to be suitable for the position.

c) Managers may ask (ad hoc) for any other materials relevant to pre-assessing the relevance of their experience, such as reports, presentations, publications, campaigns or other materials.

8. Annexes to the TOR

a) Link to the Approved GCF Proposal Package: https://www.greenclimate.fund/project/fp272

9. Approval

This TOR is approved by: (*indicate name and title of Approving Manager*)

This certifies the appropriateness of the functions to the NPSA contractual modality.

Name and Designation Julien Chevillard, Deputy Resident Representative

Date of Approval _____

Annex H: UNDP Social and Environmental Screening Procedure (SESP) (to be completed in UNDP Quantum+ and the printout to be attached to the project document)

Social and Environmental Screening Template (2021 SESP Template, Version 1)

The completed template, which constitutes the Social and Environmental Screening Report, must be included as an annex to the Project Document at the design stage. Note: this template will be converted into an online tool. The online version will guide users through the process and will embed relevant guidance.

Project Information

Project Information	
1. Project Title	Protecting Livelihoods and Assets at Risk from Climate Change Induced Flooding in Glacial River Basins of Nepal
2. Project Number (i.e. Atlas project ID, PIMS+)	
3. Location (Global/Region/Country)	Nepal
4. Project stage (Design or Implementation)	Design Funding Proposal
5. Date	01/6/23

Part A. Integrating Programming Principles to Strengthen Social and Environmental Sustainability

QUESTION 1: How Does the Project Integrate the Programming Principles in Order to Strengthen Social and Environmental Sustainability?
Briefly describe in the space below how the project mainstreams the human rights-based approach
The project will uphold basic human rights by: • Providing increased protection and adaptations that will improve the long-term resilience of villages to GLOFs and flash-flooding, which without human could result in significant loss of human life and/or property and infrastructure. • The project will utilise the traditional and legal leadership structures as well as direct community engagement to involve the beneficiaries in the project. The project also has a Grievance Redress Mechanism, ensuring that the right to opinion is maintained and able to be exercised. The GRM contains mechanisms for maintaining the privacy of complainants if requested. • The project applies the principal of equality and freedom of discrimination to all its activities. A Gender Action Plan has been prepared to help ensure gender equity (refer below) and engagement with Indigenous Peoples will continue through the application of an IPPF. • Through the application of the Environmental and Social Management Plan the impacts of the project will be minimised ensuring that right to a healthy environment is maintained, livelihoods are not adversely impacted, and safety and personal security are enhanced. • Monitoring and evaluation will be carried out to assess the effectiveness of the various plans. Where appropriate recommendations for updates or improvements will be made.

The design of this project involved a wide range of stakeholders. Consultation workshops/ meetings have been conducted with a wide range of key stakeholders to evaluate ministries, villages, communities and enterprises to explore their engagement during project implementation. Such consultations, cooperation and coordination efforts generated stakeholder engagement for the project implementation phase. Such consultations will also ensure the interest of potentially marginalized individuals and groups are considered during implementation, particularly related to site selection and construction.

Briefly describe in the space below how the project is likely to improve gender equality and women's empowerment

During the development of the project, the engagement of women has been specifically targeted to ensure that the project is sensitive to the needs of women in Nepal.

The project is expected to bring a range of gender-responsive development impacts:

- Increased participation in committees and decision making by women, particularly those from socially excluded groups
- Increased GESI awareness through training, coaching, and integration into project activities
- EWS products specifically designed to address the needs of women, IPs and other vulnerable persons
- Integrate GESI in the development of long-term watershed management strategy for managing GLOF risks for each glacial watershed

Gender mainstreaming targets will be considered as core project targets. The project has developed a Gender Action Plan to help mainstream gender equity throughout the project. In addition to specific actions, there will be overarching interventions awareness rising and multi-stakeholder's participation that will contribute to ensuring the successful implementation of gender mainstreaming. The implementation and effectiveness of the GSAP will be monitored and evaluated by UNDP.

Briefly describe in the space below how the project mainstreams sustainability and resilience

The project design has considered sustainability and resilience as a foundation value. The purpose of the physical interventions is to enhance the long-term sustainability and resilience of the glacial lakes and downstream communities. The materials selected for the physical interventions will be predominantly locally sourced.

An important element of environmental sustainability is having an enabling environment. To achieve this the project includes institutional capacity building, which aims at strengthening capacity at multiple levels- government and community. The expected outcome will be human and infrastructural capacity built and enhanced sustainability across all components of the project, because of strengthened institutions, processes, and systems, and increased capacity of human, institutional and regulatory systems for climate-responsive planning and implementation.

The project will promote both structural and ecosystem-based measures to manage GLOF and flooding risks. These will include the replanting native vegetation along riparian areas and degraded lands to increase water retention and grassland productivity.

A detailed monitoring and evaluation tracking tool will help monitor the effective implementation of these plans. Project sites monitoring and validation will be conducted by UNDP to ascertain progress on the ground.

Briefly describe in the space below how the project strengthens accountability to stakeholders

Despite of the restrictions associated with the COVID-19 pandemic and social distancing, many consultation meetings (offline and online) were held with project stakeholders during the design phase. During these stakeholder consultation meetings, stakeholders and beneficiaries as well as partner organisations were introduced to relevant information on issues related to: the project (objectives, approaches, budget, staffing and contact details); and what they should expect from project and UNDP (in terms of information, participation, respect etc.). Stakeholders are consulted on matters that directly affect them, especially in relation to the project. The consultations followed the principle of obtaining free, prior, and informed consent (FPIC) from communities and men and women as stated in UNDP policy.

Consulting stakeholders also enables the project to gain a greater understanding from stakeholders of their views, capabilities, needs and concerns. After consultations and surveys are conducted, follow up activities are concerned with feedback sessions to share the results and discuss the findings.

The project is undertaking a range of capacity building activities targeting different strata of the community. Armed with greater understanding of climate change, planning processes, construction and environmental management etc, stakeholders will be able to better hold authorities, contractors and each other to account.

The project is complying with the law and assisting agencies meet their own obligations, particularly with regard to notifications and provision of opportunities for community comment/engagement.

The design and likely impacts of the project have been assessed and the relevant documents (ESMF) made publicly available. Additional assessments will be made as required eg under Nepalese environmental law, and this process also includes requirements to engage with and provide opportunities to communities for the enunciation of concerns and recommended solutions.

The ESMF, that outlines what measures are proposed to manage impacts is a public document and this will enable communities to independently monitor the performance of project team, contractors and government in terms of compliance.

In addition, a Stakeholder Engagement Plan and Grievance Redress Mechanism have been put in place to ensure that stakeholders continue to obtain updated information, have an avenue for asking for additional information, or raise concerns about the project.

Part B. Identifying and Managing Social and Environmental Risks

QUESTION 2: What are the Potential Social and Environmental Risks? *Note: Complete SESP Attachment 1 before responding to Question 2.*	**QUESTION 3: What is the level of significance of the potential social and environmental risks?** *Note: Respond to Questions 4 and 5below before proceeding to Question 5*			**QUESTION 6: Describe the assessment and management measures for each risk rated Moderate, Substantial or High**
Risk Description ***(broken down by event, cause, impact)***	***Impact and Likelihood (1-5)***	***Significance*** ***(Low, Moderate Substantial, High)***	***Comments (optional)***	***Description of assessment and management measures for risks rated as Moderate, Substantial or High***

Risk 1: There a risk that rights-holders may not have the capacity to claim their rights, particularly as the project will be operating in areas where villages are remote, literacy skills may be lacking, and indigenous peoples exist. Risks include information not reaching all stakeholders; culturally inappropriate practices or messaging, grievances being raised and/or reprisals etc. **Related to risks**: P3, P13, P.15, 4.4, 6.1, 6.2	I = 2 L = 4	**Moderate**	This relates primarily to physical activities where land will be required, particularly Activity 3.2 and 3.3. Land is required for the installation of EWS and eco-DRR/nature-based solutions. All sites selected are public land.	Confirmation of land tenure at all project sites as part of detailed site survey during implementation (all sites identified are public) Stakeholder Engagement Plan (SEP) completed Apply lessons learnt from Imja Lake project - planned ESMF - completed Gender Action Plan - completed IPPF completed IPP (including FPIC protocol(s)) - planned GRM Three scoped ESIAs/ESMPs (on a catchment basis) to be made public and comments invited planned
Risk 2. There is a risk that the project could replicate historical/structural exclusion of some groups leading to reduced employment opportunities, inequitable access to information or representation. **Related to risks:** P8, P9, P10, P13	I = 3 L = 2	**Moderate**	There has been historical/structural exclusion against certain groups based on gender, caste, ethnicity, language, or location While risk applies across the project, it is particularly relevant for Activity 2.2 and Activity 3.3.	Stakeholder Engagement Plan - completed Grievance Redress Mechanism - completed Gender Action Plan - Completed Indigenous Peoples Planning Framework completed Indigenous Peoples Plan - planned Capacity building activities as part of Activities 2.2 and 3.3
Risk 3: The project involves construction activities within natural ecosystems, therefore there are risks associated with habitat modification, particularly associated with the lake lowering and flood diversion structures.	I = 3 L = 5	**Substantial**	Works are proposed in and around waterways, therefore potential modification of hydrologic characteristics. Lake lowering will have a visual impact. Sourcing of construction materials could also have	Hydrology and modelling - completed ESMF - completed Apply lessons learnt from Imja Lake project - planned Scoped ESIAs (to meet UNDP SES and Nepalese law) three planned (one for each catchment)

Related to risks: 3.1, 3.6, 4.4			adverse impacts if not managed.	Scoped ESMPs three planned, one for each catchment IPPF completed IPP planned
Risk 4: There is a risk that the project could impact sensitive areas and/or species. **Related to risks**: S1.2, 3.1, 3.6, 4.4	I = 2 L = 5	**Moderate**	Activities are proposed within or adjacent to environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park). Endangered species are known from the areas around project sites, including with the National Parks Two of the lake lowering sites are within National Parks.	National Parks Management Plan (including existing biodiversity plans) to be amended through the addition of a new chapter to specifically permit carrying out activities in Output 3 within the National Park areas - planned SEP National Parks will be a key stakeholder. IPPF ensure involvement of IPs who place cultural values on the lakes of the Himalayas. IPP - planned ESMF - completed ESIAs (to meet UNDP SES and Nepalese law) three (one for each watershed) - planned ESMPs based on findings of ESIAs. Three ESMPs one for each catchment - planned
Risk 5: Eco-based solutions are proposed which include revegetation/reforestation, therefore there is a risk that inappropriate species are selected for revegetation or that there is future harvesting of areas revegetated by the project. **Related to risks:** P3, S1,8	I = 3 L=3	**Moderate**	Activity 3.3 includes the use of vegetation (trees, shrubs and grasses) to help stabilize soil and form flood defenses. The species have yet to be selected and should be non-invasive, native species.	Appropriate local species to be selected for use in revegetation - planned SEP completed Capacity building to enhance engagement and ownership of interventions by local communities - planned Operation and Maintenance Plan for the vegetative structures and forests - planned Application of Nepal forestry laws and policies - planned
Risk 6. The lowering of the glacial lakes and the construction of flood structures may result in the diversion of surface or water that could be destructive.	I = 4 L = 2	**Moderate**	Activities 3.1 and 3.2 involve physical structures to help mitigate flooding, including diversion of flood waters.	Design assessment, including hydrologic modelling - completed ESMF completed

Related to risks: S1.11			Flood structures must not result in destructive diversion.	Apply lessons learnt from Imja Lake project - planned Operation and Maintenance Plan for lowering and flood structures - planned
Risk 7: The project interventions will be sensitive or vulnerable to potential impacts of climate change there is a risk that accelerated melting could result in increased flows and/or damage to project and downstream infrastructure. **Related to risks:** 2.1, 2.2, 3.1,	I = 4 L = 3	**Substantial**	Lowering the lakes will not completely remove the risks of GLOFs. Similarly, design effectiveness of flood reduction structures could be exceeded in very extreme events.	Design to take account of likely climate change parameters - completed Modelling to test effectiveness of interventions under different scenarios completed Apply lessons learnt from Imja Lake project planned Capacity building for EWS included as part of Activity 2.2 - planned Operation and Maintenance Plan planned Information from Output 3 to be provided to agencies to allow update of existing DRR plans.
Risk 8: The project involves construction of relatively large-scale infrastructure development ie the lake lowering structures and diversion structures, which will involve significant manual labour. The project may pose risks and vulnerabilities related to occupational health and safety eg OHS risks associated with collecting field data, construction and O&M; social risks associated with influx of temporary workers. **Related to risks:** 3.1, 3.2, 3.3, 3.5, 3.7, 7.1	I = 3 L = 3	**Moderate**	Output 3 includes construction works in various locations. Construction brings OHS risks both to workers and communities. Impacts associated with installation of equipment ie construction impacts: Physical issues: air, water, noise pollution, sed/erosion Biological issues: impacts on flora and fauna Socio-economic: GESI, labour force etc. Use of local workers will be favoured	Capacity building and use of PPE for construction workers to be done as part of project implementation. Apply lessons learnt from Imja Lake project - planned ESMF completed ESIAs (one for each catchment) ESMP/s (catchment basis) planned Gender Action Plan - completed Labour Management Procedure and an OHS plan (to be included in contracts with construction companies) planned Construction Emergency Medical Pan contractor to prepare

Risk 9: Reducing GLOF risk includes structural works within natural terminal moraines. Failure of lake lowering structures or moraine itself may pose destructive flooding risks to communities. **Related to risks:** 2.1, 3.1, 3.3	I = 5 L = 2	**Substantial**	Moraines and proposed structures could be vulnerable to earthquakes, subsidence, landslides, erosion, flooding or extreme climatic conditions. GLOFs may still occur despite project (although magnitude will be reduced). Modelling undertaken as part of the design process for Output 3 has helped identify the downstream flood scenarios	Engineering modelling and design (use of experts) Dam break modelling to determine areas of impact and assist in identifying mitigation measure designs and identify 'safe zones'/escape ways as part of EWS. Provision of information to disaster agencies to support/update existing DRR plans.
Risk 10: Project could result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values due to construction of diversion structures and/or installation of EWS equipment. **Related to risks:** 4.4, 6.1	I = 4 L =2	**Moderate**	There are numerous mani walls, small shrines and prayer wheels along the trails between villages these are often close to rivers. The as yet unselected sites for diversion structures and EWS equipment need to consider these cultural items. Importantly, it should be recognized that the project itself, by reducing the risk of natural hazards, will protect cultural heritage. Through reducing the risk of GLOFs, the devastating floods that would otherwise destroy the cultural heritage proximate to the rivers downstream will be avoided.	IPPF - completed IPP - planned SEP - completed Design assessment and discussions with communities Scoped ESIAs to consider risk to heritage as part of scope planned Chance Finds Procedure (to be included in ESMPs) planned
Risk 11: There are indigenous peoples present in the Project area. It is likely that portions of the Project will be	I = 2 L = 4	**Moderate**	There are areas where elements of the project will occur that are important to	SEP - completed IPPF - completed

located on lands and territories claimed by or important to indigenous peoples. **Related to risks:** 6.1, 6.2, 6.3			IPs eg the lakes which are of cultural importance. There are also culturally important elements that are common throughout the area eg mani walls and stupas these are often found along waterways as well as high points of trails, entries to villages etc. The majority (more than 95%) of the construction related activities will be carried out on public land eg Lake Lowering, Flood Risk Reduction measures, installation of Radar Level Sensors etc. Similarly, public land will be prioritised by DHM for the installation of AWS/Met Stations. These sites are small ie 25mX25m or 10mX10m or 6mX4m depending on the site. However, if for technical reasons it is identified that the identified site is unsuitable, then alternate public land sites will be sought. If no public land is suitable, then negotiations conducted by the PMU following DHM processes, to use private land may be entered into with the landholder, including any IP interests (through application of the IPPF/IPP).	IPP FPIC if determined to be required (for activities that require land ie Activity 3.2 and 3.3) planned Scoped ESIAs to incorporate outputs of IPP LAP - planned

Risk 12: The project will require considerable natural resources (stone, gravel etc) and other materials/goods and services and could potentially be labour and natural resource risks associated with supply chains, as well as potentially result in the generation of waste as a result of construction activities. **Related to risks**: P14, 1.1, 1.2, 3.2, 7.1, 7.6, 8.2, 8.6	I = 3 L = 3	**Moderate**	Construction activities, including installation of early warning equipment etc, will result in the generation of waste. The high Himalayas are susceptible to pollution, therefore waste management will be important. Most of the bulk materials eg rock, gravel and sand, required will be available onsite through balance of cut and fil ie reuse of materials. Labour will generally be drawn from local populations. Procurement will comply with Nepal Public Procurement Act 2063 (2007). PPMO provides independent auditing of government procurement.	Scoped ESIAs to include consideration of sources of materials. Scoped ESIAs to include consideration of waste and pollution risks. Scoped ESMPs to include Waste management plan Procurement of construction materials to consider source impacts and any waste that could be generated as well as supply chains Labour Management Procedure and an OHS plan (to be included in contracts with construction companies) planned GRM - completed
Risk 13: Additional workers from outside the local community may be required; an influx of workers could increase the risk of GBV/SEAH. **Related to risks**: P12	I = 3 L = 3	**Moderate**	Work forces will generally be drawn from local populations, but not all the skills required or possibly sufficient labourers be able to be sourced locally, therefore outside workers may be required.	ESMF completed SEP completed GRM - completed Gender Action Plan completed Labour Management Plan planned OHS Plan to include GBV/SEAH planned

Risk 14: Where existing stations do not exist land will be required. There is a risk that there is no public land at the preferred locations. **Relates to risk**: P14, S5.4, S6.1, S6.2	I = 3 L= 2	**Moderate**	Public land is proposed to be used and will be prioritized ie the majority of construction activities will be undertaken on public land. Stations require very small areas eg 4x6 m or 10 x10m, therefore there is a high degree of flexibility in locating infrastructure DHM will assess the details about identification of the location, types of land (public/government and private) and priories public land. Where preferred site is not public land, then site will be relocated to nearest suitable public land, if that is not possible, then negotiations with landholder will be undertaken by the PMU to obtain legal right to use land and agree on acceptable compensation. Note that any IP interests in the land would also be considered through the implementation of the IPP. There will be no compulsory land acquisition	LAP to define process of tenure confirmation and obtaining legal land use rights - planned IPP planned GRM - completed
	QUESTION 4: What is the overall project risk categorization?			
		Low Risk	☐	

	Moderate Risk	☐			
	Substantial Risk	**X**	**Highest level of risk identified is considered to be Substantial. The project does not trigger the higher level of risk as project activities are not unprecedented, the impacts are considered project is be reversible, community and other stakeholders have not raised any significant concerns or objections, physical impacts are not large-scale nor significantly impacting critical habitats, and finally the project will not aggravate or cause conflict or adversely affect human rights.**		
	High Risk	☐			
	QUESTION 5: Based on the identified risks and risk categorization, what requirements of the SES are triggered? (check all that apply)				
	Question only required for Moderate, Substantial and High Risk projects				
	Is assessment required? (check if "yes")	☐			***Status? (completed, planned)***
	if yes, indicate overall type and status		**X**	Targeted assessment(s)	Planned
			X	ESIA (Environmental and Social Impact Assessment)	Planned three ESIAs (one for each catchment). ESIAs will be focused on Outputs 2 and 3
			☐	SESA (Strategic Environmental and Social Assessment)	
	Are management plans required? (check if "yes)	☐			
	If yes, indicate overall type		**X**	Targeted management plans	*Stakeholder Engagement*

					Plan - completed *Gender Action Plan - completed* *Emergency Response Plan - planned* *Waste Management Plan - planned* IPPF completed Land Acquisition Plan - planned
			X	ESMP (Environmental and Social Management Plan which may include range of targeted plans)	Three ESMPs one per catchment to align with ESIAs Including IPP - planned
			X	ESMF (Environmental and Social Management Framework)	Completed
	Based on identified <u>risks</u>, which Principles/Project-level Standards triggered?		**Comments (not required)**		
	Overarching Principle: Leave No One Behind				
	Human Rights	**X**			

	Gender Equality and Women's Empowerment	**X**	
	Accountability	**X**	
	1. Biodiversity Conservation and Sustainable Natural Resource Management	**X**	
	2. Climate Change and Disaster Risks	**X**	
	3. Community Health, Safety and Security	**X**	
	4. Cultural Heritage	**X**	
	5. Displacement and Resettlement	☐	
	6. Indigenous Peoples	**X**	
	7. Labour and Working Conditions	**X**	
	8. Pollution Prevention and Resource Efficiency	**X**	Triggered due to sensitivity of high Himalayas environment to the impacts of pollution/waste.

Final Sign Off

Final Screening at the design-stage is not complete until the following signatures are included

Signature	***Date***	***Description***
QA Assessor		UNDP staff member responsible for the project, typically a UNDP Programme Officer. Final signature confirms they have "checked" to ensure that the SESP is adequately conducted.
QA Approver		UNDP senior manager, typically the UNDP Deputy Country Director (DCD), Country Director (CD), Deputy Resident Representative (DRR), or Resident Representative (RR). The QA Approver cannot also be the QA Assessor. Final signature confirms they have "cleared" the SESP prior to submittal to the PAC.
PAC Chair		UNDP chair of the PAC. In some cases PAC Chair may also be the QA Approver. Final signature confirms that the SESP was considered as part of the project appraisal and considered in recommendations of the PAC.

SESP Attachment 1. Social and Environmental Risk Screening Checklist

Checklist Potential Social and Environmental Risks		
INSTRUCTIONS: The risk screening checklist will assist in answering Questions 2-6 of the Screening Template. Answers to the checklist questions help to (1) identify potential risks, (2) determine the overall risk categorization of the project, and (3) determine required level of assessment and management measures. Refer to the SES toolkit for further guidance on addressing screening questions.		
Overarching Principle: Leave No One Behind **Human Rights**		**Answer (Yes/No)**
P.1	Have local communities or individuals raised human rights concerns regarding the project (e.g. during the stakeholder engagement process, grievance processes, public statements)?	*No*
P.2	Is there a risk that duty-bearers (e.g. government agencies) do not have the capacity to meet their obligations in the project?	*Yes*
P.3	Is there a risk that rights-holders (e.g. project-affected persons) do not have the capacity to claim their rights?	*Yes*
Would the project potentially involve or lead to:		
P.4	adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalized groups?	No
P.5	inequitable or discriminatory impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups, including persons with disabilities? [61]	Yes
P.6	restrictions in availability, quality of and/or access to resources or basic services, in particular to marginalized individuals or groups, including persons with disabilities?	No
P.7	exacerbation of conflicts among and/or the risk of violence to project-affected communities and individuals?	Yes
Gender Equality and Women's Empowerment		
P.8	Have women's groups/leaders raised gender equality concerns regarding the project, (e.g. during the stakeholder engagement process, grievance processes, public statements)?	Yes
Would the project potentially involve or lead to:		
P.9	adverse impacts on gender equality and/or the situation of women and girls?	*Yes*
P.10	reproducing discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	Yes
P.11	limitations on women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services? *For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well being*	No
P.12	exacerbation of risks of gender-based violence? *For example, through the influx of workers to a community, changes in community and household power dynamics, increased exposure to unsafe public places and/or transport, etc*.	Yes

[61] Prohibited grounds of discrimination include race, ethnicity, sex, age, language, disability, sexual orientation, gender identity, religion, political or other opinion, national or social or geographical origin, property, birth or other status including as an indigenous person or as a member of a minority. References to "women and men" or similar is understood to include women and men, boys and girls, and other groups discriminated against based on their gender identities, such as transgender and transsexual people.

Sustainability and Resilience: Screening questions regarding risks associated with sustainability and resilience are encompassed by the Standard-specific questions below		
Accountability		
Would the project potentially involve or lead to:		
P.13	exclusion of any potentially affected stakeholders, in particular marginalized groups and excluded individuals (including persons with disabilities), from fully participating in decisions that may affect them?	Yes
P.14	grievances or objections from potentially affected stakeholders?	Yes
P.15	risks of retaliation or reprisals against stakeholders who express concerns or grievances, or who seek to participate in or to obtain information on the project?	Yes
Project-Level Standards		
Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management		
Would the project potentially involve or lead to:		
1.1	adverse impacts to habitats (e.g. modified, natural, and critical habitats) and/or ecosystems and ecosystem services? *For example, through habitat loss, conversion or degradation, fragmentation, hydrological changes*	Yes
1.2	activities within or adjacent to critical habitats and/or environmentally sensitive areas, including (but not limited to) legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	Yes
1.3	changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods? (Note: if restrictions and/or limitations of access to lands would apply, refer to Standard 5)	No
1.4	risks to endangered species (e.g. reduction, encroachment on habitat)?	Yes
1.5	exacerbation of illegal wildlife trade?	No
1.6	introduction of invasive alien species?	Yes
1.7	adverse impacts on soils?	No
1.8	harvesting of natural forests, plantation development, or reforestation?	Yes
1.9	significant agricultural production?	No
1.10	animal husbandry or harvesting of fish populations or other aquatic species?	No
1.11	significant extraction, diversion or containment of surface or ground water? *For example, construction of dams, reservoirs, river basin developments, groundwater extraction*	Yes
1.12	handling or utilization of genetically modified organisms/living modified organisms?[62]	No
1.13	utilization of genetic resources? (e.g. collection and/or harvesting, commercial development)[63]	No
1.14	adverse transboundary or global environmental concerns?	No
Standard 2: Climate Change and Disaster Risks		

[62] See the Convention on Biological Diversity and its Cartagena Protocol on Biosafety.
[63] See the Convention on Biological Diversity and its Nagoya Protocol on access and benefit sharing from use of genetic resources.

Would the project potentially involve or lead to:		
2.1	areas subject to hazards such as earthquakes, floods, landslides, severe winds, storm surges, tsunami or volcanic eruptions?	Yes
2.2	outputs and outcomes sensitive or vulnerable to potential impacts of climate change or disasters? *For example, through increased precipitation, drought, temperature, salinity, extreme events, earthquakes*	Yes
2.3	increases in vulnerability to climate change impacts or disaster risks now or in the future (also known as maladaptive or negative coping practices)? *For example, changes to land use planning may encourage further development of floodplains, potentially increasing the population's vulnerability to climate change, specifically flooding*	No
2.4	increases of greenhouse gas emissions, black carbon emissions or other drivers of climate change?	No
Standard 3: Community Health, Safety and Security		
Would the project potentially involve or lead to:		
3.1	construction and/or infrastructure development (e.g. roads, buildings, dams)? (Note: the GEF does not finance projects that would involve the construction or rehabilitation of large or complex dams)	Yes
3.2	air pollution, noise, vibration, traffic, injuries, physical hazards, poor surface water quality due to runoff, erosion, sanitation?	Yes
3.3	harm or losses due to failure of structural elements of the project (e.g. collapse of buildings or infrastructure)?	Yes
3.4	risks of water-borne or other vector-borne diseases (e.g. temporary breeding habitats), communicable and noncommunicable diseases, nutritional disorders, mental health?	No
3.5	transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g. explosives, fuel and other chemicals during construction and operation)?	Yes
3.6	adverse impacts on ecosystems and ecosystem services relevant to communities' health (e.g. food, surface water purification, natural buffers from flooding)?	No
3.7	influx of project workers to project areas?	Yes
3.8	engagement of security personnel to protect facilities and property or to support project activities?	No
Standard 4: Cultural Heritage		
Would the project potentially involve or lead to:		
4.1	activities adjacent to or within a Cultural Heritage site?	Yes
4.2	significant excavations, demolitions, movement of earth, flooding or other environmental changes?	Yes
4.3	adverse impacts to sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)? (Note: projects intended to protect and conserve Cultural Heritage may also have inadvertent adverse impacts)	yes
4.4	alterations to landscapes and natural features with cultural significance?	Yes
4.5	utilization of tangible and/or intangible forms (e.g. practices, traditional knowledge) of Cultural Heritage for commercial or other purposes?	No
Standard 5: Displacement and Resettlement		

Would the project potentially involve or lead to:		
5.1	temporary or permanent and full or partial physical displacement (including people without legally recognizable claims to land)?	No
5.2	economic displacement (e.g. loss of assets or access to resources due to land acquisition or access restrictions even in the absence of physical relocation)?	No
5.3	risk of forced evictions?[64]	No
5.4	impacts on or changes to land tenure arrangements and/or community-based property rights/customary rights to land, territories and/or resources?	Yes
Standard 6: Indigenous Peoples		
Would the project potentially involve or lead to:		
6.1	areas where indigenous peoples are present (including project area of influence)?	Yes
6.2	activities located on lands and territories claimed by indigenous peoples?	Yes
6.3	impacts (positive or negative) to the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples (regardless of whether indigenous peoples possess the legal titles to such areas, whether the project is located within or outside of the lands and territories inhabited by the affected peoples, or whether the indigenous peoples are recognized as indigenous peoples by the country in question)? *If the answer to screening question 6.3 is "yes", then the potential risk impacts are considered significant and the project would be categorized as either Substantial Risk or High Risk*	Yes
6.4	the absence of culturally appropriate consultations carried out with the objective of achieving FPIC on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	Yes
6.5	the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	No
6.6	forced eviction or the whole or partial physical or economic displacement of indigenous peoples, including through access restrictions to lands, territories, and resources? *Consider, and where appropriate ensure, consistency with the answers under Standard 5 above*	No
6.7	adverse impacts on the development priorities of indigenous peoples as defined by them?	No
6.8	risks to the physical and cultural survival of indigenous peoples?	No
6.9	impacts on the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices? *Consider, and where appropriate ensure, consistency with the answers under Standard 4 above.*	No
Standard 7: Labour and Working Conditions		
Would the project potentially involve or lead to: (note: applies to project and contractor workers)		
7.1	working conditions that do not meet national labour laws and international commitments?	Yes
7.2	working conditions that may deny freedom of association and collective bargaining?	No
7.3	use of child labour?	No
7.4	use of forced labour?	No

[64] Forced eviction is defined here as the permanent or temporary removal against their will of individuals, families or communities from the homes and/or land which they occupy, without the provision of, and access to, appropriate forms of legal or other protection. Forced evictions constitute gross violations of a range of internationally recognized human rights.

7.5	discriminatory working conditions and/or lack of equal opportunity?	No
7.6	occupational health and safety risks due to physical, chemical, biological and psychosocial hazards (including violence and harassment) throughout the project life-cycle?	Yes
Standard 8: Pollution Prevention and Resource Efficiency		
Would the project potentially involve or lead to:		
8.1	the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	Yes
8.2	the generation of waste (both hazardous and non-hazardous)?	Yes
8.3	the manufacture, trade, release, and/or use of hazardous materials and/or chemicals?	No
8.4	the use of chemicals or materials subject to international bans or phase-outs? *For example, DDT, PCBs and other chemicals listed in international conventions such as the Montreal Protocol, Minamata Convention, Basel Convention, Rotterdam Convention, Stockholm Convention*	No
8.5	the application of pesticides that may have a negative effect on the environment or human health?	No
8.6	significant consumption of raw materials, energy, and/or water?	Yes

Annex I: Environmental and Social Management Framework (ESMF)

1 May 2025

Quality Information
Document: GCF Nepal GLOF Project - ESMF
Date: 1 May 2025
Prepared by: Phillip Hawes

Revision History

Revision	Revision / Issued Date	Details
0 - 6	20 September 2021 to 6 April 2023	Development of ESMF
7	25 May 2023	Update to align with final NCE approved SESP and to clarify scope of ESIAs and ESMPs.
7a	1 June 2023	Address minor comments from NCE
8	19 June 2023	Responding to comments from GCF focal point
8a	26 June 2023	Inclusion of LAP
9	7 July 2023	New section 5.4 NP Management Plans + minor edits
10	20 July 2023	Updated Appendix 1 Summary of Stakeholder Consultations
11	20 February 2024	Responding to GCF comments (Review Sheet)
12	12 February 2025	Updates based on GCF comments
14	6 March 2025	Updates in response to GCF feedback
15	27 March 2025	Updates in response to GCF comments round 7
16	4 April 2025	Updates in response to GCF comments on OHS
17	10 April 2025	Update and add exclusion list
18	18 April 2025	Update 5.1.1.1 Prohibited Actions
18b	1 May 2025	Final of ESMF accepted by GCF, with addition of Section 3.5 GCF Environmental and Social Policy

Appendices
Appendix 1: Summary of Stakeholder Consultation During Project Formulation (2018 to 2022)
Appendix 2: Guidance for Submitting a Request to the Social and Environmental Compliance Unit and/or the Stakeholder Response Mechanism
Appendix 3: Indigenous Peoples Planning Framework
Appendix 4: DNPWS Letter Requesting Support in Updating National Park Management Plans
Appendix 5: Draft Terms of Reference for ESIAs
Appendix 6: Contents of Land Acquisition Plan
Appendix 7: Elements of a Biodiversity Action Plan
Appendix 8: Labour Management Procedures and Requirements for Labour Management Plan
Appendix 9: Indicative Outline of an ESMP

List of Abbreviations

CBO	Community-based organisation
CEDAW	Convention on the Elimination of all Forms of Discrimination Against Women
DHM	Department of Hydrology and Meteorology
DRR	Disaster Risk Reduction
EbA	Ecosystem-based Adaptation
Eco-DRR	Eco-Disaster Risk Reduction
EE	Executing Entity
EIA	Environmental Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FPIC	Free, Prior, Informed, Consent
GAP	Gender Action Plan
GCF	Green Climate Fund
GDP	Gross domestic product
GEF	Global Environment Facility
GESI	Gender Equity and Social Inclusion
GHGs	Greenhouse gases
GLOF	Glacial Lake Outburst Flood
GoN	Government of Nepal
HDI	Human Development Index
IP	Indigenous Peoples
IPPF	Indigenous Peoples Planning Framework
IPP	Indigenous Peoples Plan
IT	Information Technology
IWRM	Integrated Water Resource Management
LAP	Land Acquisition Plan
LAPA	Local Adaptation Programmes of Action
LDC	Least Developed Country
LDCF	Least Developed Countries Fund
LRP	Local Resource Person
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
METAR	Meteorological Aviation Report
MoAD	Ministry of Agriculture Development
MoE	Ministry of Environment
MoEWRI	Ministry of Energy, Water Resources and Irrigation
MoFE	Ministry of Forests and Environment
MoHA	Ministry of Home Affairs
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NBSAP	National Biodiversity Strategy and Action Plan
NDC	Nationally Determined Contribution
NGOs	Non-governmental organisations
NbS	Nature-based Solutions
NSDRM	National Strategy for Disaster Risk Management
O&M	Operations and Maintenance
PDGL	Potentially Dangerous Glacial Lakes
PPE	Personal Protective Equipment
SDGs	Sustainable Development Goals
SNRM	Sustainable Natural Resource Management
SOI	Southern Oscillation Index
SOP	Standard Operating Procedure
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

Executive Summary

- Increasing atmospheric temperature is causing glaciers to melt worldwide. Glacier melting leads to the formation of glacial lakes. Many of these lakes are considered extremely dangerous as their dams are unstable and have the potential to burst resulting in devastating Glacial Lake Outburst Floods (GLOFs). In Nepal, there are ~3,800 glaciers and ~2,000 glacial lakes, of these, 47 are considered potentially dangerous.

- The Government of Nepal with support from UNDP, is formulating a project on adaptation to climate change impacts "Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal" for submission to the GCF. The project will seek to improve the resilience of vulnerable communities to climate change impacts.

- Specifically, direct investments from the GCF combined with co-financing will be used to: i) reduce the impacts of a GLOF and its residual impacts on vulnerable communities; ii) promote the adoption of GLOF EWS measures among national- and local-level decision-makers to enhance rapid response to an impending GLOF; and iii) strengthen the technical and institutional capacity of the Government of Nepal and local communities to implement GLOF risk reduction measures through targeted training and awareness raising. The combined effect of project interventions will result in the adoption and implementation of a climate-resilient, integrated approach to GLOF risk reduction and flood management.

- Four glacial lakes in Nepal have been prioritised for urgent adaptation action: Thulagi Glacial Lake in the Manang district; Lower Barun Glacial Lake in the Sankhuwasabha; Lumding Tsho Glacial Lake and Hongu 2 Glacial Lake in Solukhumbu district.

The project will have the following activities:

- Output 1. Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development.
  - Activity 1.1. Strengthen the knowledge base and technical capacities for improved climate research and risk reduction strategies.
  - Activity 1.2. Develop public-private partnerships for sustainable investment in GLOF and flood risk information services.
- Output 2. Improved hazard monitoring and the generation of early warnings, including the dissemination of early warnings to local communities and important economic sectors leading to reduced economic loss and loss of human lives from GLOF events.
  - Activity 2.1. Improve observation network density in GLOF watersheds to strengthen the technical capacity of DHM for the monitoring of climate hazard and risk.
  - Activity 2.2. Develop and implement early warning systems to strengthen adaptive capacity and response to GLOFs and other climate hazards in vulnerable sectors and communities.
- Output 3. Reduced probability of GLOF events and flash floods, through disaster risk reduction measures implemented in priority glacial lake watersheds.
  - Activity 3.1. Lower the levels of four of the highest risk glacial lakes.
  - Activity 3.2. Construction of structural and non-structural measures (Civil and NbS/ Bioengineering) for the risk reduction of GLOF and flash flood.
  - Activity 3.3. Implement Eco-disaster Risk Reduction and nature-based solutions to reduce the impact of GLOFs and flash floods.
-
- As part of the project development and GCF funding proposal, initial assessments of environmental and social risks have been undertaken. Based on the risk assessment the project has been determined to be of Substantial risk, (GCF Category B) whereby 3 of the 14 identified risks have been rated as Substantial, specifically those relating to construction impacts on natural ecosystems (Risk 3), climate change vulnerability (Risk 7), and structural failure leading to destructive flooding (Risk 9). To manage the environmental and social risks and potential impacts, an Environmental and Social Management Framework (ESMF) has been developed.
  The ESMF documents the environmental and social context in which the project will take place. It lists legislation, policies and treaties that are likely to apply to the project. Potential risks and impacts are identified, and the required

management actions provided, including processes for screening sub-activities and the development of detailed Environmental and Social Management Plans.

The following tables summarise the potential impacts and proposed mitigation measures for each of the three outputs and sub-activities.

Output 1. Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development. I	
Potential Adverse Impacts	**Mitigation Measures**
Activity 1.1. Strengthen the knowledge base and technical capacities for improved climate research and risk reduction strategies.	
OHS risks associated with field data collection	Contracts include OHS requirements The project will support the procurement of safety equipment Trainers/extension staff supporting the implementation of activities will be trained on OHS good practices, protocols, and equipment
Discrimination of women	At least 50% of project beneficiaries will be women, including proportional representation from indigenous groups and marginalized communities (including Dalits) Gender Action Plan includes measures to promote women´s empowerment and gender equality within the framework of the project. Diverse groups of women need to be included, such as indigenous women, dalit women, non-dalit and non-IP women etc.
Discrimination or limited engagement of Indigenous Peoples, Dalits, and other marginalized groups.	Indigenous peoples and social inclusion planning Framework include measures for the engagement and participation of indigenous peoples. Invitation of indigenous federations, Dalit organizations and ethnic minority organizations to participate within the project management platform, as well as in the role of project partners supporting awareness raising, training processes and implementation activities. This would include the use of customary institutions of Indigenous Peoples. Promotion of proportional representation within project beneficiaries of indigenous peoples, Dalits, women from diverse groups, and marginalized communities. Knowledge and communication focused activities will include information from national experiences, international best practices as well as local and indigenous knowledge. The integration of knowledge from diverse actors into extension and knowledge sharing platforms will promote social inclusion and allow diverse groups to build on local experiences and knowledge.
Trained staff may not be retained by Department, resulting in a loss of corporate knowledge.	Train the trainer program will allow additional staff to be trained, thereby increasing the pool of talent in the government. Selection of staff/participants to consider inclusiveness and diversity. Training can also be extended to communities where appropriate and would be inclusive, considering the needs of women, minorities, and other disadvantaged groups.
Activity 1.2. Develop public-private partnerships for sustainable investment in GLOF and flood risk information services.	
Additional sectors that could benefit may be missed.	Stakeholder engagement to be broad and inclusive. Engagement to include government, private sector, and communities. Incentives to private sector participation should not be limited to specific sectors, but rather to anywhere benefits can be derived and willingness to participate is demonstrated.
Messaging may not meet needs of beneficiaries, in particular vulnerable groups	Stakeholder Engagement Plan has been prepared and messaging to be based on broad beneficiary consultation and participation.

	A GRM provides a mechanism for anyone to raise concerns about the project. The GRM systemises the receipt, management and close out of complaints. Information to be accessible to multiple levels of user
Anticipated private sector investments may not be realized in a timely manner to support implementation.	Cooperation and coordination with the private sector will begin from project inception, and the project will implement awareness raising programs to help engage private sector actors.

Output 2. Improved hazard monitoring and the generation of early warnings, including the dissemination of early warnings to local communities and important economic sectors leading to reduced economic loss and loss of human lives from GLOF events	
Potential Adverse Impacts	**Mitigation Measures**
Activity 2.1. Improve observation network density in GLOF watersheds to strengthen the technical capacity of DHM for the monitoring of climate hazard and risk	
Impacts associated with installation of equipment ie construction impacts: Physical issues: air, water, noise pollution, sed/erosion Biological issues: impacts on flora and fauna Socio-economic: GESI, labour force etc	Existing sites and/or public land to be utilised land requirements for DHM infrastructure small (eg 4x6m or 10x10m) thus providing flexibility in site selection. LAP will be prepared to clearly outline the steps required to utilise public or private land. If private land required (ie for installation of EWS equipment), the process of negotiation and compensation will occur. Land acquisition will be based on willing buyer/willing seller and the following conditions: (i) land markets or other opportunities for the productive investment of the sales income exist; (ii) the transaction occurs with the seller's informed consent; and (iii) the seller will be provided with fair compensation based on prevailing market values No compulsory acquisition will occur. In some instances, private partners have offered use of their private land for installation of EWS equipment as a form of co-finance, but it is not anticipated that there will be any change of ownership in these cases. ESIAs will be prepared for each watershed. ESIAs will assess potential impacts associated with the project including physical, biological, and social. The ESIAs will be prepared by a team with appropriate qualifications and experience eg flora and fauna specialists from National Parks, GESI and IP experts, engineering specialists from ICIMOD and government. Based on the outcomes of the ESIAs, ESMPs will be developed (one for each watershed) to ensure appropriate monitoring is in place. Gender and Social Inclusion Plan IPPs will be developed to ensure coverage of IP issues GRM
Training -selection of staff to be inclusive/equitable	Training of trainers for the for the implementation of project activities should include men and women from indigenous groups, Dalit communities and other marginalized groups. LRPs who speak local languages should support trainers as well as awareness raising and information dissemination processes
Maintenance costs and management may not be appropriately budgeted for	Responsible parties are to be engaged in discussion regarding design and maintenance. O&M budgets to be determined and agreed Responsibilities for budget and implementation of work to be clear and transparent
OHS issues associated with in-field maintenance of equipment	ESMPs will include OHS requirements The project will support the procurement of safety equipment
Activity 2.2. Develop and implement early warning systems to strengthen adaptive capacity and response to GLOFs and other climate hazards in vulnerable sectors and communities	
Selection of trainees within DHM discriminates	Training to be inclusive and non-biased. Gender and Social Inclusion Action Plan and IPPF to be implemented.

Information dissemination may not reach all people including illiterate people	To ensure the widest dissemination local and accessible disclosure tools including audio-visual materials as well as flyers, brochures, videos and community radio broadcasts, and publications will be utilized in addition to other tools. The use of local/ethnic languages will be a focus of outreach documents. Furthermore, particular attention will be paid to farmers, indigenous peoples, illiterate or technologically illiterate people, people with hearing or visual disabilities, people with limited or no access to internet and other groups with special needs. Board/ committee members of community-based organizations, customary institutions, and Local Resource Persons will be local focal points who are able to facilitate ongoing communication with project beneficiaries. Local CSOs and project partners will be important to support information dissemination and communications at the local level, using locally accepted practices such as community-meetings, workshops, among other practices.
OHS associated with field maintenance	Operation and maintenance plan will include OHS requirements. The project will support the procurement of safety equipment.
Lack of culturally appropriate practices, technical assistance and information dissemination for the implementation of Activity	Indigenous Peoples Planning Framework includes measures to the engagement and participation of indigenous peoples within the framework of the project. Invitation of indigenous federations, Dalit organizations and other organizations representing marginalized communities, among other CSOs to participate within the project management platforms. Training of trainers for the consultations and workshops, as well as extension support should include men and women from indigenous groups, Dalit communities and other marginalized groups. The project GRM provides a mechanism by which anyone can raise concerns about the project.
Physical impacts associated with installation of equipment eg towers and sirens	The sites are relatively small, so significant adverse impacts are not expected, none the less, if any new accessways are required, then these will be assessed as part of the ESIAs by appropriately experienced specialists. Existing Rights of Way would be used. ESMPs will be developed to ensure appropriate mitigation measures and monitoring is in place.
Community-based disaster response plans fail to be inclusive or take into account local issues/variables	Plans to be developed in a participatory way with communities and ward leader. Participatory planning will help ensure that plans empower and engage highly vulnerable households, including indigenous peoples and Dalits. Emergency Response Procedures would include both workers and communities. The project activities include updating existing disaster response plans, which will benefit from the improved early warning systems that the project will provide as well as the physical structures that will reduce the risk of GLOFs and lessen the impacts of floods. Project to develop SEP. IPPF to ensure inclusion of IPs.

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Output 3. Reduced probability of GLOF events and flash floods, through disaster risk reduction measures implemented in priority glacial lake watersheds	
Potential Adverse Impacts	**Mitigation Measures**
Activity 3.1. Lower the levels of four of the highest risk glacial lakes.	
The lowering of the glacial lakes and the construction of flood structures may result in the diversion of surface or water that could be destructive	Design assessment, including hydrologic modelling, has been undertaken. The structural measures proposed have been vetted, designed and specifications are based on thorough dam breach models and safety protocols. These measures have all been vetted by officials of DHM. An

	independent technical review and site assessment will be conducted prior to construction of these structural measures and adjustments will be made, as necessary. During implementation, the engineers of DHM will be placed on-site to supervise and monitor construction activities. The purpose of the lake lowering is to reduce the risk to populations downstream in the event of a GLOF, the beneficiaries are all those who live adjacent to the rivers downstream of the glacial lake. In terms of populations potentially impacted by construction, as the project sites are located away from the settlements, project activities during construction period will not bring adverse impact on the community regards to disruption of local water supply system. Based on the experience of lake lowering work in Imja, lake water is gradually drained out through a controlled drainage system to be built. Water flows currently occur downstream of the terminal moraines due to runoff and meltwater. The lowering of lakes would be controlled release, similar to flood events, until the design depth is reached. At that point the moraines will operate as a 'run of river dam' naturally allowing water that flows onto the lake to continue flowing downstream. Activities 3.1 and 3.2 involve physical structures to help mitigate flooding, including diversion of flood waters. Flood structures must not result in destructive diversion. Operation and maintenance plan for lowering to be prepared
Construction impacts (physical, biological and socio-economic)	ESIAs will be undertaken to identify and assess potential impacts. ESIAs to include all components of the lake lowering activity, eg physical works in terminal moraine, downstream works, access tracks, resource supply and stockpiling, worker accommodation and conditions. The ESIAs will be prepared by appropriately experienced and qualified professionals. ESIAs and ESMPs will be submitted to GCF for review. Critical habitats will be avoided by the project. The area where lake lowering works would be undertaken (the terminal moraines) consists entirely of rock, sediments and ice, there is limited habitat diversity in these areas ESIAs will include assessment of biodiversity and identify any management and mitigation measures required. Based on the findings of the ESIAs, ESMPs will be developed to ensure appropriate monitoring is in place. In the unlikely event that the need for a Biodiversity Action Plan is identified then it would be prepared by specialists. Project sites are located away from the settlements, project activities during construction period will not bring adverse impact on the community regards to disruption of local water supply system. All construction activities will take place during the dry season, to limit damage due to monsoon rains and to limit soil erosion and sedimentation. A Chance Finds Procedure shall be applied in the event of discovery of cultural heritage items during construction.
Lake lowering structures have a negative visual impact on the landscape	Stakeholder engagement should include discussions on potential visual impacts. Visual aids to be used to communicate likely impacts. Local materials to be used where possible to reduce visual impact. Designs to consider inclusion of culturally appropriate elements, such as mani walls/stones, prayer wheels, stupas or prayer flag poles.
Residual risk of GLOF remains	The purpose of the lake lowering is to reduce the risk to populations downstream in the event of a GLOF, the beneficiaries are all those who live adjacent to the rivers downstream of the glacial lake. Interventions will not totally remove risk of GLOFs but will reduce significantly. Designs take account of likely climate change scenarios.

	Dam break modelling to determine areas of impact if catastrophic failure and assist in identifying mitigation measure designs and identifying 'safe zones'/escape pathways as part of EWS. Communities to be consulted on level of risk that will remain and trained in EWS action plans (capacity building for EWS included as part of Activity 2.2) Additional interventions aim to address some of residual risk. Periodic safety inspections will be undertaken as part of monitoring and maintenance regime. Information from Output 3 to be provided to agencies to allow update of existing DRR plans
OHS risks associated with construction and maintenance	ESMPs to include requirements for OHS management. Earthquakes and landslides are an ever-present risk in the high Himalayas. This risk is recognised in the National Park Management Plans. ESMPs to include Emergency Response Procedures. Labour management procedure to be put in place. Responsible parties and project contractors must: not employ workers under minimum age for employment as determined by national law for applicable parties subject to national law and consistent with the ILO Convention No. 138 not allow children under the age of 18 to perform work in connection with or arising from the project activities which, by its nature or the circumstances in which it is carried out, is likely to harm his/her health, safety or morals, not allow children under the age of 18, in connection with project activities, perform work that is likely to interfere with their compulsory education or be harmful to their physical, mental, spiritual, moral or social development. take immediate steps to correct and remedy any cases where child labour is identified. Guidance on hazardous work to be prohibited in connection with the project shall derive from the ILO Worst Forms of Child Labour Convention, 1999 (No. 182) and ILO Worst Forms of Child Labour Recommendation, 1999 (No. 190). Examples of hazardous work activities prohibited for children include work: (a) with exposure to physical, psychological or sexual abuse; (b) underground, underwater, working at heights or in confined spaces; (c) with dangerous machinery, equipment or tools, or involving handling or transport of heavy loads; (d) in unhealthy environments exposing children to hazardous substances, agents, or processes, or to temperatures, noise or vibration damaging to health; or (e) under particularly difficult conditions such as work for long hours, during the night or in unreasonable confinement on the premises of the employer. To this end, the project shall ensure that contractors have adequate systems in place to check workers' ages and keep records of the dates of birth of all employees and ensure that these requirements are complied with. Further, the project shall: screen the capacity of locally available pool of workforce with aim to avoid or reduce labour influx by hiring from the local pool of workforce, ensure Environmental Manager responsibilities regarding oversight of, and reporting on, labour influx and workers' camps (if any), provide influx workers with training on prevention and response to Gender-Based Violence, develop effective reporting and response protocol and referrals for safe and confidential survivor assistance, allow workers to raise their concerns (safety, discontent, maltreatment or else) through the Grievance Mechanism, complaints forms are to be

	present on the construction site, and promptly investigate allegations of Gender-Based Violence related to project activities Workers to use appropriate PPE and appropriate training to be provided Contractors to prepare Construction Emergency Medical Plans Operation and maintenance plan to be prepared Institutional arrangements for periodic safety inspections, emergency procedures, and overall operation and maintenance (O&M) of GLOF risk reduction, flood risk reduction, and plantation activities will be integrated within existing mandates of DHM and DoFSC. A structured coordination mechanism will be established to ensure effective collaboration among these agencies, local governments, and community-based organizations. The budget for safety inspections, security measures, and emergency procedures will be incorporated within the existing O&M costs, leveraging available resources without requiring additional allocations. Additionally, existing emergency response health facilities at the sites and other emergency protocols will be utilized to enhance preparedness and response during the project period as well as for O&M activities. Periodic capacity-building programs and inter-agency coordination will be set up for the post project scenario and will be clearly reflected in the Exit Strategy.
IPs could be adversely impacted due to the importance of lakes and other landscape features to them culturally	Early and ongoing engagement with national indigenous bodies (eg Nepal Federation of Indigenous Nationalities (NEFIN) and National Indigenous Women's Federation (NIWF). IPs have been engaged in the project development and continue to do so. IPPF to ensure appropriate engagement of IPs and their inclusion in project planning and implementation. As communities consider lakes and mountains as abodes of gods and goddesses, they have deep respect and a spiritual connection with their environment. Therefore, respecting their beliefs and seeking permission and advice on how to ensure that deities believed to be living in the lakes are not disturbed will be obtained prior to undertaking any work. It is critical that local customs are adhered to and that local sentiments are respected. The following is an example of some of the actions that were undertaken during the field investigations undertaken for the design phase: consultation with community leaders during planning of field trips to determine concerns and actions required religious figures from the community, local leaders, and community members invited to help perform rituals to appease the goddess (Nhepu) and seek her blessings. only start work after carrying out the rituals. undertake daily rituals eg burning incense and juniper leaves as part of a cleansing ceremony. Enumerating the total number of IPs associated with the project, will be an ongoing task as detailed site selection and design of infrastructure. Further discussions with IPs and the development of IPPs will occur as part of implementation. The IPPs will detail the measures (as identified by the IPs) that will be required to be undertaken to protect cultural heritage physical and spiritual.
Sourcing of materials and generation of waste	ESIAs to include consideration of materials and waste generated. Waste to be managed (removed) from construction sites in accordance with National Parks Management Plan. ESMPs to include Waste Management Sub-Plans. Materials to be sourced locally where possible. Lake lowering will include reusing materials excavated, so no loose spoil dumps will remain. Design includes downstream bank stabilisation and/or armouring. Area of disturbance will also be minimal. It is anticipated that rock material

	removed from the moraines to lower the lakes will be utilised within other works such as spillways, training wall, accessways etc. This will reduce the material needed to be sourced. Only authorised/legal sources of material to be used. Procurement to comply with the Nepal Public Procurement Act 2063 (2007), which addresses issues such as transparency, competitiveness and accountability, and financial administration. A labour management plan will also be prepared. ESMPs would include a Waste Management Plan. Water quality impacts will be managed via Sediment and Erosion Management sub-plans. The ESMPs, and their sub-plans, would be based on the findings of the ESIAs
Project activities could have a negative impact on the two National Parks in which works will occur.	National Park Plans of Management will be reviewed and confirmed to include works to lakes. If any amendments are required, the amendment will follow National Parks processes and will be done in such a way so that revision does not result in other untended exploitation or damaging activities within the park ie revision will be specific to the proposed GCF works. ESIAs will be undertaken to assess the impacts of the proposed works to ensure that any impacts are acceptable and manageable. Based on the findings of the ESIAS, ESMPs will be developed to ensure appropriate mitigation and monitoring is in place.
Social impacts associated with influx of workers (construction)	Local workers to be used where possible. A Labour Management Plan will be prepared. Demands on local infrastructure to be considered prior to importing workers contractor may be required to provide additional facilities (eg medical, accommodation or food). All activities will be closely monitored in coordination with the Department of National Parks and Wildlife Conservation potentially with support from the Nepal Army as per the government policy. This will reduce risk of poaching and increase readiness in event of natural disaster. GRM includes mechanism for managing GBV/SEAH
Activity 3.2. Construction of structural and non-structural measures (Civil and NbS/ Bioengineering) for the risk reduction of GLOF and flash flood	
Rights holders, particularly IPs, may not have the capacity to claim their rights.	Implement SEP and GRM Confirm land tenure at all project sites as part of detailed site survey during implementation stage (public land proposed to be used). A Land Acquisition plan (LAP) will be prepared. LAP to describe process for identification of tenure and process for obtaining legal use of land (note, there will be no compulsory land acquisition). The application of the LAP and IPP will ensure that land is unencumbered and that restriction of access to natural resources or traditional uses is not adversely impacted. In the case of use of public lands in the project, some sites legally belong to the local government but are managed by the IPs as prevailing customary rights of the IPs on the land. In a very few instances, where communities have customary user rights (but not legal ownership rights) these areas will be avoided, as far as possible. In cases where it is unavoidable, the local government will facilitate consultations with affected communities and use land for project activities only upon agreement of the affected communities. UNDP will work closely with the IP and other users who depend on public land to ensure that any public land used by the project is unencumbered and/or not land on which local livelihoods depend. IPPs to be developed for each catchment
Increased flows could damage interventions and/or downstream infrastructure	Designs have taken account of likely climate change parameters Modelling to test effectiveness of interventions under different scenarios has been undertaken Apply lessons learnt from Imja Lake project eg water to gradually drain out through a controlled drainage system.

	Periodic safety inspections will be undertaken as part of monitoring and maintenance regime.
Construction impacts (physical, biological, socio-economic)	Project sites are located away from the settlements, project activities during construction period will not bring adverse impact on the community regards to disruption of local water supply system. ESMPs to be developed. ESMPs to include a sediment and erosion plan. Heritage items, such as mani walls, stupas etc to be protected
Sourcing of materials and generation of waste	ESIAs to include consideration of materials and waste generated. Materials to be sourced locally where possible. As much as possible excavated material will be reused in the construction of the structural elements of the project. mainly in filling open areas and gullies and in stabilization of river channel embankments, including with bio-engineering measures and plantation on embankments. Only authorised/legal sources of material to be used.
Land required for installation of infrastructure	Public land to be prioritised. The majority (>95%) of construction activities will be on public land. Use of private land would be a last resort and due to sites on public land not being technically feasible. The sites where actual lake lowering work will be conducted are away from human settlements and the land there belongs to the government. So, there is no issue of land acquisition and compensation. For physical small-scale interventions downstream these areas fall mostly in government-owned land. However, where private land is required for construction work, standard practices will be followed, as in the case for other projects i.e. local governments will facilitate community negotiations, especially engaging affected private landowners. Public lands where communities have customary user rights (but not legal ownership rights) will be avoided, as far as possible. In cases where it is unavoidable, the local government will facilitate consultations with affected communities and use land for project activities only upon agreement of the affected communities. UNDP will work closely with the IP and other users who depend on public land to ensure that any public land used by the project is unencumbered and/or not land on which local livelihoods depend. LAP to be prepared which will outline processes required for use of public land, communal land and private land. Where access to private land required, the negotiations by PMU will be conducted and appropriate compensation agreed. Use/ acquisition of private land will be based on willing buyer/willing seller and the following conditions will be followed: (i) land markets or other opportunities for the productive investment of the sales income exist; (ii) the transaction took place with the seller's informed consent; and (iii) the seller was provided with fair compensation based on prevailing market values. No forced private land acquisitions. Community will be involved and provide approval to the use of any communal lands. Where it is indigenous peoples customary land, then FPIC mechanism to be applied.
Potential conflicts over the selection of priority intervention areas.	Stakeholder Engagement Plan has been prepared and the roles of stakeholders have been clearly indicated. Decision making is transparent and supporting studies and information (reports, minutes from consultations and workshops) are made publicly available. Strong focus on capacity building within all project activities will help raise awareness of climate risks and the link between climate change and natural disasters with unsustainable natural resource management, as well as the benefits of climate-resilient infrastructure.

	In the case where any household/ person feels discriminated against or has a problem with the project, they can access the project´s grievance redress mechanism.
Activity 3.3. Implement Eco-disaster Risk Reduction and nature-based solutions to reduce the impact of GLOFs and flash floods.	
Land required for installation of eco-DRR and nature-based solutions	Public land to be prioritised. No forced private land acquisitions. Community should be involved and agree to the use of any communal lands. LAP will be developed to describe the processes for obtaining legal right to use land use. Where it is indigenous peoples customary land, then FPIC mechanism to be applied. The application of the LAP and IPP will ensure that land is unencumbered and that restriction of access to natural resources or traditional uses is not adversely impacted,
Construction impacts (physical, biological, and socio-economic)	Scoped ESIAs to assess potential impacts ESMPs to be developed.
Site-specific impacts due to the inappropriate planting of tree species based on site conditions.	Guidance on site-species matching will be developed for project sites, providing information on key tree species that are adapted to the area and their ideal site-conditions. In addition to native species, the project will only promote tree species which are already locally adapted and do not pose a risk to the local biodiversity. It will ensure compliance with Nepal´s Forestry Policy (2015). If required, a Biodiversity Action Plan will be prepared.
In practice in may be challenging to have equal participation due to gender discrimination, especially against women from indigenous groups and marginalized minority groups	At least 50% of project beneficiaries will be women, promoting proportional representation from indigenous groups, Dalit communities and other marginalized groups. Gender and Social Inclusion Action Plan includes measures to promote women´s empowerment and gender equality within the framework of the project. The plan includes detailed measures that target women and aims to empower them within the project, whilst considering their differentiated contexts and vulnerabilities. PMU M&E specialist and PPSU staff will regularly monitor the implementation of the GAP and work together with CSOs and other actors to strengthen the engagement of women within the project.
Sourcing of materials eg trees and shrubs, rock	The establishment of small-scale community-based nurseries will comply with relevant national legislation (Forest Policy, Environmental Protection Act), and will promote equitable hiring policies ensuring equitable employment opportunities for women, indigenous peoples, Dalits and other marginalized households. Existing legal quarries or other sources of rock only to be used.

The ESMF lists the following additional safeguard measures that will apply to the project during the implementation,

including but not limited to:

- Gender Action Plan (prepared)
- Environmental and Social Impact Assessments (planned)
- Environmental and Social Management Plans (planned)
- Stakeholder Engagement Plan (prepared)
- Grievance Redress Mechanism (prepared)
- Indigenous Peoples Planning Framework (prepared)
- Indigenous Peoples Plans (planned)
- Operation and Maintenance Plans (planned)
- OHS plan (planned)
- Labour Management Plan (planned)
- Land Acquisition Plan (planned)
- Contractor Medical Emergency Management Plan (planned)
- Additional sub-plans anticipated to be included as part of the ESMP are:

- Sediment and erosion management plan
- Monitoring plan
- Biodiversity Action Plan
- Waste Management Plan
- GBV/SEAH Management Plan (may be included as part of the GAP)
- Heritage Management Plan
- Emergency Response Plan

The ESMF identifies the need for ongoing stakeholder engagement and provides an outline of the Stakeholder Engagement Plan as well as a Grievance Redress Mechanism. Important stakeholders in the project include indigenous peoples who live in and around the project areas. An Indigenous Peoples Planning Framework outlines the actions that will be required to ensure that the project is inclusive of indigenous peoples.

Through the application of the ESMF and its required sub-plans, the potential adverse impacts of the project can be minimised and managed within acceptable limits. The visible implementation of the safeguard measures and practices described in the ESMF provides the opportunity for awareness raising and capacity building with respect to good environmental and social practices within the stakeholder groups associated with this project.

Introduction

This Environmental and Social Management Framework (ESMF) has been prepared in support of a project proposal for "Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal" by the Government of Nepal to the Green Climate Fund (GCF). As this project is supported by UNDP in its role as a GCF Accredited Entity, the project has been screened using UNDP's Social and Environmental Screening Procedure and deemed a Substantial Risk project.

The ESMF enables facilitates the integration of environmental and social management into the development cycle of the project. While the exact location of some of the interventions (lake lowering Activity 3.1) are known, the exact locations and interventions for other outputs (eg Activities 2.1, 2.2, 3.2 and 3.3) will be finalised during implementation, and thus an ESMF was selected as the most suitable instrument.

The ESMF provides a summary of the project activities, a description of the environmental and social context that the activities will take place in, and an initial assessment of potential impacts. Sub-activities where possible environmental and social risks have been identified will develop environmental and social management plans (ESMP) that include information on the mitigation measures, indicators, responsibilities, and timeframes where the completion of such measures is expected.

Purpose of the ESMF

This ESMF is a management tool to assist in managing potential adverse social and environmental impacts associated with project activities, in line with the requirements of UNDP's Social and Environmental Standards (SES).

The Implementing Partner of the project and the relevant members of the project management unit will follow this ESMF during project implementation to ensure the environmental and social risks and impacts are assessed and management measures are in place prior to the implementation of the relevant project activities.

This ESMF identifies the steps for the assessment of the project's potential, identified social and environmental risks, and for preparing and approving the required management plans for avoiding, and where avoidance is not possible, reducing, mitigating, and managing the identified adverse impacts. Its scope covers all components of the project, with additional targeted assessments.

The ESMF also references the additional safeguard measures that apply to the project during the implementation, including but not limited to:

- Gender Action Plan (prepared)
- Environmental and Social Impact Assessments (planned)
- Environmental and Social Management Plans (planned)
- Stakeholder Engagement Plan (prepared)
- Grievance Redress Mechanism (prepared)

- Indigenous Peoples Planning Framework (prepared)
- Indigenous Peoples Plans (planned)
- Operation and Maintenance Plans (planned)
- OHS plan (planned)
- Labour Management Plan (planned)
- Land Acquisition Plan (planned)
- Contractor Medical Emergency Management Plan (planned)
- Additional sub-plans anticipated to be included as part of the ESMP are:
- Sediment and erosion management plan
- Monitoring plan
- Biodiversity Action Plan
- Waste Management Plan
- GBV/SEAH Management Plan (may be included as part of the GAP)
- Heritage Management Plan
- Emergency Response Plan

This ESMF will be publicly disclosed in line with UNDP's Information Disclosure Policy and SES and GCFs Disclosure Policy

The ESMF will be updated from time to time by the implementing Project Management Unit (PMU) in consultation with the UNDP to incorporate changes that may occur during project implementation.

Background

Nepal is a landlocked country located between India to the east, south, and west and Tibet to the north. It extendsroughly 800 km from east to west and 200km north to south. Nepal's topography varies dramatically, from the Himalayan heights (Everest 8,850m) to the Gangetic Plains of the Terai, however roughly 75% of the country is covered by mountains[65].

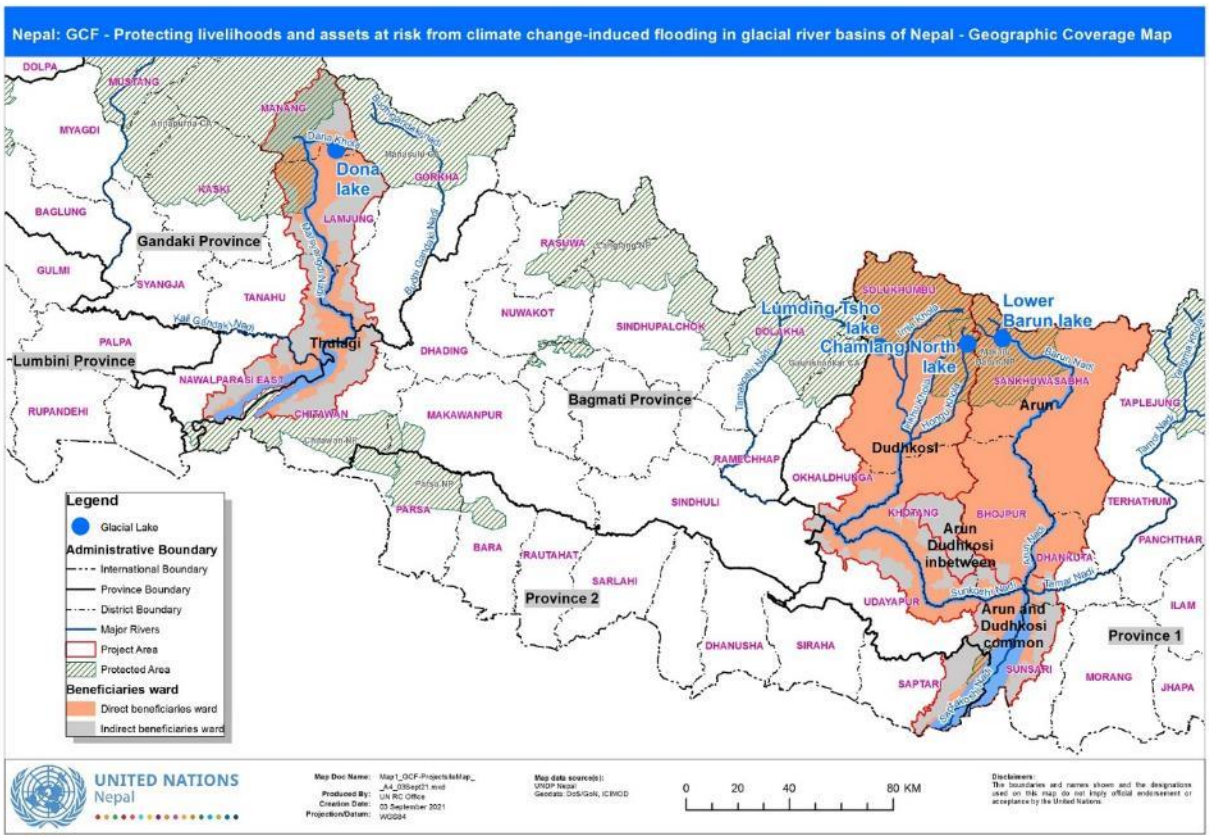
Increasing atmospheric temperature is causing glaciers to melt worldwide. Glacier melting leads to the formation of glacial lakes. Glacial lakes are formed when a glacier erodes the underlying terrain and subsequently melts, filling the depression with fresh water[66]. The resulting lakes are either dammed on the downstream end by moraines[67] or ice. Many of these lakes are considered extremely dangerous as their dams are unstable and have the potential to burst resulting in devastating Glacial Lake Outburst Floods (GLOFs). In Nepal, there are ~3,800 glaciers and ~2,000 glacial lakes, of these, 47 are considered potentially dangerous[68].

Historically, GLOFs have had catastrophic consequences in Nepal through the direct impacts of flooding and secondary impacts such as landslides, erosion, and sedimentation in river valleys. Since 1970s, 26 GLOF events have been recorded across 47 potentially dangerous glacial lakes, resulting in catastrophic consequences that have ranked Nepal, alongside Bhutan, as the most economically impacted country by glacial flood impacts. GLOFs cause severe flooding, landslides, and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supply from hydropower plants and tourism activities. In addition, floods often have substantial health impacts, with water- and vector-borne diseases spreading widely after flood events. Damage from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations.

In addition to GLOFs, Nepal is susceptible to floods resulting from extreme rainfall events, which have similar but less intense impacts on the population in comparison to GLOFs. During heavy monsoon cloudbursts, flash floods occur in the mountains, while in the southern plains, water breaches riverbanks and inundates large areas of land.

[65] https://www.britannica.com/place/Nepal
[66] Yao, X., Liu, S., Han, L., Sun, M. and Zhao, L., 2018. Definition and classification system of glacial lake for inventory and hazards study. Journal of Geographical Sciences. 28(2), pp. 193-205.
[67] A moraine is any glacially formed accumulation of unconsolidated glacial debris that occurs in both currently and formerly glaciated regions on Earth, through geomorphological processes.
[68] Bajracharya, S.R., Maharjan, S.B., Shrestha, F., Sherpa, T.C., Wagle, N., Shrestha, A.B. (2020). Inventory of glacial lakes and identification of potentially dangerous glacial lakes in the Koshi, Gandaki, and Karnali River Basins of Nepal, the Tibet Autonomous Region of China, and India. Research Report. ICIMOD and UNDP.

Furthermore, given the steepness of slopes and the swift flow of water bodies, heavy rains and flash floods often trigger landslides[69] that cause extensive loss of life and damage to infrastructure and the environment[70].



To address the risk of GLOFs and the associated impacts on downstream communities, there is an urgent need in Nepal to shift away from reactive and uncoordinated response to GLOFs towards a proactive, sustainable, and integrated approach to GLOF risk reduction that combines implementing tangible upstream and downstream risk reduction measures with improved technical and institutional capacity at the national and local levels to respond to an impending GLOF event.

The Government of Nepal with support from UNDP, is formulating a project on adaptation to climate change impacts "Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal " for submission to the GCF. The project will seek to improve the resilience of vulnerable communities to climate change impacts.

Specifically, direct investments from the GCF combined with co-financing will be used to: i) reduce the impacts of a GLOF and its residual impacts on vulnerable communities; ii) promote the adoption of GLOF EWS measures among national- and local-level decision-makers to enhance rapid response to an impending GLOF; and iii) strengthen the technical and institutional capacity of the Government of Nepal and local communities to implement GLOF risk reduction measures through targeted training and awareness raising. The combined effect of project interventions will result in the adoption and implementation of a climate-resilient, integrated approach to GLOF risk reduction and flood management that can be readily scaled up and replicated nationally and across South Asia.

Description of the Project

Project Location

Fourty seven glacial lakes in Nepal are currently considered potentially dangerous, four of which (namely the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Glacial Lakes) have been prioritised for urgent adaptation action. Thulagi Glacial

[69] Bhandari, B.P. and Dhakal, S., 2019. Topographical and geological factors on gully-type debris flow in Malai River catchment, Siwaliks, Nepal. Journal of Nepal Geological Society, 59, pp.89-94.
[70] DAHAL, R.K., 2012. Rainfall-induced landslides in Nepal. International Journal of Erosion Control Engineering, 5(1), pp.1-8.

Lake is in the Manang district, Lower Barun Glacial Lake is in the Sankhuwasabha, Lumding Tsho Glacial Lake and Hongu 2 Glacial Lake are in Solukhumbu district (Figure 12).

Figure 12 Locations of each of the target glacial lakes

Summary of Activities

The project will have the following activities:

Output 1. Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development.

Output 1 will improve DHM's technical and institutional capacity to develop and disseminate tailored climate risk information and establishing public-private sector partnerships to encourage investment into GLOF risk reduction in Nepal. The project activities that will be implemented under Output 1 are described below.

Activity 1.1. Strengthen the knowledge base and technical capacities for improved climate research and risk reduction strategies.

Activity 1.1 will strengthen DHM's institutional and technical capacity for implementing sustainable GLOF risk reduction strategies in Nepal. Methods and SOPs for the inventory and development of a spatial digital database (GIS) of glaciers and glacial lakes will be developed and institutionalized in DHM. The SOPs for the GIS database will focus on:

- data acquisition and frequency of data collection
- database management
- methodologies/standard procedures for analysis and quality control
- reporting and publication formats
- online geoportal management for the dissemination of reports.
- The establishment of the GIS database will be supported by geophysical investigation, as well as topographic and bathymetric surveys. SOPs for the investigation and surveys will focus on:
- pre-field planning of logistics, including equipment checks and survey layouts
- human resources management
- stepwise procedures for conducting field work
- Monitoring and Evaluation protocols
- report generation and publication formats for bathymetric, DGPS, GPR, ERT and other surveys.

Methods and tools will be introduced into DHM's operating procedures for GLOF hazard prioritization and mapping other extreme events. This hazard prioritisation will use the established GIS database, remote-sensing and satellite data, as well as ground-truthing and socio-economic vulnerability assessments.

Methodologies and SOPs for implementing integrated GLOF risk reduction in vulnerable watersheds will be developed, informed by the GIS database and hazard mapping that will also be undertaken under this activity. The relevant staff in DHM's Remote Sensing and GIS and Snow Survey and Glacier Lake Departments will be trained on regular/operational monitoring for risk prioritisation, as well as how to use the risk information generated to implement GLOF risk reduction strategies in Nepal's high-risk areas.

Activity 1.2. Develop public-private partnerships for sustainable investment in GLOF and flood risk information services

This activity will contribute to improving GLOF and flood risk reduction in Nepal by improving DHM's capacity to develop and disseminate climate risk information to major economic sectors (such as tourism and hydropower) and enhancing public-private sector partnerships to encourage future investment into GLOF risk reduction strategies in Nepal.

Under this project activity, policy provisions will be made, and extensive stakeholder consultations will be held with the relevant representatives from the target sectors to formalise and institutionalise long-term agreements to support the sustainable uptake of GLOF risk reduction in Nepal.

Output 2. Improved hazard monitoring and the generation of early warnings, including the dissemination of early warnings to local communities and important economic sectors leading to reduced economic loss and loss of human lives from GLOF events

Output 2 will strengthening Nepal's GLOF early warning system (EWS) as well as the capacity of Nepal's Department of Hydrology and Meteorology (DHM) to facilitate rapid information sharing and early action preceding a GLOF.

EWS coverage in the Gandaki Basin, and Dudhkosi and Arun Sub-basins will be extended to cover downstream communities that would be affected should the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes breach.

Specific details on the project activities that will be implemented under Output 2 are presented below.

Activity 2.1. Improve observation network density in GLOF watersheds to strengthen the technical capacity of DHM for the monitoring of climate hazard and risk.

Under this activity, hydrological and meteorological stations will be installed across high-risk GLOF watersheds to fill gaps in the current observational network. In response to the existing gaps in Nepal's observational network, the following interventions will be implemented under Activity 2.1:

Six base stations at Pangboche, Jayaram Ghat - Middle Hill, Tumlingtar (Turkighat), Chatara, Dharapani and Muglin (4 in the Marsyangdi Basin, 2 in the Dudhkosi Sub-basin and 3 in the Arun Sub-basin) to perform intensive monitoring that will produce high quality hydrology, sediment and water quality data.

Twenty-four automatic weather stations (AWS) at key locations in GLOF watersheds (7 AWS in the Marsyangdi Basin, 5 in the Dudhkosi Sub-basin and 12 in the Arun Sub-basin) to collect temperature, atmospheric pressure, humidity, horizontal wind and snow depth data.

Nine Precipitation gauges (PCP) at key locations in GLOF watersheds (2 in the Marsyangdi Basin and 7 in the Dudhkosi Sub-basin) to measure precipitation in the form of snow and rain.

Twenty-seven radar-based water level sensors (RLS) at key locations in GLOF watersheds (11 in the Marsyangdi Basin, 8 in the Dudhkosi Sub-basin and 8 in the Arun Sub-basin).

The real-time data acquired from this critical infrastructure will be used by DHM to: i) observe and monitor GLOF risk; ii) support EWS; and iii) assist with glacier modelling. Additionally, the real-time data acquisition system will integrate data from existing hydrology stations. EWS coverage, and the dissemination of warnings, will be expanded throughout Nepal to support real-time contact with communities vulnerable to GLOFs, using mobile phones, as well as to supplement insufficient coverage of vulnerable communities. To achieve this, all new meteorological and hydrological equipment installed under the project will be integrated into the existing EWS network and will use GCM technologies provided by service providers under Nepal Telecom Authority[71]. Furthermore, the observation of basic meteorological variables by the AWS will enable these stations to be included in the Global Basic Observing Network (GBON).

Activity 2.2. Develop and implement early warning systems to strengthen adaptive capacity and response to GLOFs and other climate hazards in vulnerable sectors and communities.

Activity 2.2 will improve Nepal's EWS to strengthen adaptive capacity and response among vulnerable communities in the target districts of Manang, Sankhuwasabha and Solukhumbu to GLOFs, rain-induced floods and other climate hazards.

The technical and institutional capacity of DHM will be strengthened to enhance the rapid dissemination of early warnings to: i) critical national and local entities involved in disaster response (including the National Emergency Operation Command (NEOC), District Emergency Operation Command (DEOC), Municipal Emergency Operation Command (MEOC), national stakeholders, district and local stakeholders, Local Emergency Operation Command (LEOC), Community Disaster Management Committee (CDMC)/Task Force, and local communities); ii) key actors in productive sector networks; and iii) vulnerable communities in the target districts and throughout Nepal. This will be achieved by training relevant technical staff at DHM in efficient and effective ways to generate and disseminate early warnings to improve community response to GLOFs. To ensure that the observation network remains operational, training will also be provided to the relevant staff on operating and maintaining the existing and newly installed hydrological and meteorological stations in the target basins.

[71] A list of appropriate service providers that use GCM technologies is available at: https://www.nta.gov.np/en/.

Information dissemination session and awareness about the early warning system will be provided to vulnerable communites including Indigenous Peoples, poor, Dalits who reside in flood prone areas.

Finally, low-cost towers with a free air satellite mode system will be installed, accompanied by the installation of 9 siren towers across the GLOF watersheds (4 towers in the Marsyangdi Basin, 2 in the Dudhkoshi Sub-basin and 3 in the Arun Sub-basin).

To ensure sufficient understanding among target communities of how to access and respond to early warnings, community-based disaster response plans will be developed for 10 districts in the target basins (namely Bhojpur, Dhankuta, Khotang, Okhaldhunga, Sankhuwasabha, Saptari, Sindhuli, Solukumbu, Sunsari and Udayapur). These plans will be developed in a participatory way with communities and ward leaders[72] in the target districts and provide step-by-step guidance on how to access early warning and what actions to take once an early warning is received, in line with CDMC protocols. Workshops and training will be delivered by representatives from NEOC, LEOC and CDMC on how to implement the actions contained in the response plans and response drills will be organised.

Output 3. Reduced probability of GLOF events and flash floods, through disaster risk reduction measures implemented in priority glacial lake watersheds

Output 3 will reduce the risk of GLOFs in the Gandaki Basin, and Dudhkosi and Arun Sub-basins.

To reduce the primary risk of a GLOF, the water levels will be lowered at the four priority lakes (Thulagi, Lower Barun, Lumding Tsho and Hongu 2). Lowering the water level of the lakes will reduce the potential of triggering a GLOF, as well as reducing the magnitude of a GLOF when one is triggered. Furthermore, a combination of grey and green infrastructure interventions[73] will be implemented downstream of the lakes to reduce the residual impacts of a GLOF after lake lowering. These downstream interventions will include: i) check dams and other infrastructure to divert GLOF and flash flood flow; and ii) Eco-disaster Risk Reduction and nature-based solutions. No associated facilities (under GCF definition) are foreseen as all required work is being undertaken as part of the project.

The project activities that will be implemented under Output 3 are summarised below.

Activity 3.1. Lower the levels of four of the highest risk glacial lakes.

Under this activity, the levels of the four highest-priority lakes will be physically lowered to reduce the volume of the lakes. This will involve several steps. First, detailed site-specific engineering designs will be undertaken for the lowering of the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes. These designs will be informed several on-the-ground assessments and validated by engineers and the AE before construction starts.

Once the designs have been validated, construction will lower the Thulagi, Lower Barun and Lumding Tsho by 3 m and the Hongu 2 Lake by 1 m.

The conceptual design for lowering the water levels of the four target lakes are summarised below.

The lowering of the Thulagi, Lumding Tsho, and Lower Barun Lakes will be undertaken through a 4-step process:

- the outlet channel will be blocked by a cofferdam.
- a diversion channel will be constructed to divert flow while the construction for the permanent lake lowering is undertaken.

[72] A ward is the smallest unit of local government in Nepal.

[73] "Green infrastructure refers to the interconnected set of natural and man-made ecological systems, green spaces, and other landscape features. It includes planted and indigenous trees, wetlands, parks, green open spaces and original grassland and woodlands, as well as possible building and street-level design interventions that incorporate vegetation, such as green roofs. Together these assets form an infrastructure network providing a wide range of services and strategic functions in the same way as traditional hard infrastructure" State of Green Infrastructure in the Gauteng City-Region (GCRO 2013). Available at: http://www.gcro.ac.za/media/redactor_files/Green%20Infrastructure%20Citylab%20information.pdf.

once the flow is diverted, a sluice gate will be constructed at an optimal location to be determined, with a trapezoidal shaped channel downstream of the original outlet channel where the temporary cofferdam is in place.

once the channel and sluice gate are in place, the cofferdam will be removed and the discharge channel, reinforced with boulder impact gabion walls to protect it against bank erosion, will be reopened. The diversion channel (which is at higher elevation from the main channel) will be left as an alternative channel for periods of high discharge maintaining the smooth flow in the main channel.

For Hongu 2, only the main channel is proposed. Since there is no outlet discharge of the lake, the end moraine itself will act as a sluice gate and no diversion canals are required. Once the main channels are built, the end moraine will be excavated to lower the glacial lake. Access tracks to be built will involve widening of existing tracks to improve access to sites. As the access track is to be funded by Government as part of the co-financing, it is considered part of the project and therefore not an associated facility. It should also be noted that the track will be built in areas that are either within the National Parks (where construction is enabled through NP Management Plans) or sites where right of way is already established (i.e. widening existing tracks).

Activity 3.2. Construction of structural and non-structural measures (Civil and NbS/ Bioengineering) for the risk reduction of GLOF and flash flood

Under this activity, check dams and other protective infrastructure will be established at strategic locations in the Dudhkosi and Arun Sub-basins to address the residual flood risk after lake lowering. Free Prior Informed Consent (FPIC) and consultation with Indigenous Peoples and other vulnerable communities will be undertaken to develop the check dams and other protective measures if they lie in their territory or they are likely to impact in their livelihood. The specific infrastructure that will be constructed under Activity 3.2 is:

- 3,102 m^3 of flood walls and RCC revetments will be built along stretches of riverbank where a high possibility of bank undercutting and inundation was identified.
- 67 conservation ponds will be established (38 in the Arun Sub-basin and 29 in the Dudhkosi Sub-basin) to reduce concentrated surface flow following a GLOF or during a monsoon or other extreme rainfall event and consequently prevent the formation of gullies and the triggering of shallow landslides. The conservation ponds are water detention basins designed to attenuate flows and are a common practice in Nepal. They will only fill during periods of high flow, with water flowing more slowly from them until they are dry. The ponds have also been designed to release water slowly to maximise opportunities for groundwater recharge and potentially be used by farmers for opportunistic cropping or irrigation during the dry season. The detention basins will be within floodplain areas ie areas that would periodically be inundated anyway, but as they will normally be dry they will not result in inundation of new areas. The ponds themselves are quite small and will be away from settlements and will be on public land. Farmers will be allowed access to them.

The infrastructure installed under this activity will provide immediate benefits to complement the long-term Eco-disaster Risk Reduction and nature-based solutions implemented under Activity 3.3.

Activity 3.3. Implement Eco-disaster Risk Reduction and nature-based solutions to reduce the impact of GLOFs and flash floods.

Under Activity 3.3, Eco-disaster Risk Reduction (Eco-DRR) and nature-based solutions will be implemented at strategic locations in the Dudhkosi and Arun Sub-basins to reduce the impacts of residual flooding from GLOFs on vulnerable communities in the basins, while simultaneously contributing to the restoration and rehabilitation of degraded ecosystems in floodplain areas.

Indigenous communities will be consulted for their indigenous knowledge and practices as part of nature-based solutions for GLOF and flood risk. It will be documented and integrated with the technical solutions.

The interventions under this activity include:

- planting 1.1 million trees along vulnerable riverbanks, sub-watershed areas and floodplains of four river systems
- constructing 16,414 m^3 of vegetative gabion walls
- building 978 km of live check dams
- constructing 19,310 m^3 of vegetative gabion revetments
- installing 1,575 m^3 of vegetative gabion check dams and 9,474 m^3 of vegetative dry stone check dams

- establishing 1,168 m^2 of vegetative stone rip-rap
- undertaking 111,750 m of brush layering
- planting 134,117 m^2 of grass seedlings.

These Eco-DRR and nature-based solutions will reduce soil erosion and increase the infiltration capacity of the soil in floodplain areas. This, in turn, will decrease surface runoff and reduce the sedimentation of tributaries caused by flooding in the project areas.

Indigenous communities who vulnerable to climate impacts will be made aware of climate change and its impact. A vulnerability assessment will be conducted and the communities provided with training on adaptation measures for livelihood diversification

Project Alternatives

Do Nothing Alternative

If no action is taken to reduce the risk of GLOF at the most potentially dangerous glacial lakes would mean that the risk of a catastrophic event would persist and continue to grow. GLOFs would eventually occur, and uncontrolled releases would cause catastrophic damage to downstream communities and ecosystems. Important infrastructure, such as hydropower stations, would also be at increased risk.

Therefore the 'do nothing' alternative is not considered a viable option.

Alternative Locations

Glacial lake outburst floods by definition are associated with glacial lakes, therefore alternative locations can only involve alternate glacial lakes. In Nepal, there are ~3,800 glaciers and ~2,000 glacial lakes.

Of the total number of lakes, 1,410 are larger or equal to 0.02 km^2, which are considered large enough to cause a glacial lake outburst flood (GLOF). To identify potentially dangerous lakes, the following criteria were used: i) characteristics of the lakes and their dams; ii) the activity of the source glacier; and iii) morphology of the surroundings. As a result of this analysis, 47 glacial lakes were identified as potentially dangerous glacial lakes (PDGLs). Of these 47 PDGLs, 21 are in Nepal, so alternative locations could have been selected. However, selection was based on the level of risk, as described below.

The identified PGDLs were then categorised into three ranks of hazard level based on their physical parameters. Most critical lakes are classified as Rank I. These have a greater possibility of expansion, are dammed by loose moraine material, and are at risk of snow or ice avalanches and landslides in their surroundings that may impact the lake. In Rank I lakes, a slight rise in the water levels of the lakes or reduction in strength of their dams could cause a breach, necessitating the implementation of potential measures for GLOF mitigation. The lakes classified under Ranks II and III have potential to expand and therefore require close and regular monitoring.

Of the 21 PDGLs identified in Nepal, four glacial lakes have been prioritized for intervention under the project, namely the Thulagi, Lower Barun, Lumding Tsho and Hongu 2 Lakes. The proposed lakes are all located in the northern Himalayan region of Nepal. Each of the target glacial lakes are located on unstable surroundings, with a high risk of GLOF events that threaten communities and infrastructure downstream, causing substantial socioeconomic consequences.

Description of Existing Environment

Physical Environment

Nepal is a landlocked country located in southern Asia, between China to the northeast and India to the southwest. Five physiographic zones broadly divide the country into east-west belts (Figure 13)[74] across an area of ~147,000 km^2. From north to south, these zones comprise the: i) Tibetan Plateau; ii) Greater Himalaya, a mostly uninhabited mountain range with elevations up to ~9,000 m; iii) Lesser Himalaya, a mid-mountain region between the Mahābhārat Range and the Greater Himalayas, which encloses the Kathmandu and Pokhara valleys, including the capital city of Kathmandu; iv) forested Churia foothills; and v) Terai, a low, flat fertile land adjacent to India which forms the northern extension of the Gangetic Plain[75]. While the southern regions of the country are relatively flat, high mountain ranges are the dominant

[74] More information available at: https://www.britannica.com/place/Nepal/The-economy
[75] The Gangetic Plain is the world's largest alluvial plan and covers ~2.5 million km2, encompassing northern regions of the Indian subcontinent including northern and eastern India, eastern parts of Pakistan, most of Bangladesh and the southern plains of Nepal.

landscape across the rest of Nepal covering approximately 75% of the country[76]. Of the world's 10 highest peaks, 8 of them are in the Greater Himalaya zone, including Everest as the highest and Kanchenjuna as the third highest[77].

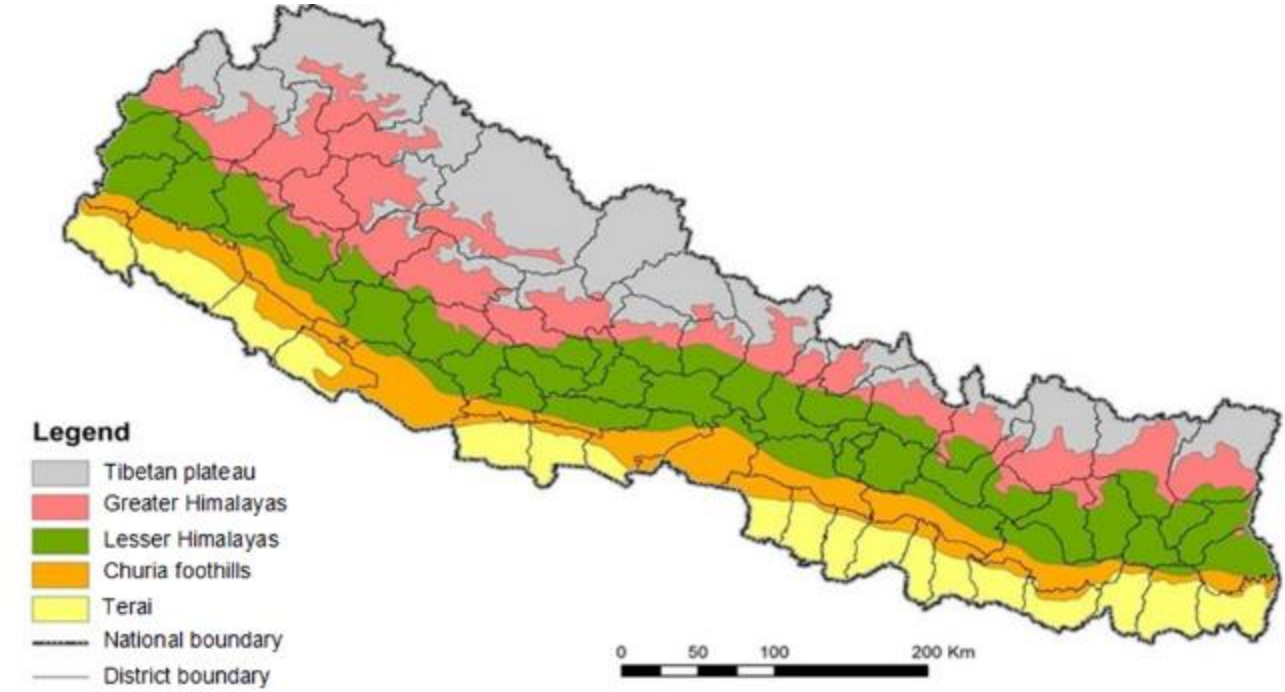


Figure 13 Physiographic regions in Nepal

Topography, Geology and Soils

Complexity of topography is the major feature, and inaccessibility is the major challenge of mountainous environments. Almost half of Nepal consists of mountainous areas with elevation exceeding 1800 m whereas high mountain areas exceeding 3000 m covers almost 30 percent of Nepal.

Nepal is an area of geologically very young mountains. The tectonic convergence of India and Asia since their collision about 50 million years ago resulted in horizontal shortening, crustal thickening and regional metamorphism in the Himalaya and beneath southern Tibet. Under the massive heat and pressure caused by the collision, the rocks changed repeatedly. The lowest level produced is schist. Above the schist is a large outcropping of light-coloured granite, and above this a belt of shale, limestone, marble and sandstone (the Yellow Band) formed when ocean floor sediments were compressed by the collision.

The mountains owe their height to two phases of uplift, the main thrust of which occurred only some 500,000-800,000 years ago. Two faults cut the Everest massif: the earlier Lhotse detachment, which has been locally folded, and the upper Qomolangma detachment which is exposed in the summit pyramid of Everest and dips north. The granite of the EverestLhotseNuptse massif consists of a massive ballooning sill of light-colored garnet/muscovite/tourmaline leucogranite up to 3,000m thick, which reaches 7,800m on the Kangshung face of Everest and on the south face of Nuptse and is the main reason for the great height of both mountains. The summit of Everest itself is a gray sandy limestone which was deep seabed of the Tethys Ocean some 325 million years ago (Searle *et al*., 2003). India continues to push north and to slide under Asia so the uplift slowly continues, counteracted by erosion. As a result, the Himalayas are still growing at a rate of a 4mm a year and Mount Everest itself is moving about 3-6mm millimetres northeastward every year (Swiss Foundation for Alpine Research, 1999). Because of this movement, tremendous stresses build in the Earth's crust, which are periodically relieved by earthquakes throughout the region.

As Nepal is characterized by soft-rock mountainous country with most of its geography falling under mountains and hills, so the project districts fall under fragile mountains. Various types of soil found in Nepal are alluvial soil, lacustrine soil, rocky soil and mountain soil. Alluvial soils in the terai and in river basins. This alluvial soil is very fertile in nature because it is formed by the materials deposited by rivers. The sandy and gravel soil are found in churiya where gravel and

[76] More information available at: https://www.britannica.com/place/Nepal#ref23636
[77] https://www.cia.gov/library/publications/the-world-factbook/geos/np.html

conglomerate are predominantly found. This is not fertile soil. The lacustrine soil found in the Kathmandu valley. The mountain soil is formed by where boulders, sands and stone brought by glacier are found. It is also not fertile.

The Land Resource Mapping Project (LMRP) carried out country-wide survey using the soil classification on Soil Taxonomy. The following major orders and groups have been described in Nepal:

- Entisols: These are the youngest and least developed soils. These are the soils found on hill sides and adjacent to river courses and on the steeper, less stable slope throughout the mountain regions. These are the soils formed through deposition of colluviums and alluvium and are present throughout the country. The parent materials are not exposed to soil forming factors. Lack of clear soil horizons is the distinguishing feature of these soils. Entisols are worldwide dominant soils. Fluvents, orthents and fluvaquents are the major groups of entisols found in Nepal.
- Inceptisols: are by far the most important soil order of Nepal. They are found in more stable landscapes than the Entisols, both agricultural and forestry uses are common on these soils. The relative stability of these landscapes permits some leaching of topsoil and weathering of the subsoil. Inceptisols show more significant profile development than Entisols but are defined to exclude soils with diagnostic horizons or properties that characterize certain other soils orders. Three major soil groups in inceptisols are: Aquepts, Ochrepts, and Udochrepts.
- Spodosols: are rare and indicate a stable but strongly leaching environment. Spondosols have strong reddish or black subsoils in which iron and organic have been deposited after initial leaching from the surface soil layers. They occur in stable landscapes at elevations above 3,000 m where conifers dominate the forest. Spodosols have a higher proportion of organic acids which accelerates weathering. This results in leaching of base cations, so Spodosols are not fertile soils.
- Mollisols: Soils with high organic matter content, usually under thick grass or forest, dark colour and high base saturation are classified under Mollisols. They develop on basic parent materials at higher elevations. They are formed on calcium rich parent materials and throughout rapid base recycling and/or low leaching, have maintained their high base saturation. Mollisols have been found sporadically in the Sal Forest of Upper Terai and southern exposed grassland sites in western Nepal at higher elevations. Vegetation removal for cultivation results in the rapid oxidation of the organic matter in the surface of these soils and they are converted over time to Ustochrepts.
- Alfisols: Soils with significant pedogenetic development, with obvious translocated clay in the subsoil and a high base saturation percentage. Alfisols are characterized by a subsurface diagnostic horizon in which silicate clay has accumulated by illuviation. Alfisols are common but do not make up a large percentage of the soil. They represent the most mature landscape positions throughout the sloping lands of the mountain regions and on older alluvium.
- Ultisols: Only one Ultisol of any significance occurs in Nepal- Rhodudult. It has low pH and low base saturation. These soils are restricted to the old Tars in Central and Eastern Nepal, and they represent the oldest most weathered soils found in Nepal. These soils are important to distinguish because soil acidification rapidly occurs due to use of chemical fertilizers. This soil is more weathered and acidic than Alfisols but less than Spondosols.
- Aridisols: Water deficiency is the major characteristic of these soils. These are soils that are dry for more than nine months of the year. They exhibit very little in the way of weathering and usually have free $CaCo_3$ and other salts at or near the surface. Aridisols are restricted to the rain shadow areas of the main Himalayan massive, where rainfall is less than 30mm. the areas north of Jomsom are aridisols. They can be productive with irrigation.

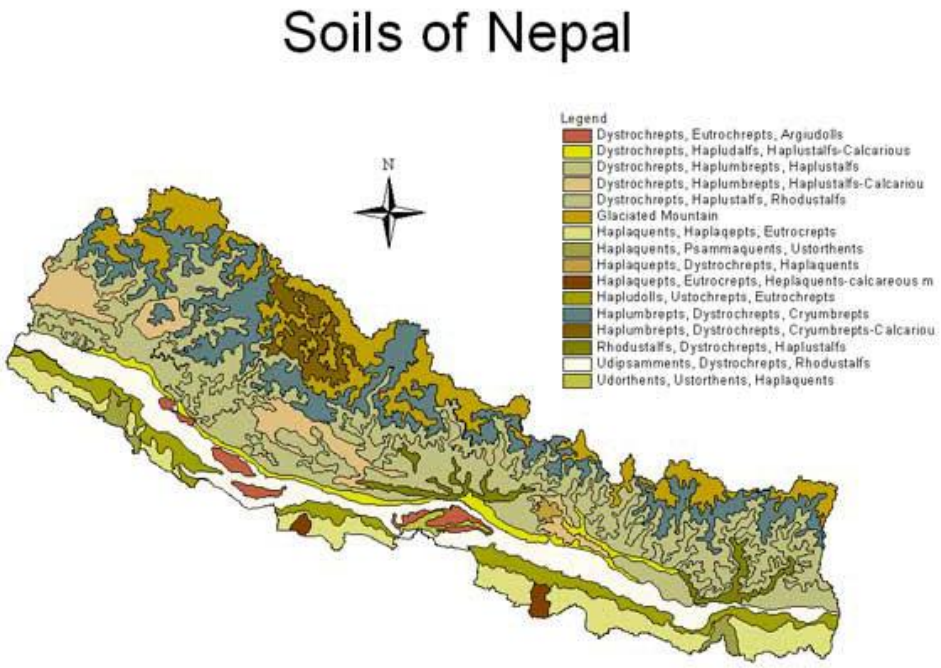


Figure 14 Soil types in Nepal

Indigenous classification of soil

Among the most important physical properties of soils considered by farmers is soil texture. The textural classes differentiated by farmers in the field and their equivalent USDA soil texture classes are listed in Table XIII-1. Farmer's textural classifications are used primarily for crop selection and soil management.

Table XIII-1 Indigenous terms for texture classification

Local name	USDA Texture Class
Pango	Silty loam/silt
Balaute	Sand
Domat	Loam
Balaute Domat	Sandy loam
Balaute Chimte	Sandy clay loam
Domat Chimte	Clay loam
Chim	Clay
Gagren	Gravelly
Masino	Fine
Chimte	Very fine (clay) soil

Seismic Activity

Nepal is in a seismically active area. The country lies in one of the active continental collision zones of the world; the Himalaya, where the probability of earthquake occurrence is very high. Nepal is divided, by level of shaking hazard, into three major seismic zones from south to north (Figure 15), separated by major thrusts and faults. These zones are elongated in a general east-west direction, with the middle part of the country slightly more prone to shaking than the

northern and the southern parts. A study has identified 92 faults in Nepal.[78]. Nepal on a regular interval witnesses' earthquake along the major active faults in east-west alignment. Historical data and ongoing seismological studies have clearly indicated that the entire region of Nepal is prone to earthquakes. According to Global Report on Disaster Risk, Nepal ranks the 11th position in terms of earthquake risk.[79]

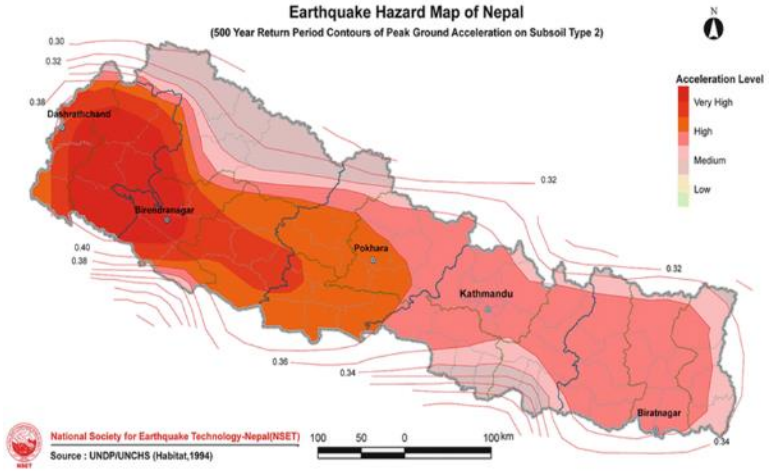


Figure 15 Earthquake hazard map of Nepal[80]

Many destructive earthquakes have been reported in the historical records within the Himalayan arc. The first documented earthquake event in the country dates to 7 June 1255, during the reign of King Abhaya Malla. The quake, measuring 7.8 on the Richter scale, took the life of the king and wiped out a third of Kathmandu's then population. Nepal has witnessed at least one major earthquake per century ever since.

Historical data has shown that the country witnessed three major earthquakes in 20th century namely Bihar-Nepal earthquake (1934), Bajhang earthquake (1980) and Udayapur earthquake (1988). According to Global Report on Disaster Risk, Nepal ranks the 11th position in terms of earthquake risk as earthquakes have often occurred in Nepal. In 2015, there was 7.8 Richter scale magnitude of earthquake occurred with epicentre Gorkha district west from Kathmandu. More than 10,000 lives were lost, as well as loss of animals and property.

Earthquakes and landslides can happen across the country, as shown in Figure 15. Generally, the project catchments lie within zones of medium to high earthquake risk. The lakes are located in Koshi Province (Koshi Basin) and the seismicity is high as shown in the figure.

Landslides

Landslide is one of the very common natural hazards in the hilly region of Nepal. Both natural and human factors such as steep slopes, fragile geology, high intensity of rainfall, deforestation, unplanned human settlements are the major causes of landslide. The risk of landslide is further exacerbated by anthropogenic activities like improper land use, encroachment into vulnerable land slopes and unplanned development activities such as construction of roads and irrigation canals without proper protection measures in the vulnerable mountain belt. The hilly districts of Nepal located in the Siwalik, Mahabharat range, Mid-land, and fore and higher Himalayas are more susceptible to landslide because of steep topography and fragile ecosystem[81].

Losses resulting from landslides are extremely high, with a negative impact on households as landslides create more permanent loss of land with a longer rehabilitation period[82]. These severe impacts are exacerbated by the remote

[78] UNDP/UNCHS-Habitat, (1994); Seismic Hazard Mapping and Risk Assessment for Nepal, UNDP Nepal
[79] Nepal Disaster Risk Reduction Portal, drrportal.gov.np
[80] Parajuli, Ms & Jimee, Ganesh & Guragain, Ramesh. (2012). Developing and implementing emergency respone plan of a zonal hospital in Nepal. 10.13140/2.1.3308.2245.
[81] Nepal Disaster Risk Reduction Portal, drrportal.gov.np
[82] Sudmeier-Rieux, K., Jaquet, S., Basyal, G.K., Derron, M., Devkota, S., Jaboyedoff, M. and Shrestha, S., 2013. A neglected disaster: landslides and livelihoods in Central-Eastern Nepal. In Landslide Science and Practice (pp. 169-176). Springer, Berlin, Heidelberg.

locations of many communities in the Middle Hills, where most landslides occur and where transportation costs are higher, increasing the cost of delivering relief resources and services[83].

Landslides are a secondary risk of GLOFs as the flood water can inundate soil and destabilise masses of land, in the same way as intense rainfall events[84]. As the risk of GLOF occurrence grows under climate change, and if factors that contribute to landslide occurrence such as deforestation remain present, the risk of landslides in Nepal rises. It is not possible to predict landslides well at the small scale associated with individual project sites, therefore this document has provided the broad context (Figure 16). None the less, it can be seen from Figure 16, that the risk of landsides is medium to high for most of the areas that the project will be operating in.

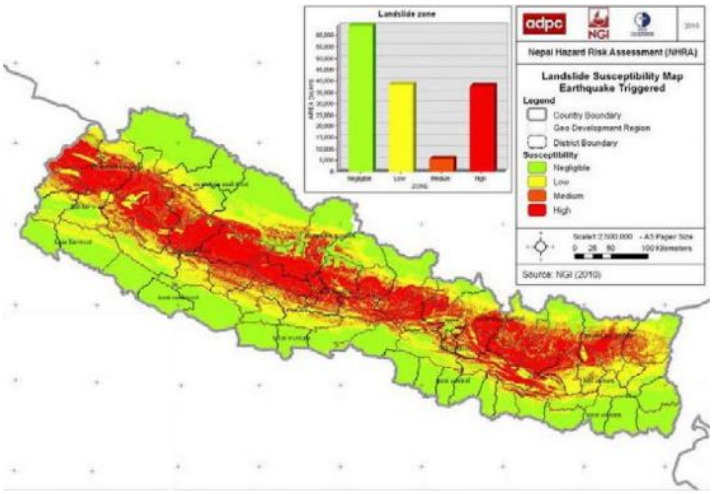


Figure 16 Landslide risk

Climate

Nepal's unique physiographical and topographical characteristics result in a highly variable climate across the country. Conditions range from subtropical or temperate in the southern Terai to polar frost and temperatures consistently below freezing in the northern Himalayas, despite the two regions only being ~200 km apart. Annual seasons in Nepal can be divided into a wet season, which consists of pre-monsoon season (MarchMay) and monsoon season (JuneSeptember), and a dry season, which consists of a post-monsoon season (OctoberNovember) and winter (DecemberFebruary). In addition to the temporal variation of wet and dry seasons in Nepal, precipitation also varies spatially from southeast to northwest regions, as a result of two major weather systems. The southwest monsoon winds cause high levels of rainfall in the south-eastern parts of the country during monsoon season, while in the north-western areas the Himalayas serve as a barrier to north-eastern winds blowing from Central Asia during winter, subsequently resulting in predominantly winter rainfall.

While Nepal is dominated by a temperate climate with dry winters and hot summers. Polar conditions feature at higher altitudes along the northern border of the country, with intermediate cold climates south of the higher peaks, transitioning into tropical conditions along the southern border[85]. The country's mean annual temperature is ~12°C and average annual rainfall is ~1,360 mm[86] (Figure 17). Winters are generally dry and in the summer months (JuneSeptember) the monsoons drive the rainfall in Nepal as they migrate through the country. These monsoons bring 250450 mm of rainfall each month to most of the country except for the north-western mountains that receive 100150 mm/month. The monsoon season is strongly influenced by global climatic variations such as the El Niño-Southern Oscillation (ENSO) and Southern Oscillation Index (SOI), which result in variability and increased intensity of the monsoon rainfall patterns[87].

[83] Jones, J.N., Stokes, M., Boulton, S.J., Bennett, G.L. and Whitworth, M.R.Z., 2020. Seismic and monsoon-triggered landslide impacts on remote trekking infrastructure, Langtang Valley, Nepal. Quarterly Journal of Engineering Geology and Hydrogeology, 53(2), pp.159-166.

[84] Chahal, P., Rana, N., Bisht, P., Bagri, D.S., Wasson, R.J. and Sundriyal, Y., 2017. Identification of landslide-prone zones in the geomorphically and climatically sensitive Mandakini valley (central Himalaya), for disaster governance using the Weights of Evidence method. Geomorphology, 284, pp.41-52.

[85] Karki, R., Talchabhadel, R., Aalto, J. and Baidya, S.K., 2016. New climatic classification of Nepal. *Theoretical and applied climatology*, *125*(3-4), pp.799-808.

[86] https://climateknowledgeportal.worldbank.org/country/nepal/climate-data-historical. Accessed 23 July 2020

[87] Sigdel, M. and Ikeda, M., 2012. Summer monsoon rainfall over Nepal related with large-scale atmospheric circulations. J Earth Sci Climate Change, 3(112), p.2.

The country can be divided into five regions with distinct climates; these are: i) the Terai plains; ii) the Siwalik hills; iii) the Middle Mountains; iv) the High Mountains; and v) the High Himalayas[88]. The Terai plains lie below 300 masl with humid tropical climates and average temperatures of 30°C in the summer and 1015°C in the winter. The more elevated areas, such as the Siwalik hills at 3001,500 masl, have a moist tropical climate and average annual temperatures of 25°C. A temperate zone features across the Middle Mountains at elevations of 1,0002,500 masl, with average annual temperatures of 20°C. The High Mountains located 2,2004,000 masl, have a cool, sub-alpine climate with average summer temperatures of 515°C and winter temperatures below 0°C. Extreme conditions dominate the High Himalayas, an alpine to arctic zone higher than 4,000 masl with average annual temperatures of <0 to 5°C[89].

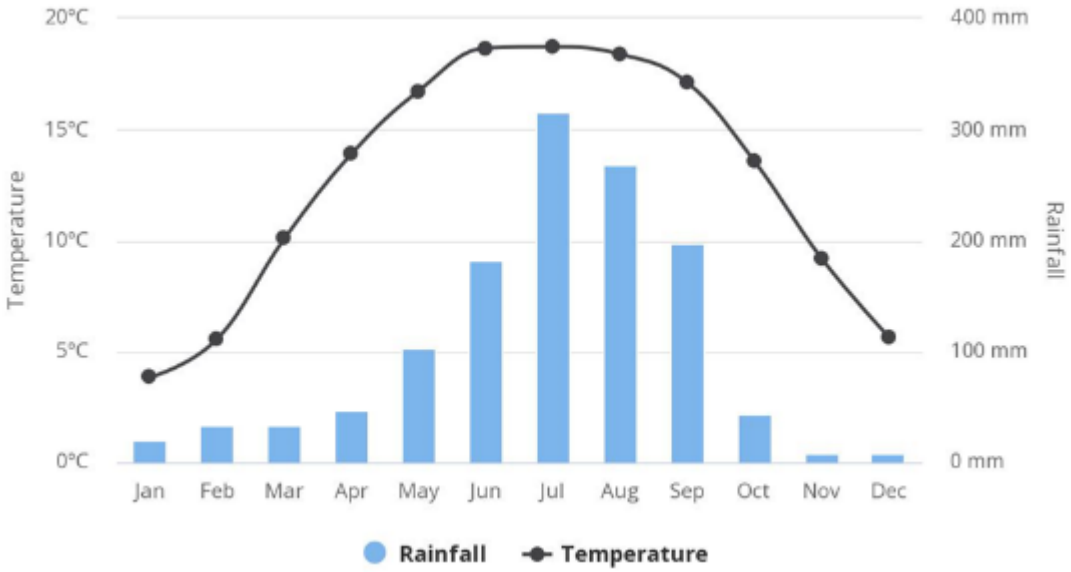


Figure 17. Average monthly temperature and rainfall of Nepal for 19912016[90].

The monsoons present severe threats to Nepal, with subsequent new record downpours being recorded almost every year with a trend of increasing rainfall and the associated floods and landslides resulting in loss of life and extensive damage to infrastructure.

Since 1950, a total of 51 floods have been recorded in Nepal. Of these, 17 occurred within the last decade, becoming a nearly annual occurrence from 2016 to 2021. All floods in Nepal since 2010 have been attributed to monsoon rainfall[91].

Temperature

Historically, Nepal's average annual temperatures have been stable, with only minor fluctuations since 1901 (Figure 18). Regarding the temperature trend over the last 60 years, there have been some conflicting findings with some studies reporting a decrease in dry season temperatures[92], while others indicate an increase between 0.5°C0.6°C per decade, particularly in the northern mountains[93,94,95,96]. However, the frequency of cold days and nights per year has decreased significantly, by 5% and 8%, respectively[97]. The mean number of warm days, warm nights[98], cold days and cold nights is

[88] Karki, R., Schickhoff, U., Scholten, T. and Böhner, J., 2017. Rising precipitation extremes across Nepal. Climate, 5(1), p.4.
[89] Pokharel, B., Wang, S.Y.S., Meyer, J., Marahatta, S., Nepal, B., Chikamoto, Y. and Gillies, R., 2020. The east–west division of changing precipitation in Nepal. International Journal of Climatology, 40(7), pp.3348-3359.
[90] https://climateknowledgeportal.worldbank.org/country/nepal/climate-data-historical. Accessed 23 July 2020
[91] UNDRR. DesInventar Sendai databank. Accessed: 5 August 2020.
[92] Mcsweeney, C., New, M., Lizcano, G. and Lu, X., 2010. The UNDP Climate Change Country Profiles: Improving the accessibility of observed and projected climate information for studies of climate change in developing countries. Bulletin of the American Meteorological Society, 91(2), pp.157-166.
[93] Shrestha, A.B., Wake, C.P., Mayewski, P.A. and Dibb, J.E., 1999. Maximum temperature trends in the Himalaya and its vicinity: an analysis based on temperature records from Nepal for the period 1971–94. Journal of climate, 12(9), pp.2775-2786.
[94] Dhakal, S., 2003. One World South Asia. Kathmandu Nepal.
[95] Liu, X. and Chen, B., 2000. Climatic warming in the Tibetan Plateau during recent decades. International Journal of Climatology: A Journal of the Royal Meteorological Society, 20(14), pp.1729-1742.
[96] DHM, 2017. Observed Climate Trend Analysis of Nepal (1971-2014). Department of Hydrology and Meteorology, Kathmandu
[97] https://climateknowledgeportal.worldbank.org/country/nepal/climate-data-historical Accessed: 11 August 2020
[98] Nights when the minimum temperature is higher than the 90th percentile

36.5 for all four indices for the period 19812010[99]. For the same period, the average annual number of warm spell days is 17.6 days, while the average annual number of cold spell days is 20.3[100].

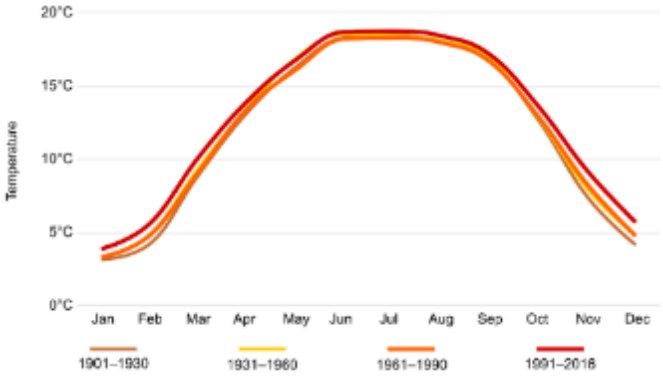


Figure 18. Average monthly temperatures in Nepal from 19012016[101].

Air Quality

In the project district there is no air pollution. However, based on the World Health Organization's guidelines, the air quality in Nepal is considered unsafe - the most recent data indicates the country's annual mean concentration of PM2.5 is 100 µg/m3, exceeding the recommended maximum of 10 µg/m3 particularly in urban areas. Issues include open burning of refuse, dust and industry and vehicle emissions.

Hydrology

Over 80% of the land area of the country is drained by three major river systems, thus producing three principal river basins. These basins are Koshi basin in the east, the Karnali basin in the west and the Gandaki basin, which is a transition zone. The principal rivers of each of the three drainage systems originate in the Trans-Himalayan region and flow south fed by numerous tributaries arising in the hill region.

Nepal has abundant water resource availability, with natural water sources available in the form of rivers, springs, lakes, and groundwater. As a result, water is one of the most important natural resources in the country. Forming part of the larger Ganga River Basin, Nepal has an estimated 6,000 rivers and streams, which have a cumulative length of 45,000 km. Rivers in Nepal can be classified into three groups based on their origin. The first is snow fed rivers, which originate from snow and glaciated regions in the Himalayas. As a result of being fed by melting snow and glaciers, the flow of these rivers is perennial, and their flow is sustained during the dry season. This reliable flow combined with the surrounding steep topography, provides opportunities for hydropower generation and irrigation downstream. The second group of rivers originate in Nepal's middle mountains and hilly regions and while they are affected by monsoon and precipitation patterns in the country, groundwater sources sustain flow at a low level during dry seasons. The third group of rivers originate in the Churia foothills, with flow depending on monsoon precipitation and accordingly, they can be fully depleted during non-monsoon seasons.

All these factors contribute to Nepal being one of the most water-rich countries in the world, accounting for 2.27% of the world's water resources[102]. These abundant water resources in the form of snow cover, rivers, springs, lakes, and groundwater amounted to a per capita water availability of 7,000 m^3/yr in 2016[103]. The country's total renewable water resources are estimated to be 237 km^3/yr, of which 225 km^3/yr represents surface sources and 12 km^3/yr represents groundwater sources[104].

[99] DHM, 2017. Observed Climate Trend Analysis in the Districts and Physiographic Regions of Nepal (1971-2014). Department of Hydrology and Meteorology, Kathmandu.
[100] DHM, 2017. Observed Climate Trend Analysis in the Districts and Physiographic Regions of Nepal (1971-2014). Department of Hydrology and Meteorology, Kathmandu.
[101] https://climateknowledgeportal.worldbank.org/country/nepal/climate-data-historical Accessed: 11 August 2020
[102] HEMS (2015). LUPWY Documentation. Developer Manual. Health and Environmental Management Society (HEMS), Chundevi, Kathmandu, Nepal.
[103] Nepal, S., Neupane, N., Belbase, D., Pandey, V.P. and Mukherji, A., 2019. Achieving water security in Nepal through unravelling the water-energy-agriculture nexus. International Journal of Water Resources Development, pp.1-27.
[104] Water Environment Partnership in Asia.

Another natural source of freshwater in Nepal is snow cover. Snowmelt from the Himalayas maintains the water levels in downstream rivers and wetlands, thereby providing important ecosystem services and supporting dependent livelihoods. Snow cover in the Himalayas also provides substantial natural freshwater storage in the form of glaciers, permafrost, and glacial lakes. Subsequent snow-melt discharges maintain the water levels in downstream rivers and wetlands, providing critical ecosystem services and supporting their dependent livelihoods.

The main hydrological features relevant to the project areas are Dana Khola, Marsyandi Nadi, Duchi Gandaki Nadi, Kali Gandaki Nadi, Tamakoshi Nadi, Inkhu Khola, Imja Khola, Hongu Khola, Baurn Nadi, Arun Nadi, Tamar Nadi, Sunkoshi Nadi and Yangma Khola (Figure 12).

There are 62 lakes in the project districts (Table XIII-2).

Table XIII-2 Number of lakes by project Districts[105]

District	Number of lakes
Sankhuwasabha	15
Solukhumbu	32
Bhojpur	5
Dhankuta	1
Khotang	7
Okhaldhunga	2
Total	**62**

Water pollution occurs during rainy season due to floods, surface runoff and landslides. Water pollution through natural processes is insignificant in Nepal. Domestic sewage and industrial effluents are the major contributors of water pollution in urban and industrial areas away from the project districts. Haphazard urbanisation and inadequate sewerage facilities have accelerated the discharge of domestic liquid wastes without any treatment.

Groundwater / Springs

Natural hot springs are in various parts of Nepal:

- Hotiyana in Sankhuwasabha, Koshi zone, Eastern Nepal.
- Syabrubesi and Chilime in Rasuwa, North of Kathmandu.
- Bhurung, Do Khola, Singha, Chhumrung and Dhadkharka in Myagdi district.
- Jomsom and Dhima in Mustang.
- Chame and La Ta in Manang district.
- Bhulbhule Khar in Tanahu district.
- Tapoban in Bajhang district.
- Dhanachauri (Luma) and Tila river in Jumla.
- Srikaar, Sina and Chamlaiya in Darchula.
- Riar, Saghu Khola, Sarai Khola in Middle development region of Nepal.
- Hotiyana of Sankhuwasabha district is the only one known from the project districts.
- Flora and Fauna

Nepal is a small country, covering only 0.09% the Earth's land surface, but it is very important to global conservation as it is at the heart of the Himalayan Region - one of the world's top 20 hottest global biodiversity hotspots, and the many and varied habitats support a great diversity of living organisms.[106]

http://www.wepa-db.net/policies/state/nepal/state.htm#:~:text=STATE%20OF%20WATER%20RESOURCES,springs%2C%20lakes%2C%20and%20groundwater. Accessed: 24 July 2020.

[105] https://www.researchgate.net/publication/265068675_A_Map_Based_Inventory_of_Lakes_in_Nepal

[106] Shrestha & Joshi, 1996

Flora

Land cover varies across the watersheds, based largely on altitude (Figure 19, Figure 20, Figure 21). The vegetation in the Himalayas can be broken up into six categories:

- Tropical (<1000m) - below 1000m, forests are dominated by sal trees. Other signature plants that you will find in the tropical zone include tall elephant grasses and acacia. Also, rosewood trees and silky cotton trees, which produce bright red flowers every spring
- Subtropical (1000m to 2000m) - gaining altitude, the sal forests give way to the more cold-tolerant species, including the distinctive chir pine. Deciduous trees include autumn-blooming chestnuts and the spring-blooming schima, a fruiting tree species distantly related to the tea bush.
- Lower temperate (1700m to 2700m) - above 1700m, evergreen oaks start to appear. Where there is sufficient water, there may also be horse chestnut, maple, walnut, alder, and birch trees. The deciduous forests are broken up by swathes of blue pines, which flourish on south-facing slopes.
- Upper temperate (2400m to 3000m) - in the upper temperate zone, the brown oaks are joined by dozens of species of rhododendron, the most distinctive plant of the Himalaya. Pin forests at this elevation are made up of blue pines, spruces, firs and hemlocks.
- Sub-alpine (3000m to 4000m) - approaching the treeline, silver fir, birch and oak trees dominate the forest. Exposed ridges and passes are dominated by shrub rhododendrons and dwarf bamboo. On dry slopes there may be stands of twisted junipers, though this species has been almost eradicated in many areas by harvesting for firewood.
- Alpine (4000m to snowline) - there are almost no trees at all above 4000m, though a few species of ground-hugging rhododendrons persist almost as far as the snowline. In the alpine meadows that define this elevation, are distinctive alpine flowers like edelweiss, gentians, anemones and stellara, which can survive up to 5500m.

Timber trees that occur in and around areas of habitation include: Salla (Pines), Sissau, Uttish, Tuni, Bamboo, Chilaune, Khair and Katush. While important fodder trees include: Kutmero, Khaeu, Bhimal, Dudelo, Bhimsenpati, Taki/Koiralo.

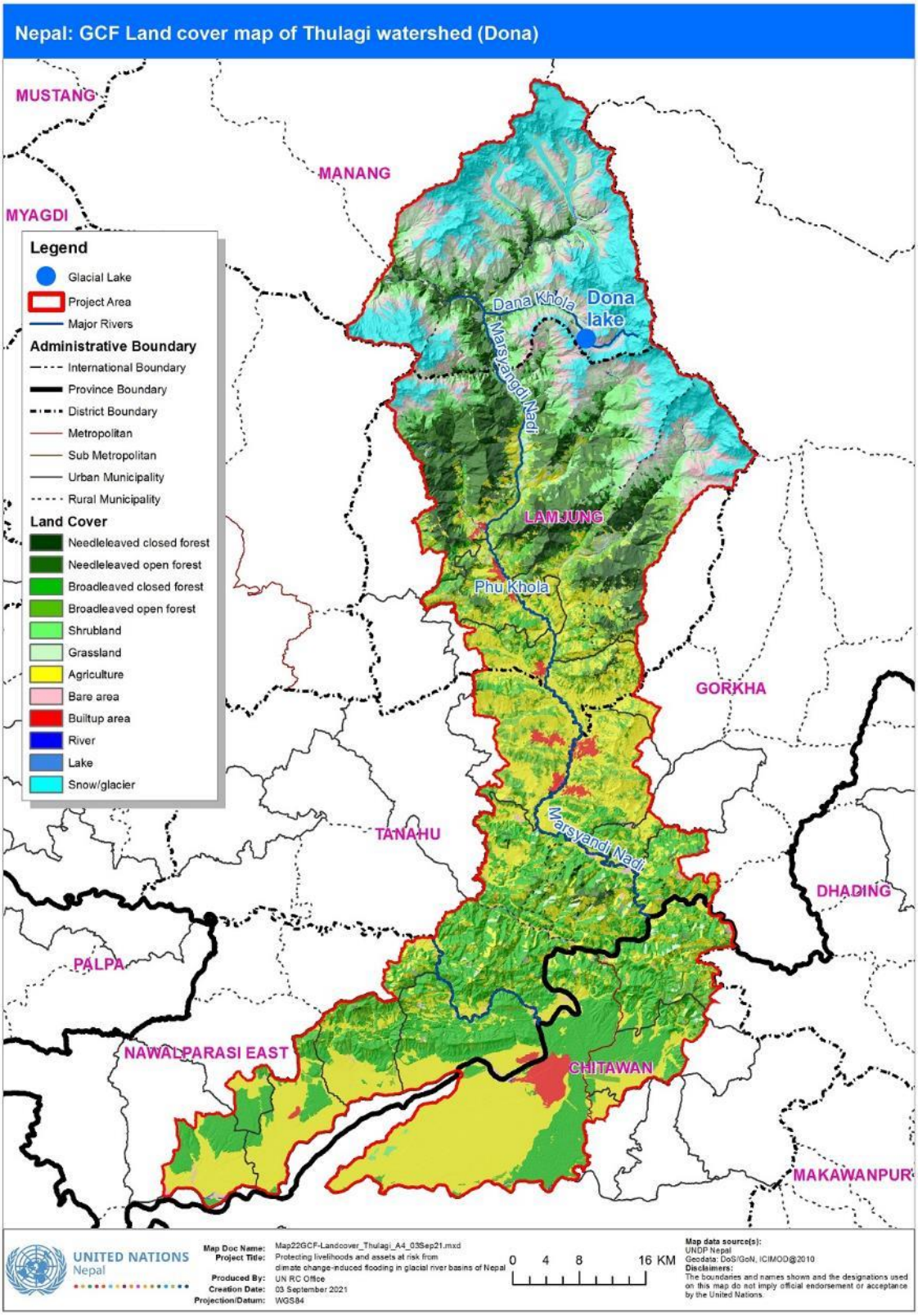


Figure 19 Land cover in the Thulagi watershed

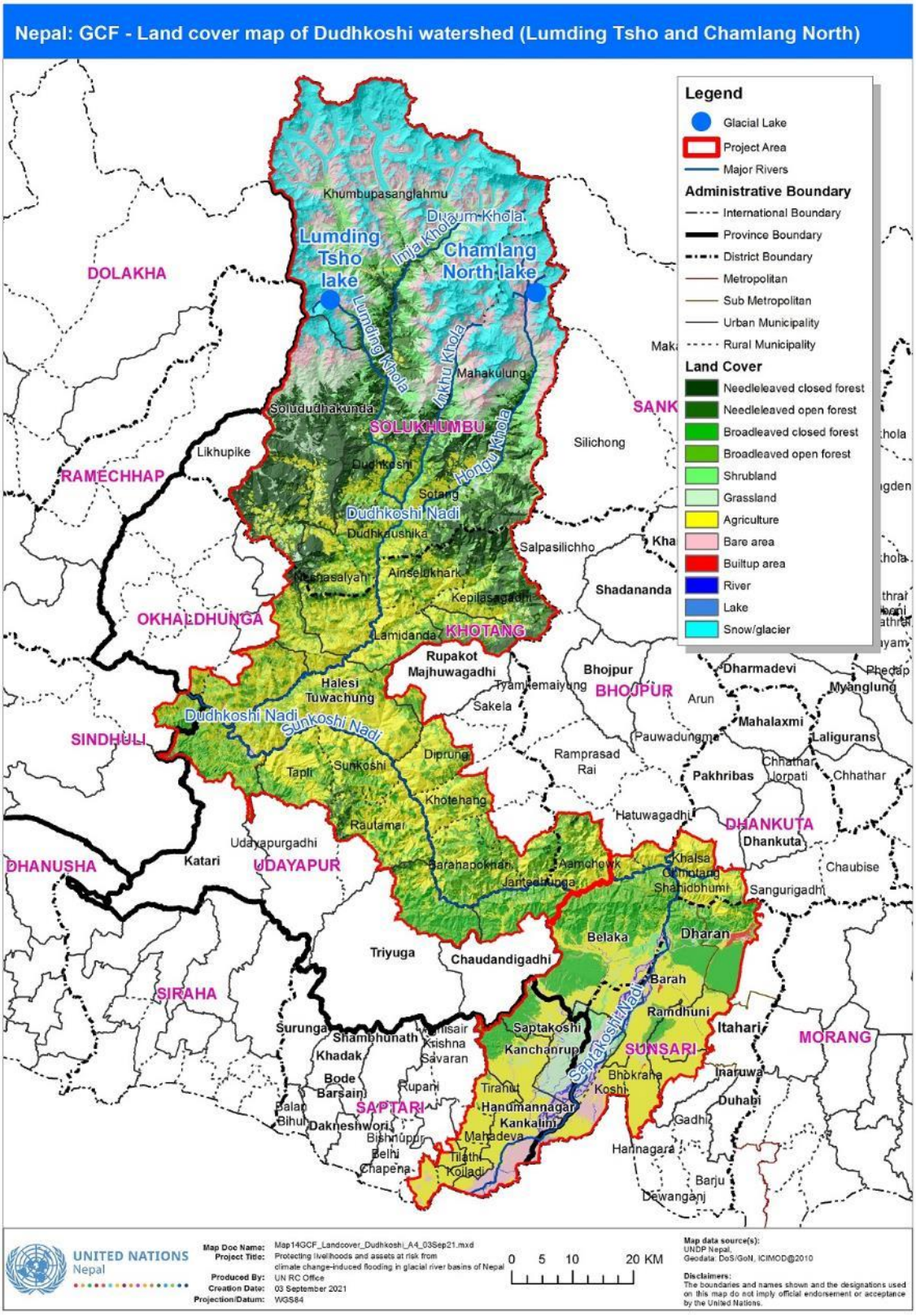


Figure 20 Land cover in the Dudhkoshi watershed

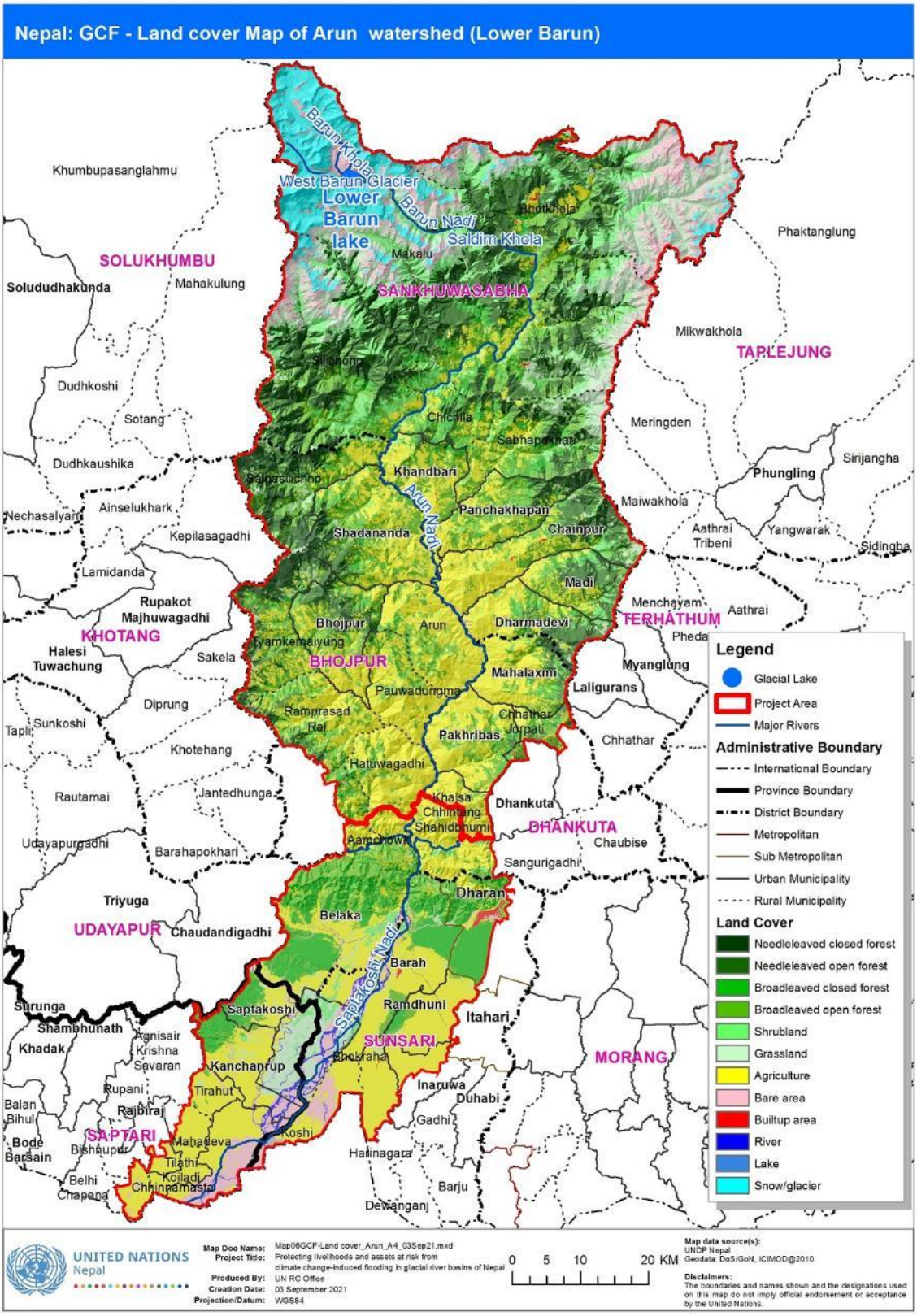


Figure 21 Land cover in the Arun watershed

Rare / Endangered Flora

It is estimated that 7000 higher plant species occur in Nepal, with some 300 of these only found in (endemic to) Nepal. Nine species of flowering plants are now suspected to be extinct in Nepal, eight of these were endemic species.107. Table XIII-3 lists the timber trees that are nationally banned from exploitation, while

Table XIII-4 lists the CITES listed plants in Nepal.

Table XIII-3 National list of timber trees banned for felling, transportation, or export

Species	Status
Acacia catechu	IUCN status: Threatened
Bombax ceiba	
Dalbergia latifolia	
Juglans regia	
Michelia champaca	IUCN status: Endangered
Pterocarpus marsupium	
Shorea robusta	

Table XIII-4 CITES listed plants in Nepal

Appendix I: threatened with extinction	
Saussurea lappa	
Appendix II: spp not yet threatened, but potentially endangered if trade not controlled	
Ceropegia	Milkworts, 7 species in Nepal
Cyatheaceae	tree ferns
Cycadaceae	cycads
Dioscorea deltoidea	
Orchidaceae	orchids, over 300 species in Nepal
Podophyllum hexandrum	may apple
Appendix III: spp subject to regulation and requiring international trade control.	
Cycas pectinata	Himalayan cycad
Gnetum montanum	
Meconopsis regia	
Podocarpus neriifolius	
Talauma hodgsonii	
Tetracentron sinense	

In Nepal, there are more than 500 species of medicinal plants, of which 45 species are identified as threatened, including those shown in Table XIII-5.

*Table XIII-5 Medicinal plants threatened though over-collection for the export **trade.***

Species	Zone of occurence
Acontium heterophyllum	'Bikh', subalpine and alpine zones
Aconitum spicatum	'Bikh', subalpine and alpine zones
Acorus calamus	'Bojo', te mperate zone
Dactylorhiza hatagirea	'Panch Aunle', subalpine and alpine zones
Ephedra gerardiana	'Somlata', subalpine and alpine zones
Gentiana kurrooa	
Nardostachys grandiflora (syn. jatamansi)	'Jatamansi', subalpine and alpine zones
Paris polyphylla	'Satuwa', temperate zone
Picrorhiza kurroa	'Kutki', temperate zone
Piper longum	'Pipla', tropical and subtropical zones
Podophyllum hexandrum (syn. emodi)	
Potentilla fulgens	'Bajradanti', temperate zone
Rauvolfia serpentina	'Sarpagandha', tropical and subtropical zones
Rheum australe (syn. emodi)	'Padamchal, subalpine and alpine zones

[107] Shrestha & Joshi, 1996

Rheum nobile	
Swertia chirayita	'Chiraito', temperate zone
Terminalia chebula	'Harro', tropical and subtropical zones
Terminalia bellirica	'Barro', tropical and subtropical zones
Valeriana wallichii	'Sugandawal', temperate zone
Zanthoxylum armatum	'Timur', tropical and subtropical zones

The project sites for lake lowering are above the vegetation line.

Fauna

The Nepal Himalaya has a comparatively low number of mammals, probably due in part to the geologically recent origin of the range. There are 28 species. Their low density is almost certainly the result of human activity. Larger mammals include northern plains grey langur Semnopithecus entellus, jackal Canis aureus, grey wolf Canis lupus, Himalayan black bear *Ursus thibetanus* (VU), red panda *Ailurus fulgens* (VU), yellow-throated marten *Martes flavigula*, Siberian weasel *Mustela sibirica*, snow leopard *Panthera uncia* (EN), masked palm civet *Paguma larvata*, sambar *Rusa unicolor* (VU), Himalayan musk deer *Moschus leucogaster* (EN), southern red muntjac *Muntiacus muntjak*, Sumatran serow *Capricornis sumatraensis* (VU), Himalayan tahr *Hemitragus jemlahicus* and Himalayan goral *Naemorhedus goral*.

Smaller mammals include web-footed water shrew *Nectogale elegans*, Himalayan water shrew *Chimarrogale himalayica*, short-tailed mole *Talpa micrura*, woolly hare Lepus oiostolus, bobak marmot *Marmota bobak*, Royle's pika *Ochotona roylei*, rat Rattus sp. and house mouse *Mus musculus*.

Inskipp (1989) lists 152 species of birds, 36 of which are breeding species of which Nepal may hold internationally significant populations.

Approximately 200 species of fish are found in the Himalayan waters of Nepal, of which 190 are indigenous[108]. The most common types of fish in Nepal are Silver-carp, Grass-carp, Catla, Rohu, and Rainbow trout.

The project sites for lake lowering are above the vegetation line and therefore offer limited habitat for fauna.

Table XIII-6 Protected fauna found in the Himalayan region.

English Name	Scientific Name	Habitat Ecozone	Status by IUCN
Grey Wolf	Canis lupus Himalayan	Nepalese Himalaya	Critically Endangered
Himalayan Brown Beer	Ursus arctos	Manaslu Himayan region	Critically Endangered
Red Panda	Ailurus fulgens	Himalyan regon and midhills	Endangered
Leopard Cat	Felis (Prionailurus) bengalensis	3000-4500 m altitude forest Makalu Barun and Kanchnjunga	Threatened
Lynx	Felis lynx	Himalyan region	Endangered
Snow Leopard	Uncia uncia	Himalayan region	Endangered
Clouded leopard	Pardofelis nebulosa	Himalayan region	Vulnerable
Musk Deer	Moschus chrysogaster	Himalayan region	Endangered
Assamese monkey	Macca assamensis	380 m to 2350m	Vulnerable
Chinese pangolin	Manis pentadactyla	Throughout Nepal	Critically endangered
Wild Yak	Bos grunniens (mutus)	Himalayan region	Endangered
Birds			
Cheer Pheasant	Catreus wallichii	Midhills, 1,800m and 3050m	Vulnerable
Impeyon pheasant (Danphe)	Lophophorus impejanus	3,300m to 4,570m	Least concern (National Birds of Nepal)
Crimson-horned Pheasant	Tragopan satyra	Himalayan region	Near Threatened

[108] Which Species of Fishes Are Only Found in Nepal | Indigenous Guide (gearsforfishing.com)

Protected Areas

In recognition of the magnitude of biodiversity the Government of Nepal has established a network of 20 protected areas since 1973, consisting of ten national parks, three wildlife reserves, six conservation areas and one hunting reserve (Figure 22).

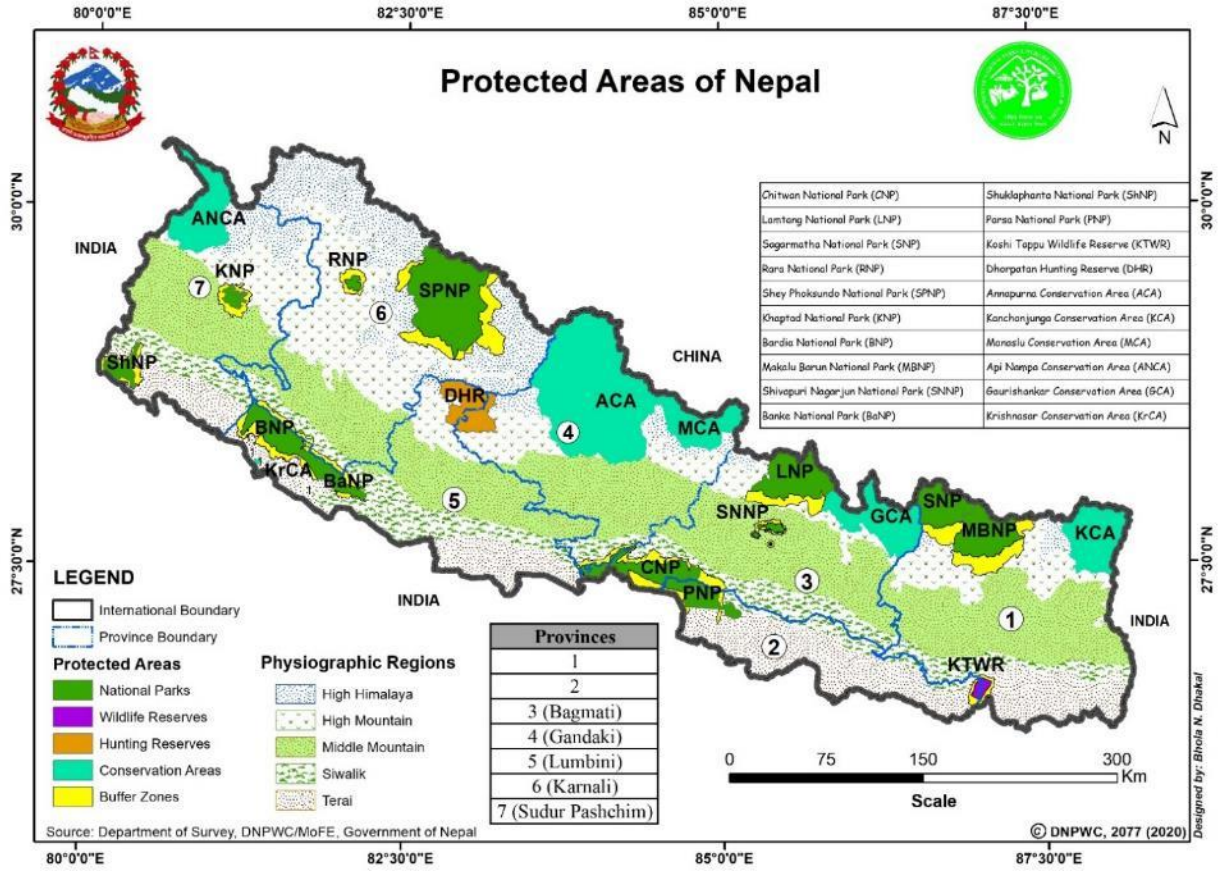


Figure 22 Protected areas in Nepal

There are two national parks (Makalu Barun NP and Sagamartha NP) and one conservation area (Annapurna Conservation Area) in the project areas (Figure 23, Figure 24, Figure 25):

Makalu-Barun National Park: established in 1992 as eastern extension of Sagarmatha National Park. It is the world's only protected area with an elevation gain of more than 8,000m enclosing tropical forest as well as snow-capped peaks. It covers an area of 1,500 km^2 in the Solukhumbu and Sankhuwasabha Districts and is surrounded by a buffer zone to the south and southeast with an area of 830km^2.

The summits of Makalu (8,463m), Chamalang (7,319m), Baruntse (7,129m) and Mera (6,654m) are included in the park. The protected area extends to about 66km from west to east and to about 44km from north to south. From the Arun River valley in the southeast, located at altitudes of 344377 m, elevation gains about 8,025 m to the peak of Makalu. The national park shares the international border with the Qomolangma National Nature Preserve of the Tibet Autonomous Region in the north.

The inaccessible valleys of the Barun river, the glacier-fed tributary to the Arun River, contain some of the last remaining pristine forests and alpine meadows. This area has been designated as a Strict Nature Reserve, the first in Nepal, to protect natural ecosystems and processes in an undisturbed state for scientific study, environmental monitoring, education, and the maintenance of genetic resources.

The Makalu Barun National Park exhibits a high diversity of forest types that are characteristic of the Eastern Himalayas, ranging from near-tropical dipterocarp monsoon forest on 400m altitude to sub-alpine conifer stands on 4,000m altitude. Forest aspects vary depending on seasonal moisture availability, temperature and snow cover at different elevations and slopes. Forests below 2,000m are strongly affected by subsistence agriculture, so that only some ecologically significant

stands remain there. Above 2,000m forests are usually extensive since the cool, humid climate suppresses agricultural activity. Mountain areas with an altitude of 2,000 m fall along mid-hill range including river belts in the project areas.

Sagarmatha National Park: The Park's core area covers the upper headwaters of the Bhote Kosi, Dudh Kosi and Imja Khola rivers which fan out under the crest of the Himalaya Mountains on the Tibetan border and meet near the area's main settlement, Namche Bazar. The buffer area reaches down the Dodh Kosi valley to Lukla 18 km south of Namche. The Park is enclosed by high mountain ranges and lies over extremely rugged terrain, deeply incised valleys and glaciers culminating in Sagarmatha / Mt. Everest, the world's highest mountain. The catchments are ringed by 25 or more peaks over 6,000m, and seven - Baruntse, Lhotse, Nuptse, Pumo Ri, Guachung Kang, Cho-Oyu, and Nangpai Gosum - over 7,000m high.

The rivers are fed by the long glaciers at the head of each valley: Nangpa Glacier on the Bhote Kosi, Ngozumpa Glacier on the Dodh Kosi, Khumbu Glacier on the Lobuje Khola and the Imja Glacier, one of eight which feed the Imja Khola under Sagarmatha. The Ngozumpa Glacier, 20 km long, is bordered on the west by the four Gokyo lakes impounded behind its lateral moraine. All the glaciers show signs of retreat and several glacial lakes have formed in recent decades; one, Imja Dzo which started to form in the 1970s, is now 1,200 ha in area and 45m deep. The upper valleys are U-shaped but below about 3,000m the rivers cut steep ravines through the sedimentary rocks and underlying granites. Near Namche Bazar they join the Dodh Kosi which drains eventually into the Ganges. Except for some alluvial and colluvial deposits at lower levels, the soils are skeletal.

Annapurna Conservation Area (ACA): established in 1992, it is Nepal's largest conservation area covering 7,629km^2 in the Annapurna range of the Himalayas. It ranges in elevation from 790m to the peak of Annapurna I at 8,091m. It includes one of the most impressive mountain cirques in the world, popularly known as the Annapurna Sanctuary, which is surrounded by seven peaks over 7000 m. The conservation area stretches across Manang, Mustang, Kaski, Myagdi, and Lamjung Districts. Annapurna Conservation Area encompasses Annapurna Sanctuary and is known for several trekking routes including Annapurna Circuit.

At the lowest levels of the Conservation Area (about 1000m) there are subtropical forests of broadleaved Schima wallichii, Castanopsis indica, and on dry slopes forests of Chir Pine *Pinus roxburghii*; alder *Alnus nepalensis* mainly occurs along rivers and streams. Higher up, these forests are replaced by temperate forests of mixed broadleaves, including the oaks *Quercus lamellosa, Q. lanata* and *Q. semecarpifolia* with rhododendron species. In the wettest places, such as in the upper Modi Khola valley, grow bamboo jungles of Arundinaria species. Above these grow coniferous forests, mainly of fir *Abies spectabilis*, Blue Pine *Pinus wallichiana* and hemlock *Tsuga dumosa*. Higher up there are subalpine forests of birch *Betula utilis*, blue pine and juniper species. Finally, rhododendron and juniper scrub grow in the alpine zone.

Several other protected areas border the project areas including Manasulu Conservation Area, Chitwan National Park, Gaurishanka Conservation Area, and Katchunjunga National Park (Figure 22).

Transboundary Impacts.

It is considered that there are no transboundary impacts associated with the project as the activities will take place within catchment areas that do not drain across nearby borders.

During development of the project it was noted that significant GLOF risk and potential downstream impacts to Nepal exist in Tibet, however it was recognized that seeking to mitigate these risks was beyond the scope of this project, although the improved EWS provided by the project will enhance warnings of floods from transboundary rivers.

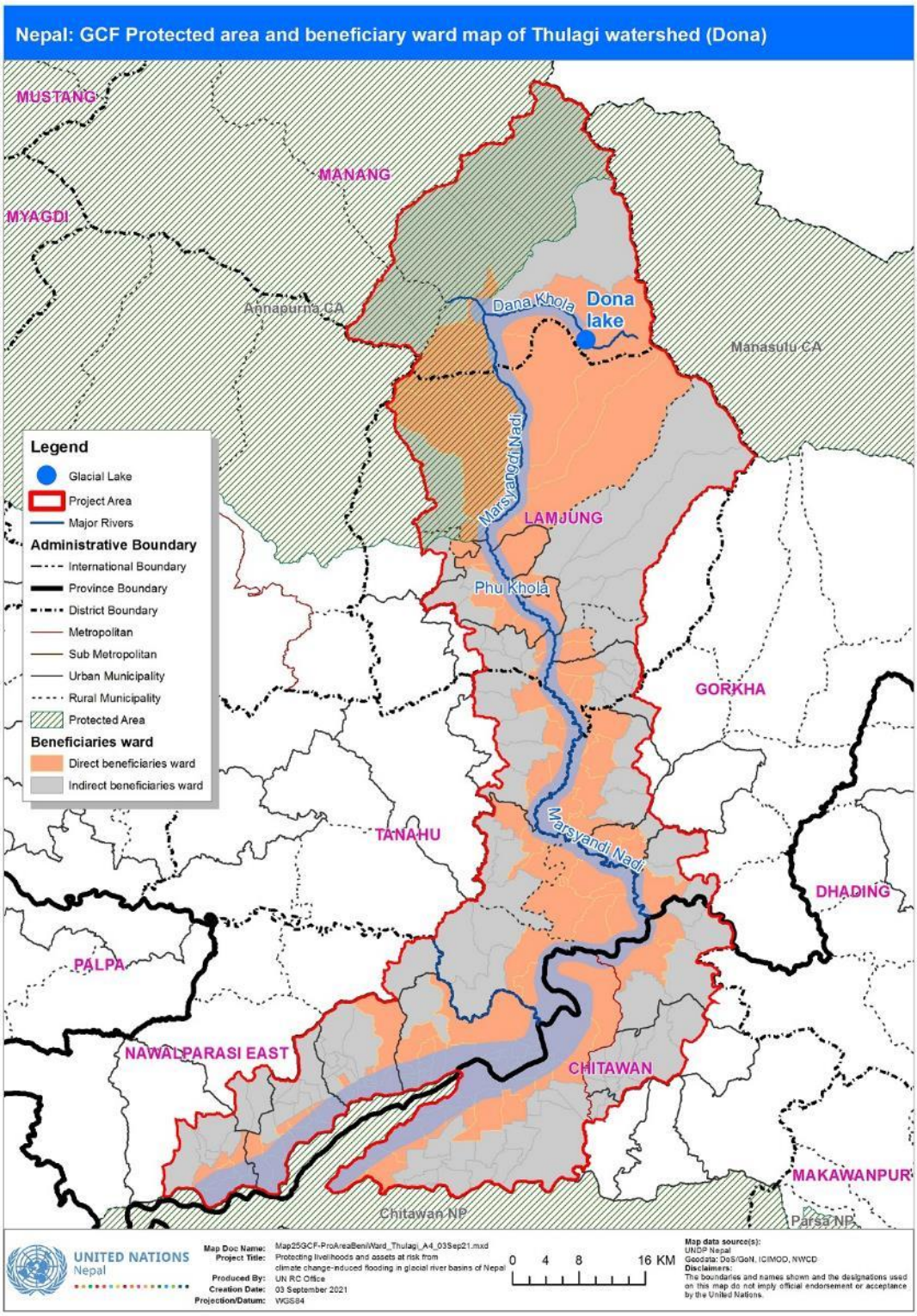


Figure 23 Location of Annapurna Conservation Area in the Thulagi watershed

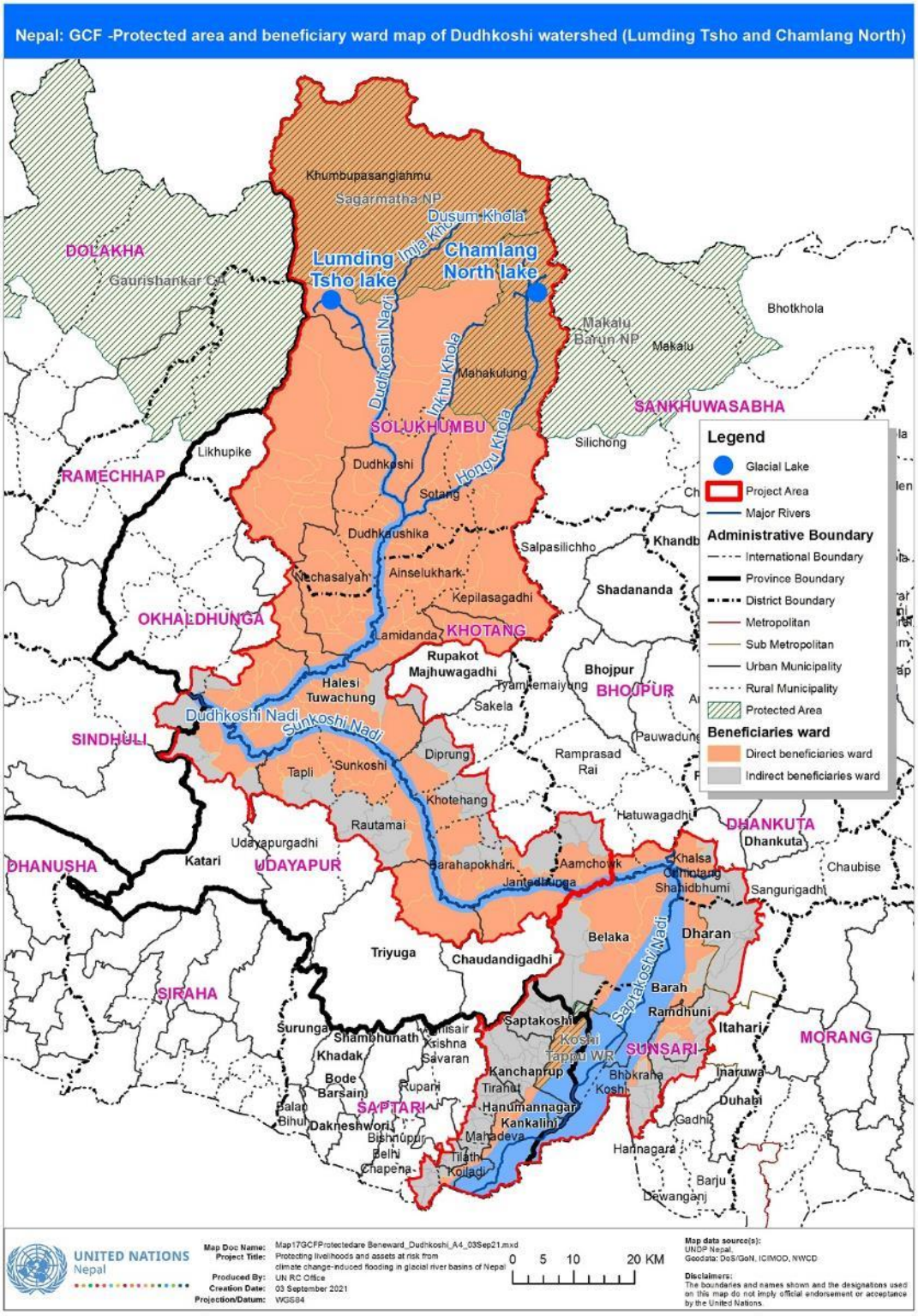


Figure 24 Location of Sagamartha NP and Makalu NP and Dudhkoshi watershed project area

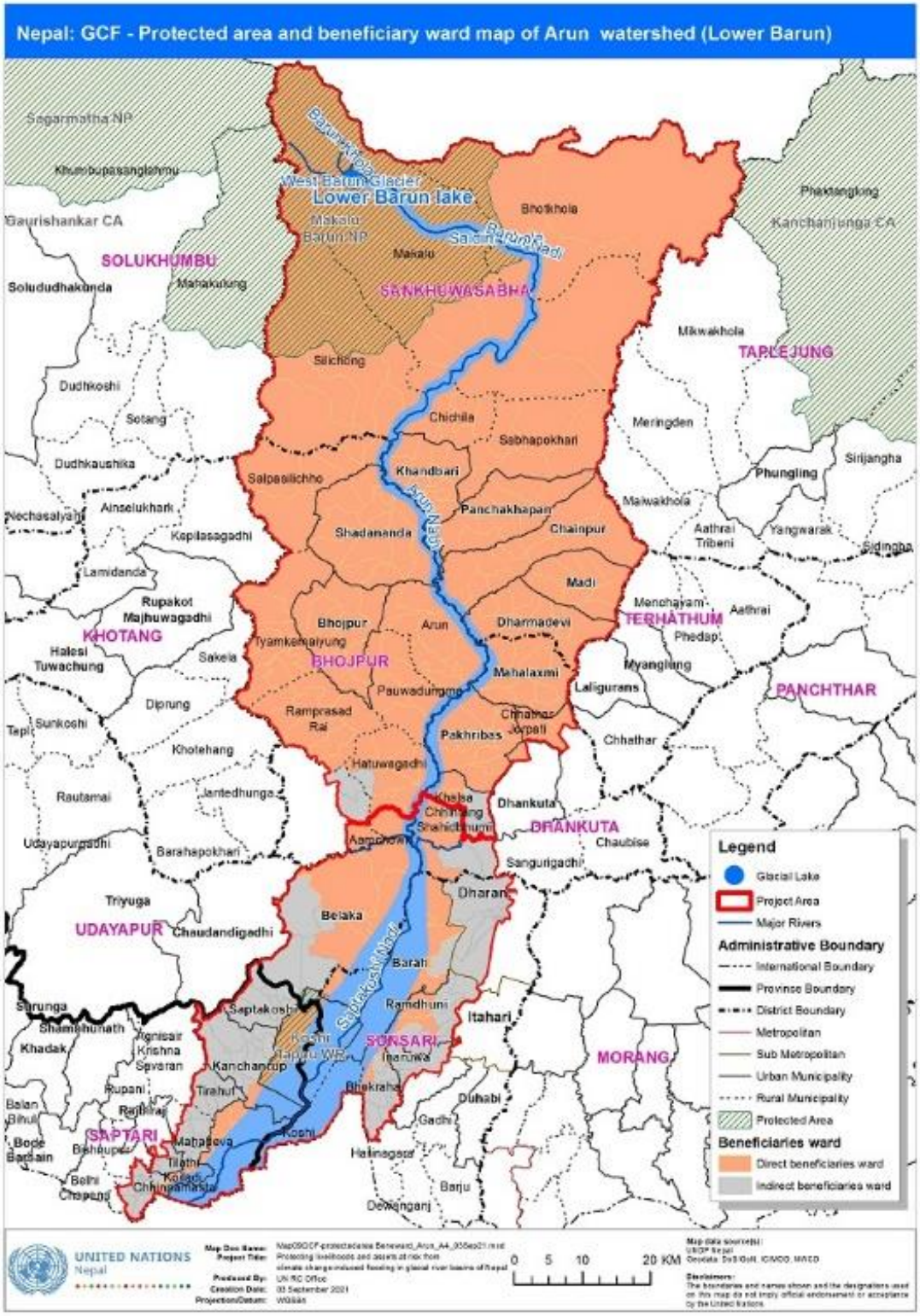


Figure 25 Location of Sagamatha NP in relation to the Arun watershed project area

Socio-economic conditions

Nepal is a Least Developed Country (LDC), ranking as the 17th poorest nation globally and among the poorest in southern Asia[109]. Table XIII-10 provides a summary of baseline socio-economic data for Nepal. The country has a population of ~29

[109] https://www.usaid.gov/nepal/economic-growth-and-trade

million[110], of which over 80% live in rural areas. Poverty among communities in the mountains, where population density is lowest, is most prevalent at 42% in contrast to an average of 9% in urban areas[111].

The Human Development Index (HDI) for Nepal has increased over the last decade, from 0.380 in 1990 to 0.579 in 2018, indicating an improvement in overall human development. The country currently ranks at 147 out of 189 countries, placing it within the 'medium human development' category. In addition to an increased HDI, Nepal has also seen an increase in its Gross National Income (GNI) per capita by ~151% from 1990 to 2019. While there is improvement, Nepal's 2018 HDI value is still below the average 0.634 for other countries in the medium human development category, and below the average of 0.642 for countries in South Asia.[112] Recent surveys of national living standards indicate that ~30% of the population live below the national income poverty line of US$1.90/day[113].

Until signing a Comprehensive Peace Agreement in 2006, the country experienced a decade-long armed violent conflict between the Government of Nepal (GoN) and the Maoist Communist Party of Nepal[114]. Following the 2006 peace agreement, Nepal been focussed on peace building, social reconciliation and economic revival.

In 2015, Nepal became a democracy and transitioned its constitution to establish a federal structure. In 2017, elections were successfully held at the federal, state and local tiers, indicating a complete shift to federalism.

Despite these economic and developmental challenges, Nepal has still experienced a substantial decline in incidence of poverty[115], which has fallen from 68% of the population in 1996 to 25% in 2011[116]. However, since 2014 the proportion of the population living in poverty slowly increased over five years, to ~30% in 2019. This is likely to be exacerbated by 2020's low economic growth, resulting from a national lockdown in response to the Covid-19 pandemic.

Population in the project areas and beneficiary estimates

Nepal is predominantly a country of villages. Population densities in Nepal vary with terrain (Figure 26, Figure 27, Figure 28). Less than 10% live at an altitude between 3000 m and 4000 m, approximately 45% live in the mid-hill region and another 45% in the lowland Terai. Total population of the project districts is 800,585 as per the census of Nepal, 2011 as shown in Table XIII-7.

Table XIII-7 Population of the Project Districts

District	Population[117]
Sankhuwasabha	158,742
Solukhumbu	105,886
Bhojpur	18,249
Dhankuta	163,412
Khotang	206,312
Okhaldhunga	147,984
Total	800,585

The project has been estimated to have 385,956 direct beneficiaries and 1,912,347 indirect beneficiaries, giving a total of 2,298,303 beneficiaries.
Table 2-XIII-8 shows the ethnicity in Province One for direct beneficiaries and Table 2-XIII-9 Ethnicity of indirect beneficiaries (Province One)Table 2-XIII-9 ethnicity of indirect beneficiaries in Province One.
Table XIII-11 shows the direct and indirect beneficiaries disaggregated by sex and administrative area.
Table 2-XIII-8 Ethnicity of direct beneficiaries (Province One)

Districts	Direct Beneficiaries	Dalit	Janjati	BCTS

[110] World Bank, 2019. More information available at: https://data.worldbank.org/country/NP
[111] Country Poverty Analysis – Nepal, Asian Development Bank 2017. More information available at: https://www.adb.org/sites/default/files/linked-documents/cps-nep-2013-2017-pa-detailed.pdf
[112] Human Development Report 202, UNDP. More information available at: http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/NPL.pdf
[113] World Bank, 2019. More information available at: https://data.worldbank.org/country/NP
[114] https://peacemaker.un.org/nepal-comprehensiveagreement2006
[115] Based on the international poverty line of $1.25 per day.
[116] Country Poverty Analysis – Nepal, Asian Development Bank 2017. More information available at: https://www.adb.org/sites/default/files/linked-documents/cps-nep-2013-2017-pa-detailed.pdf
[117] Population Census, 2011 CBS

	Female	Male	Total			
Solukhumbhu	3255	2980	6235	206	5262	773
Sankhuwasabha	4736	4337	9073	544	5308	3221
Bhojpur	5178	4741	9919	893	6348	2678
Khotang	9996	9153	19149	3638	10532	4979
Okhaldhunga	4753	4353	9106	1238	4007	3861
Dhankuta	5691	5211	10902	1744	3707	5451
Total	33609	30775	64384	5601	40884	17899

Note: BCTS = Brahmin, Chhetri, Thakuri and Sannyashi

Table 2-XIII-9 Ethnicity of indirect beneficiaries (Province One)

Districts	Indirect Beneficiaries			Dalit	Janjati	BCTS
	Female	Male	Total			
Solukhumbhu	48729	44621	93350	3081	78787	11575
Sankhuwasabha	77856	71293	149149	8949	87252	52948
Bhojpur	89422	81884	171306	15418	109636	46253
Khotang	97131	88944	186075	35354	102341	48380
Okhaldhunga	22400	20512	42912	5836	18881	18195
Dhankuta	40747	37313	78060	12490	26540	39030
Total	376285	344567	720852	62714	457741	200397

Table XIII-10. Baseline information on Nepal population, socio-economic and vulnerability indicators[118].

Indicator		Value	Year
Population	Total population	28,608,710	2019
	Population growth (annual %)	1.8%	2019
	Age dependency ratio - elderly	8.9%	2019
	Age dependency ratio - youth and children	45.7%	2019
	Percentage of population with access to electricity	93.9%	2018
	Total net enrolment in primary education (men and women) [119]	96.3%	2019
	Mean years of school (of adults)	4.9 years	2017
Five-year Indicators	Life expectancy at birth	70.5 years	2018
	Crude death rate	6.4 people	2018
	Infant mortality range (per 1,000 live births)	32.2	2018
	Under-five mortality	26.7	2018
Economy	Gross Domestic Product (GDP) per capita; PPP	US$ 3,558	2019
	Gross National Income (GNI) per capita; PPP	US$ 3,600	2019
	Inflation; consumer prices	5.6%	2019
Vulnerability	Proportion of population using improved drinking water resources[120]	91.6%	2015
	Global Needs Assessment (GNA) Crisis Index[121]	0	2014
	GNA Vulnerability Index[122]	2	2014

[118] https://databank.worldbank.org/source/world-development-indicators
[119] https://ourworldindata.org/grapher/mean-years-of-schooling-long-run?tab=chart&country=~NPL
[120] https://ourworldindata.org/grapher/share-of-the-population-with-access-to-improved-drinking-water?tab=chart&country=~NPL
[121] Global Needs Assessment (GNA) 2014: Global Vulnerability Index. More information available at: https://reliefweb.int/sites/reliefweb.int/files/resources/gna_2013_2014%20%281%29.pdf
[122] Global Needs Assessment (GNA) 2014: Global Vulnerability Index. More information available at: https://reliefweb.int/sites/reliefweb.int/files/resources/gna_2013_2014%20%281%29.pdf

Table XIII-11 Disaggregated beneficiary estimates by administrative area

PROVINCE	DISTRICT	Direct Beneficiaries (Female)	Direct Beneficiaries (Male)	Indirect Beneficiaries (Female)	Indirect Beneficiaries (Male)
Province One	BHOJPUR	5,178	4,741	89,422	81,884
	DHANKUTA	5,691	5,211	40,747	37,313
	KHOTANG	9,996	9,153	97,131	88,944
	OKHALDHUNGA	4,753	4,353	22,400	20,512
	SANKHUWASABHA	4,736	4,337	77,856	71,293
	SOLUKHUMBU	3,255	2,980	48,729	44,621
	SUNSARI	45,029	41,233	126,595	115,925
	UDAYAPUR	11,849	10,850	47,437	43,438
	Province One Total	90,487	82,860	550,318	503,931
Province Two	SAPTARI	14,682	14,859	100,167	101,376
	Province Two Total	14,682	14,859	100,167	101,376
Bagmati province	CHITAWAN	44,195	43,668	131,770	130,198
	SINDHULI	1,381	1,364	-	-
	Bagmati province Total	45,576	45,033	131,770	130,198
Gandaki province	GORKHA	3,253	2,705	28,534	23,726
	LAMJUNG	14,015	11,654	52,582	43,722
	MANANG	190	158	1,484	1,234
	NAWALPARASI_E	28,210	23,456	85,208	70,851
	TANAHU	4,815	4,004	47,637	39,610
	Gandaki province Total	50,483	41,977	215,445	179,143
	Grand Total	201,228	184,728	997,699	914,648

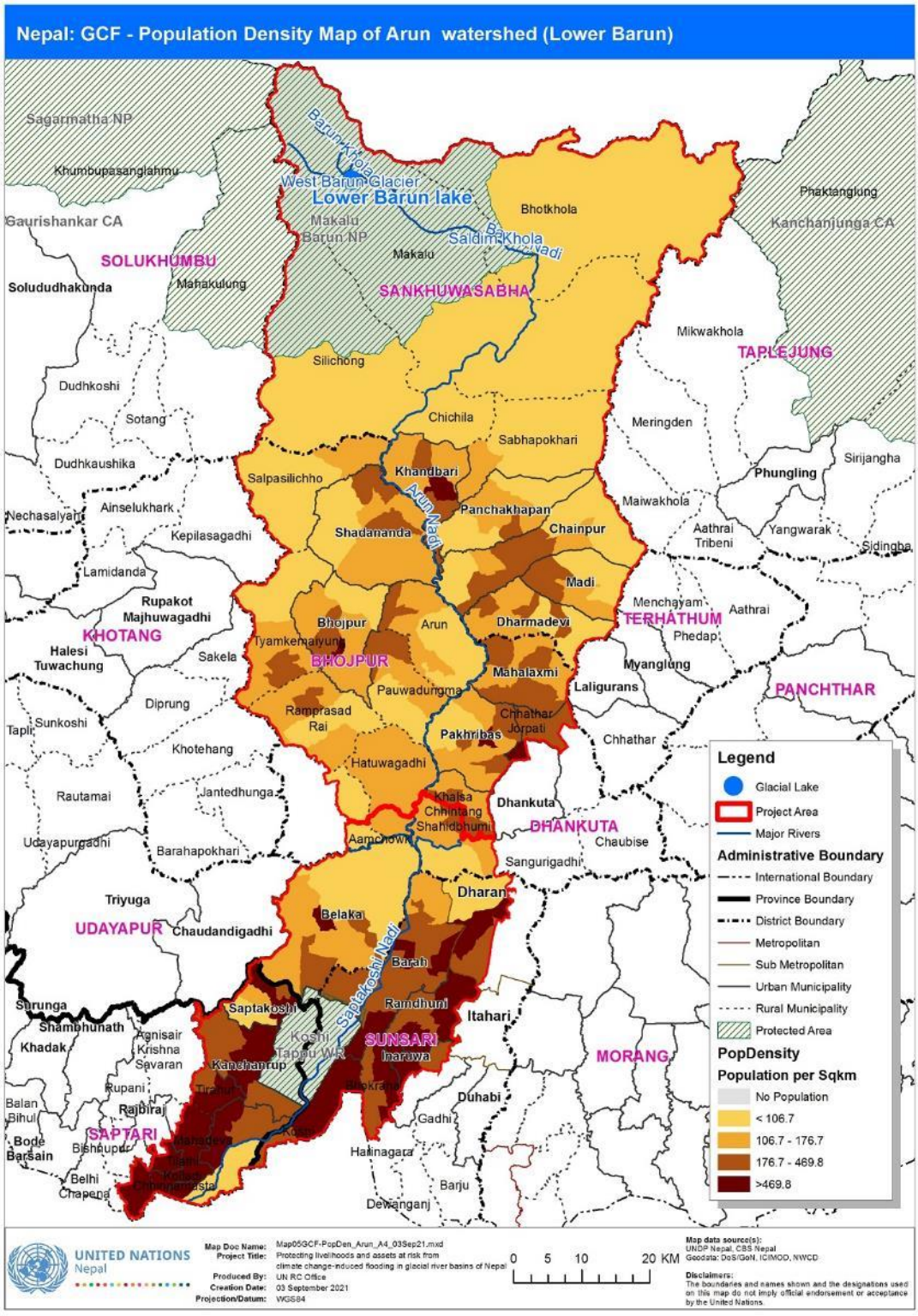


Figure 26 Population density in the Arun River watershed

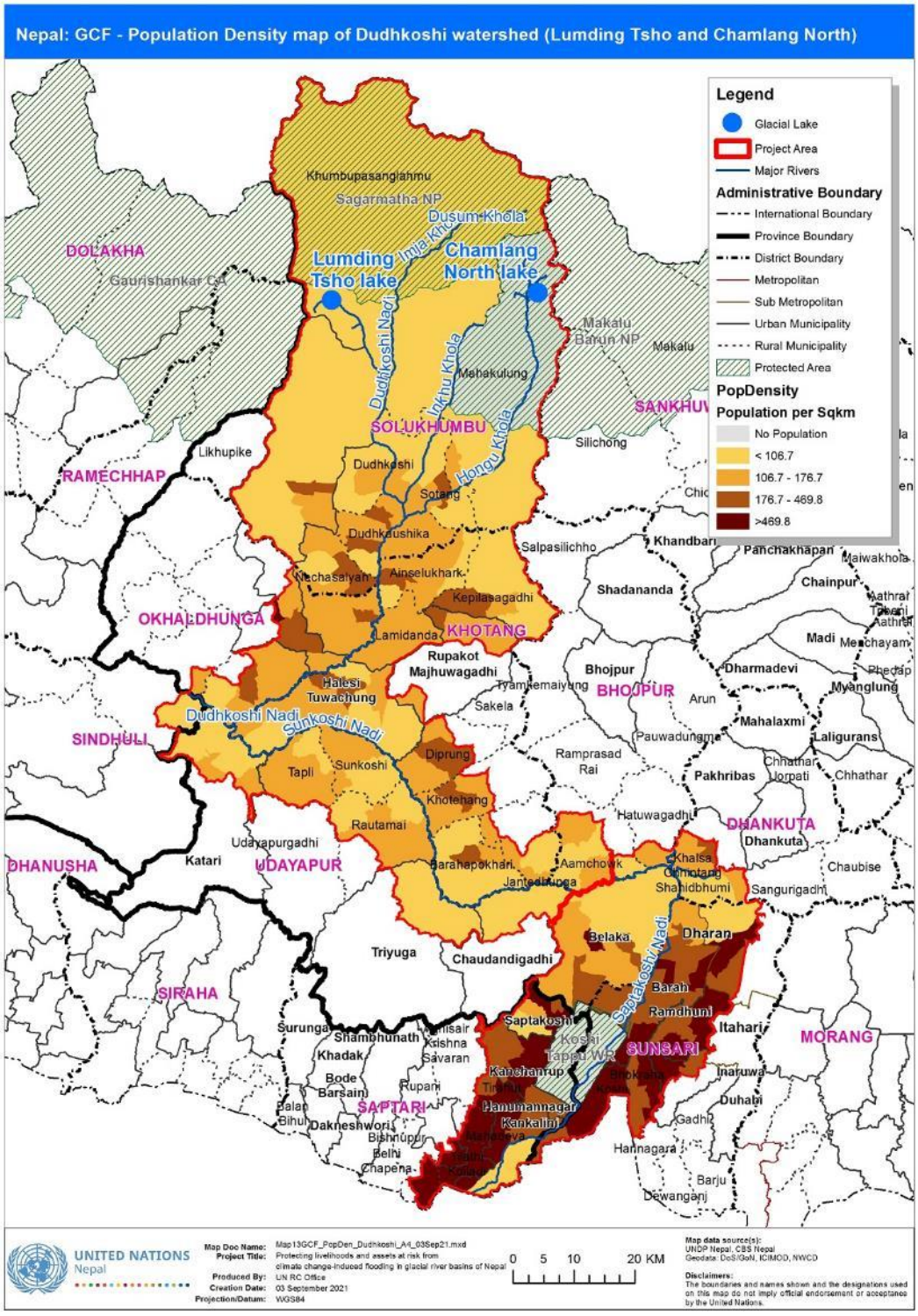


Figure 27 Population density in the Dudhkoshi watershed

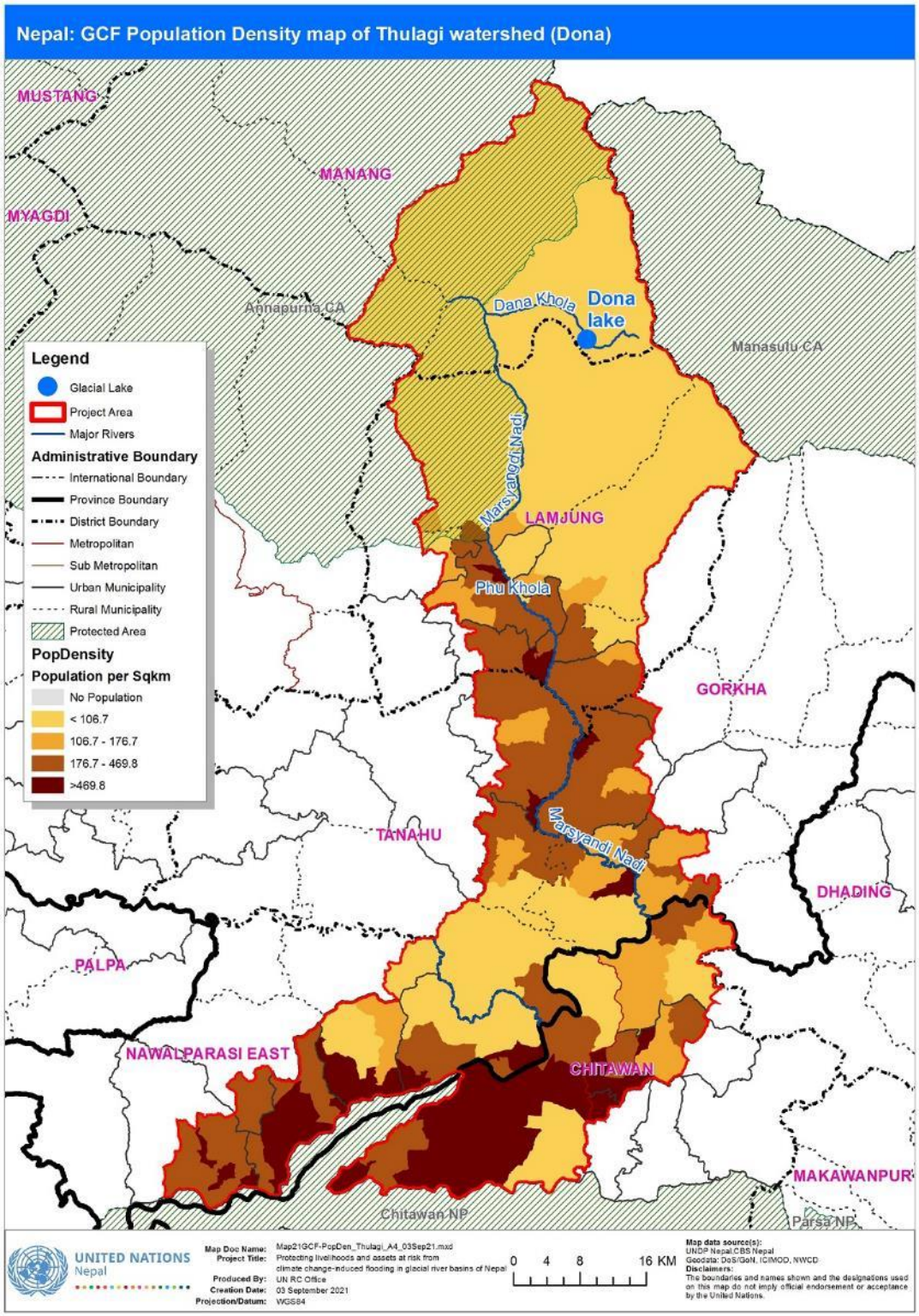


Figure 28 Population density in the Thulagi watershed

Gender

In Nepal, traditional family structures are grounded in beliefs that men have predominance over women. Gender roles may vary with context, caste[123], ethnic group, religion and socio-economic class. Generally, however, women and girls are frequently disadvantaged by many traditional practices, including, *inter alia*: the dowry system, early marriage, stigmatization of widows, family violence, polygamy, son-preference and *chhaupadi*[124,125].

Household division of labour is gendered in Nepal. The primary responsibility of women is water, fuel wood and fodder collection, while men are responsible for income-generating activities such as farm work. Trends of decreasing or irregular availability of water, and long periods of drought, has a direct impact on women's water fetching time. When women need to travel further and spend more time to collect water, it limits their available time for social, educational and livelihood opportunities. In addition to constraining time, further water collection travel creates safety and security concerns, especially where the terrain is rugged, and areas are remote or isolated.

Women also play a large role in the management and care of family farm animals and livestock, contributing to ~70% of the work[126]. Their roles can include: i) day-to-day decisions about animal grazing; ii) collection of water and fodder; iii) watering and feeding livestock; iv) application of composts; and v) home-based processing of livestock products. Although women contribute significantly to the livestock and agricultural sectors, surveys show that women make little contribution to decision-making in livestock rearing and management. Even in the cases where women do have ownership over livestock or property, they are marginalised from access to credit and newer technologies. This marginalisation limits them to traditional practices instead of investing in more value-added and higher income generation activities, such as dairy or meat processing and improved dairy animal farming practices[127].

Limited access to new technologies also puts women at a disadvantage for responding to new and emerging pests and diseases that are outside of the realms of traditional knowledge and local management methods. While women's economic contributions are substantial, their labour is often not credited because the nature of the work is informal and the traditional role of women as caretakers is not accounted for.

Because of an increased workload due to climate change impacts, women's mobility and participation in community initiatives, committees and decision-making processes is limited. Even when opportunities are presented, women experiencing time poverty are unable to take advantage of them. As mentioned above, caring and household work is traditionally a woman's responsibility. In the communities of the proposed target areas, even women in positions such as elected ward members, Community Forestry Executive members and Female Community Health Volunteers are required to finish their household duties before participating.

Compared to men, women across all social and economic groups are more often excluded from accessing climate change and development resources. However, the degree of exclusion and vulnerability is highest among poor single women, particularly those living in the remote and disaster-prone areas targeted by the project. Women and marginalized groups are poorly represented in structures for planning disaster related policies and programmes.

During natural disasters, records show that more women than men die or get injured from climate change related hazards[128]. This is the result of, *inter alia*: i) women's lack of access to information; ii) cultural and soil restrictions which limit mobility of women and their ability to avoid disasters; iii) lack of decision-making power and access to

[123] Castes are hereditary classes of Hindu society, distinguished by relative degrees of ritual purity or pollution and of social status. The Nepalese caste system broadly borrows the classical Hindu model consisting of four broad social classes: Brahmin, Kshatriya, Vaishya, Sudra.
[124] *Chhaupadi* is a traditional practice where women are girls are confined to a kind of cow-shed outside of the house during their menstruation period, mostly practiced in East Western Nepal.
[125] Nepal Gender and Protection in Brief. CARE. 2015. More information available at: https://reliefweb.int/sites/reliefweb.int/files/resources/gender_and_protection_gorkha_lamjung_dharding_khatmandu_ds_final.pdf

[126] https://www.adb.org/sites/default/files/publication/28745/gender-case-study-nep.pdf
[127] https://www.adb.org/sites/default/files/publication/28745/gender-case-study-nep.pdf
[128] ICIMOD. (2014). Flood Early Warning Systems in Nepal. A Gendered Perspective Working Paper 2014/4, International Center for Integrated Mountain Development, Nepal.

resources and training related to climate information. In cases where the mortality rate for women was three times higher than for men, studies indicated that the main reason for this high mortality rate was early warning signals not reaching women[129]. In times of displacement, women face the risk of increased sexual violence in temporary shelters. Women are also met with the burden of providing increased care of vulnerable children, sick, disabled or old age people during climate disasters.

In recent years, there have been changes to improve the challenges faced by women and girls in Nepal. The government has been legislating for more gender equality. Nepal was the first country in Asia to develop a National Action Place on Women's Peace and Security in 2011[130]; and women's and girl's rights are protected in the Comprehensive Peace Agreement, signed in 2006 between the Government of Nepal and Communist Party of Nepal (Maoist)[131]. However, progress in traditional systems has been slow.

Gender Based Violence

In Nepal, gender-based violence takes many different forms that includes: domestic violence, sexual abuse and torture, rape, sexual harassment, incest, women trafficking, dowry and bride price, preference for boys, mental torture, verbal abuse and gender discrimination, child marriage, polygamy, polyandry, etc.[132]

Gender inequality and violence are not mutually exclusive phenomena but complex loops affecting each other. Women in Nepal face several inequalities and violence. The causes are diverse, but most of these results are due to socially assigned lower positioning of women.[133]

In their annual fact sheet for 2022[134], WOREC report the following statistics for Nepal: 65% of women have experienced domestic violence, 90% pf the perpetrators were male, 29% of women have experienced physical violence, 16% of women have experienced sexual violence, 35% of rape case perpetrators were neighbours, 58% of witchcraft allegation perpetrators were neighbours, 24% of human trafficking perpetrators were community member7% of polygamy cases were recorded.

For the period July 2021 to June 2022 the total number of recorded cases of GBV against women and girls was 1813 (WOREC 2022). The dominant form of GBV was domestic violence (1175 cases) followed by rape (179 cases). Figure 29 shows the distribution of domestic violence cases recorded by WOREC, while Figure 30 shows the distribution of rape cases recorded by WOREC.

It is worth noting, that the provinces where most of the GCF project will take place (Bagmati and Gandaki) recorded the lowest domestic violence and rape incidents (with Gandaki not recording any rapes for the period).

[129] UNEP (1997) 'Asian disaster management news: Gender and disaster.' A Newsletter of the Disaster Management Community in Asia and the Pacific 3(3). Nairobi, Kenya: UNEP
[130] http://peacewomen.org/sites/default/files/nepal_2011.pdf
[131] https://peacemaker.un.org/nepal-comprehensiveagreement2006
[132]https://www.herd.org.np/uploads/frontend/Publications/PublicationsAttachments1/1480578704-Backgrounder%20on%20Gender%20Based%20Violence.pdf
[133] Dahal, P., Joshi, S.K. & Swahnberg, K. A qualitative study on gender inequality and gender-based violence in Nepal. *BMC Public Health* **22**, 2005 (2022).
[134]https://www.worecnepal.org/uploads/publication/document/1190717651Annual%20Factsheet%20on%20Gender%20Based%20Violence_2022%20(2).pdf

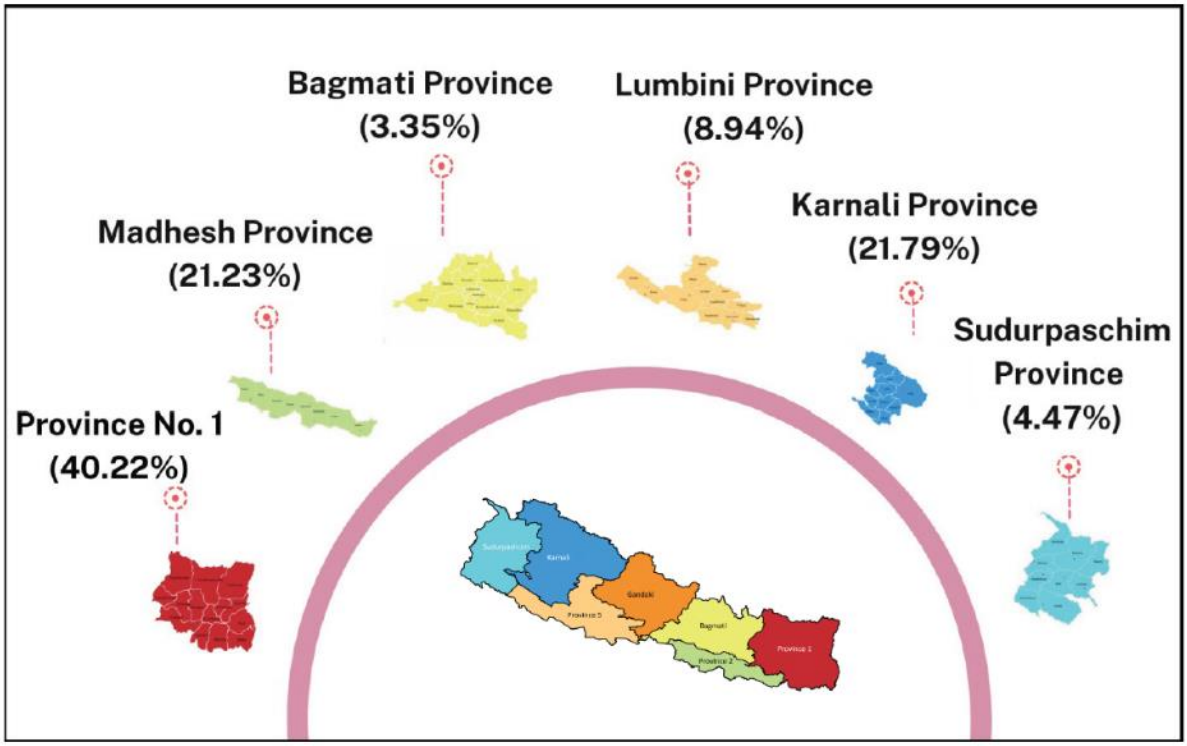


Figure 29 Distribution of domestic violence cases reporting by WOREC for period July 2021 to June 2022Figure 30 Number of recorded rape cases by Province for period July 2021 to June 2022 (WOREC 2022)

Employment

Most of Nepal's population are dependent on the country's agricultural sector for their livelihoods. In particular, the fertile floodplains of the Terai region is the country's most productive region, accounting for 56% of the national grain production despite only covering 23% of total land area[135]. Despite the importance of agriculture, limited access to improved technologies such as fertilizers and improved seeds and the use of inefficient techniques result in low yields. Moreover, only 28% of Nepal's cultivated land is under irrigation, which means agricultural outputs depend on water availability[136].

As a result, agriculture, and ultimately community livelihoods, are heavily dependent on rainfall. Increased flood events, droughts and changing rainfall patterns that are occurring because of climate change leads to the destruction of crop yields or disruption in cultivation and planting[137].

In recent years, with the improved use of science and technology, Nepal's economy has gradually shifted away from largely subsistence agriculture to industry and services. As a result, the contribution of the agricultural sector to the economy is declining, while contributions from the industrial sector is growing. Consequently, although ~66% of the national population engages in agriculture, the agricultural sector only accounts for 33% of the national GDP[138].

[135] Ministry of Agriculture and Co-operatives (MOAC). 2010. Singhadarbar, Kathmandu Nepal, Statistical Information on Nepalese Agriculture
[136] https://www.worldbank.org/en/results/2014/04/11/nepal-irrigation-and-water-resource-management
[137] Participatory assessment of multiple socio-economic drivers and climate stresses leading to differentiated vulnerabilities in the Hindu Kush Himalaya (2019) HI-AWARE Working Paper. Report available at: https://lib.icimod.org/record/34486
[138] Country Poverty Analysis – Nepal, Asian Development Bank 2017. More information available at: https://www.adb.org/sites/default/files/linked-documents/cps-nep-2013-2017-pa-detailed.pdf

Like many other agriculturally based societies, the project areas have experienced outward migration as villagers leave in search of alternate employment opportunities. Data for the project Districts indicates that over 305,023 people have migrated away from the project districts in recent years (Table XIII-12).

Table XIII-12 Outward migration by project District[139]

District	Migration
Sankhuwasabha	60,481
Solukhumbu	40,343
Bhojpur	6,953
Dhankuta	62,260
Khotang	78,605
Okhaldhunga	56,382
Total	305,023

Tourism, particularly in Nepal's middle and upper mountainous regions, is another important economic sector in Nepal that has experienced growth in recent years, providing one of the country's most substantial sources of foreign currency. Mount Everest alone generates ~US$13 million a year, and the annual number of visitors to Nepal's national parks averages over 500,000 people[140]. In 2019, visitor spending in the country comprised ~31% of the total national exports[141]. The tourism-linked service sector, which includes restaurants and hotels, employs 20% of the population. Overall, the travel and tourism industry contributed 6.7% of the total GDP in 2019[142].

In terms of Nepal's energy sector, the country has no known significant deposits of oil, gas or coal and does not have any refineries for producing oil products[143]. As a result, the country relies on imports from India for its oil use. Most energy consumption in the country is generated by traditional sources of energy, such as firewood, agricultural waste and animal dung[144]. This is attributed to limited alternative sources, particularly in rural areas. These practices further contribute to deforestation and subsequent soil erosion and depletion, which lead to increased flooding and landslide risks.

Nepal has a considerable amount of hydropower potential provided by the perennial nature of the expansive Nepali river system and the steep gradient of the country's topography. Despite this potential capacity, existing hydropower stations have only been able to develop ~680 MW of power in recent years, or less than 2% of the total commercial generation potential. With these hydroelectricity sources left unutilised, total energy consumption in the country is low and only 1% of the country's energy requirements are fulfilled by electricity.

Labour/Working Conditions

Working conditions in Nepal are largely unregulated. For the minority of the population working in the formal economy, labour laws allow for a 6-day, 48-hour week with 30 days of annual leave, 15 days of sick leave, basic health and safety standards, and some benefits. The Nepal Labour Act 2017 provides some protections for workers (refer Section 0). To work overseas, workers must first obtain permission from the government. The number of men and women that obtained permission for work outside of Nepal in 2020.

Table XIII-13 Number of workers that obtained permission for foreign jobs[145]

[139] Nepal Labour Force Survey 2017/18, ILO and CBS, Government of Nepal, 2019
[140] Nepal Department of Tourism. 2017.
[141] Travel & Tourism Economic Impact 2020. Nepal. 2020. World Travel and Tourism Council (WTTC)
[142] Travel & Tourism Economic Impact 2020. Nepal. 2020. World Travel and Tourism Council (WTTC)
[143] Ministry of Population and Environment. 2016. Intended Nationally Determined Contributions (INDC). Communicated to the United Nations Framework Convention on Climate Change (UNFCCC)
[144] Nepal Energy Sector Assessments, Strategy and Road Map. Asian Development Bank. 2017. More information available at: https://www.adb.org/sites/default/files/publication/356466/nepal-energy-assessment-road-map.pdf
[145] Nepal Labor Migration 2020, Ministry of Labour, Employment and Social Security

District	Male	Female	Total
Dhankuta	2,380	140	2,380
Sankhuwasabha	1,886	94	1,886
Bhojpur	2,608	116	2,608
Solukhumbu	749	180	749
Okhaldhunga	1,594	118	1,594
Khotang	3,578	129	3,578
Total	12,795	777	127,95

Literacy

Literacy rates vary across districts in Nepal (Figure 31) but continue to be relatively low overall. This needs to be considered when developing approaches to build capacities, raise awareness, develop messaging and seeking participation of communities in the project.

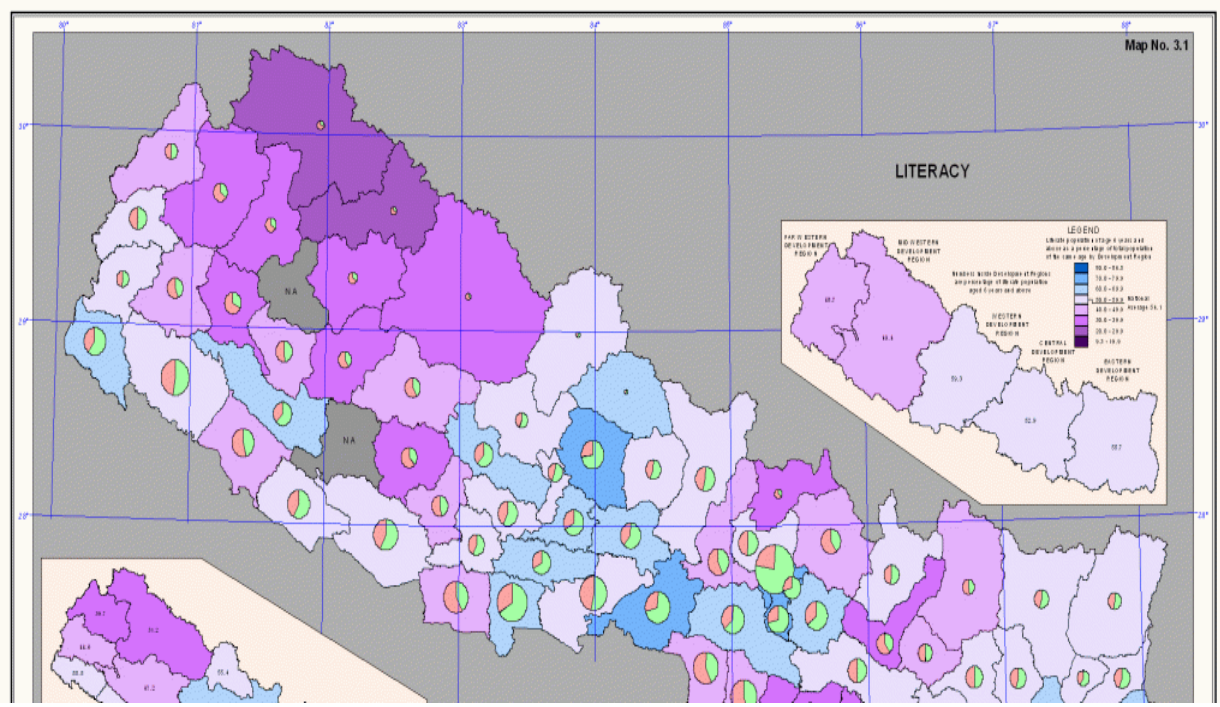


Figure 31 Literacy rates in Nepal[146]

Religion

Nepal is a secular nation, with secular defined by the Constitution (Part 1, Article 4) as 'religious, cultural freedom, along with the protection of religion, culture handed down from time immemorial'.

Religions practiced in Nepal include Hinduism, Buddhism, Islam, Kirat, Christianity, Prakriti, Bon, Jainism, Bahai, Sikhism and some minority religions. The main religions followed in Nepal are Hinduism (81%), Buddhism (9%), Islam (4.4%), Kiratism (3%), and Christianity (1.4%).

Land Ownership and Customary Tenure

Land rights and land tenure are a politically sensitive agenda in Nepal. There is an issue of access to land in rural areas. At present, all land in Nepal is considered as the property of the state. But before 1950 there were two types

[146] Source: https://cbs.gov.np/literacy/ accessed 17/9/21

of land tenure systems namely- Raikar as the land owned by the state, and Kipat as the land owned by certain ethnic communities. After 1950, the Raikar land was allocated to individuals with all rights from use to sell the land, however, the owner of such land had to pay taxes to the government. The Raikar land tenure was further divided into four categories with specific features of tenure arrangements. After 1964 most of the customary land tenure systems have been abolished. Some of the remaining tenures were abolished during systematic and compulsory cadastral surveying and preparation of basic land records or land register. The present land tenure systems are as follows (Table XIII-14):

- Private land with absolute ownership - where land can be held by the owner or may lease or mortgage or sell.
- Public and government - where the land belongs to the government but is used by public or community, but the government land is handled by itself.
- Trust land or Guthi land - land allocated to the trust or Guthis.

Table XIII-14 Current land tenure system in Nepal[147]

	Land tenure system					
	Registered (Statutory)		**Religious**	**Customary**	**Non-registered**	
Land tenure type	Raikar	Private	Does not exist	Does not exist	Non-formal	Socially accepted Legally recognised Unregistered
	State	Government			Informal	Socially accepted Legally not recognised Unregistered
		Public				
	Guthi	4 types (Guthi, Birta, Jagir, Raiya)			Encroachment	Socially not accepted Legally not recognised Unregistered

Major customary tenures are Raikar, Birta, Jagir, Rakam, Guthi and Kipat. Forms of land tenure in Nepal emerged from the orders declared by the crown or rulers over time. The traditional form of land tenure in Nepal was state ownership. However, land used by the individuals and the intermediaries (customary tenure) between the state and the cultivator have tended to obscure the character of this basic relationship. The crown was the supreme owner of all land or at the apex of land tenure system before 1950. The different forms of land tenure(s) system support the argument that the state has traditionally considered itself the owner of all the land within its domain.[148]

A description of the customary tenure types is given below[149]:

- **Raikar**: The Raikar is probably derived from the Sanskrit words Rajya (state) and Kara (tax), thereby denoting land on which the state levies taxes. It means that land on which taxes are payable to the government is listed in the official records. This distinguishes Raikar from the other forms of land tenure, Birta, Guthi, and Kipat which do not necessarily pay taxes and for the most part was not listed in official records. The land system in Nepal was previously determined primarily by relative abundance of land to the demand of it. Accordingly, law visualized land as a free commodity to be distributed among the local inhabitants based on their need and the availability of land. The Nepal Muluki Ain (legal code) stated as: "Those who possess inadequate land shall be given a proportionate share of the waste land available in that district, in such a way that each share includes land of both inferior and superior quality. But if land brought under cultivation by the strength of one's body exceeds this proportionate share, no deduction shall be made there from"[150]. Rights on Raikar land are limited to occupancy rights vis-à-vis the state. Relations between the state and the cultivator are thus essentially similar

[147] Dahal, G. R., Adhikari, K., & Thwaites, R. (2018). Forest tenure and community forestry in Nepal: Trends and implications. In R. Thwaites, R. Fisher, & M. Poudel (Eds.), *Community forestry in Nepal: Adapting to a changing world*.
[148] Administration of Land Tenure Babu Ram Acharya Land Tenure and Land Registration in Nepal Integrating Generations FIG Working Week 2008 Stockholm, Sweden 14-19 June 2008 4/13
[149] Land Tenure and Land Registration in Nepal Babu Ram ACHARYA, Nepal
[150] Mahesh Chandra Regmi, Guthi land of Suvam Devi Bramani – Bhaktapur Guthi Records 1953 – Land Tenure and Taxation in Nepal

to those between a landlord and his tenants. Land belonged to the state but let out to "tenants" and regularity in the payment of the land tax or arrears (payment of annual land revenue) is the prime condition for holding land.

- The landholder is listed as "Mohi" (tenants) in the assessment records. Transactions of Raikar land involve a transfer of occupancy rights only and not of the land itself. The term used for Raikar transactions is "Rajinama" literally "resignation" meaning to give up the right on land.
- **Birta:** The term "Birta" probably derived from the Sanskrit word "Britti" meaning livelihood. In other words, Birta means granted land to individuals to enable them to make a living. The following Sanskrit lines appear generally in Brita grants as: Anybody who confiscates the land granted by him or by others shall in his next life be a worm living in human excrement for 60,000 years. Birta land had no absolute ownership rights. Birta land may be utilized according to the terms and conditions prescribed in the grant. Transactions of Birta land were called "Farse" meaning that the precondition has been broke. The policy for abolition of Birta system and conversion of all Birta holdings into raikar has been declared since 1951 but it was functional only in 1959, after the formation of the elected Nepali Congress government. The policy was given legislative effect in the form of Birta Abolition Act 1959 and Section 3 of the Act provisioned as: (i) With effect from the date of the commencement of this Act, the Birta system existing in the kingdom of Nepal has been terminated and all Birta holdings existing up to the day prior to the commencement of this Act have been abolished. (ii) All Birta lands existing in the kingdom of Nepal, which have been abolished under sub-section.
- **Jagir**: The term "Jagir" is of Persian origin and denotes the emergence of Jagir tenure to assign Raikar land to government employees and functionaries. This practice was followed by the government until 1951. It was the policy of the government to pay the salaries of civil and military employees in the form of Jagir assignments as far as possible. The assignments were made until the death or termination of employment of the employee concerned. The Jagir system was finally abolished in 1951 after the downfall of Rana regime. All Jagir holdings then reverted to the state.
- **Rakam:** This system originated from the assignment of land as the remuneration for the performance of specific functions, mostly of a manual character. Jagir system usually constituted a permanent and inheritable assignment of land of continued nature whereas Rakam was temporarily assignment and lasted until the death or termination of service. Rakam lands have been assigned to carpenters, bricklayers, mail carriers, musicians (Kusule), caretakers of religious places and similar categories of manual work. This system of Rakam land was abolished in 1955 and converted into Raikar lands.
- **Kipat**: Kipat system is essentially a form of communal tenure and certain ethnic groups are permitted to own land. The most prominent groups are from Limbus of Dhankuta and Ilam. The subgroups are Yakha, the Athapriya, the Bhote, the Majhiya and the Tamangs. This Kipat system is also found in East No. 1 and 2 districts, Palpa, Accham and Dailekh. Kipat land cannot be alienated to individuals outside the community. If Kipat holders settle people of other tribes, the land becomes Raikar. Kipat system was abolished in 1964 when land reform campaign was launched.

- **Guthi:** The term Guthi is probably derived from Sanskrit word "Gosti" or council. Land assigned for charitable, religious or philanthropic institutions came under Guthi tenure. There are different forms of Guthi lands. Majority of cases come under state administration called "Rajguthi". Sometimes Guthi lands are privately operated but grants are registered in the official records called Darta Guthi, and those not registered and generally used for religious purposes are Duniya Guthi. Guthi land may also be owned by monasteries. There are different categories of Guthi land that still exist. They are: Guti Tainathi, Guthi Adhinastha, Raj Guthi, Nigi Guthi.
- Indigenous Peoples and Ethnic Minorities

Nepal is an ethnically complex and diverse country, with the national census[151] in 2011 recognising 126 Indigenous castes[152] and ethnic groups. Indigenous peoples are recognised in the Nepalese Constitution and are addressed as "Adibasi Janajati".

[151] CBS (2011). National population and housing census. Kathmandu: Government of Nepal, National Planning Commission Secretariat, Central Bureau of Statistics.

[152] The Nepalese caste system broadly borrows the classical Hindu Chaturvarnashram model, consisting of four broad social classes or varna: Brahmin, Kshatriya, Vaishya, Sudra.

Altogether 126 ethnic groups are reported in the 2011 Census, only 59 ethnic groups are officially listed as indigenous peoples or indigenous nationalities (Janajaitis) by the NFDIN Act, 2002. As per the definition of Janajati in the National Foundation for Development of Indigenous Nationalities (NFDIN) Act, 2002 indigenous nationalies means a tribe or community as mentioned in the schedule having its own mother language and traditonal rites and customes, distinct cultural identity, dinstincet social structure and written or unwritten history.

The Adibasi janajatis are spread across the country occuring in almost every part. Chhetri is the largest caste/ethnic groups having 16.6% (4,398,053) of the total population followed by Brahman-Hill (12.2%; 3,226,903), Magar (7.1%; 1,887,733), Tharu (6.6%; 1,737,470), Tamang (5.8%; 1,539,830), Newar (5%; 1,321,933), Kami (4.8%; 1,258,554), Musalman (4.4%; 1,164,255), Yadav (4%; 1,054,458) and Rai (2.3%; 620,004)[153].

Within the project area, there are Rai, Limbu, Sherpa, Tamang, Lhomi, Topkegola and Gurung indigenous communities, who speak Tibeto-Burman languages[154]. These Indigenous Peoples rely on agriculture for their livelihoods, with most of the communities practising subsistence farming, which is vulnerable to climate change impacts, particularly flooding.

Indigenous Peoples livelihoods depend upon either natural resources or wage labor. The vulnerability of these communities to climate change impacts is compounded by their reliance on climate-sensitive resources, such as local water supplies, agricultural land, fuel wood and medicinal herbs, as well as climate-sensitive activities such as farming and livestock rearing. With ongoing changes in climatic conditions occurring in Nepal, these communities are facing challenges in continuing their traditional livelihoods and practices. These changes, combined with prolonged dry spells, have severe impacts on crop production and livelihoods as communities may be forced to leave agricultural land barren because of the uncertainties in rainfall or diseases becoming more prevalent under climate change conditions.

In addition to the negative impacts on livelihoods, climate change has influenced the spatial distributions of indigenous plant species, many of which Indigenous communities rely on for producing traditional clothing items, as well as for medicinal purposes.

A relationship with nature is central to Nepalese Indigenous Peoples' culture, which extends beyond sustenance of lives and livelihoods and into emotional and cultural dimensions of value. Changes in the environment caused by climate change and human development fragments this relationship, putting knowledge systems and skills that are embedded in nature at risk. Water is particularly important to Indigenous Peoples in the project area. Beyond consumptive value, the communities' relationship with water is culturally crucial as they believe that calamities related to water, such as floods or Glacial Lake Outburst Floods (GLOFs), are related to Gods or ancestors. These communities traditionally preserve water resources, holding them as sacred elements. Consequently, any infrastructure or dilution of the structure of natural resources, including lake lowering, may negatively impact Indigenous Peoples' cultural practices and wellbeing.

For Indigenous Peoples, customary institutions and customary law are very important as they are spiritually and intimately connected with the collective way of life of Indigenous Peoples, management of land and natural resources, livelihoods based on indigenous knowledge, customary skills, technology and practices.

However, Indigenous Peoples have not always been adequately represented in decision making processes and their knowledge of natural resources not incorporated into natural resource management regimes. Indigenous peoples who old close tiew with natural systems should be part of decision making and their collective rights recognised, as reflected in UNDRIP and ILO169. Further, development on customary land of Indigenous Peoples where FPIC has not been obtained, has also historically caused land conflicts, impacted livelihoods, and further undermined the socio-economic power of indignous communities.

Governance structures within Indigenous Peoples' communities include village chiefs and head priests in each village. As authority figures in the community, chiefs are often consulted on matters concerning the village. Community priests also play an important role in climate change response, as Indigenous beliefs about the causes

[153] https://mofa.gov.np/about-nepal/nepal-profile/ accessed 19/9/21

[154] Tibeo-Burman languages comprise a group of approximately 250-300 languages spoken throughout countries in Southeast Asia, mostly in remote mountain areas.

of climate change are related to Gods or ancestors. Indigenous Peoples often rely on traditional Lama gurus or shamans for forecasting natural disasters in the community.

Combining these systems of Indigenous Peoples into project interventions will help effectiveness and sustainability of the project as it will relate to a fundamental element of community life in the context and will foster community ownership. Similarly, Indigenous Peoples in the project area have traditional systems of communities, called *Katuwal* system, used for relaying messages and information. These systems can co-create and play active roles in disseminating information about the need for early warning systems (EWS).

The design of the project encourages ownership and benefits by acknowledging and appropriately incorporating traditional practices, knowledge, and skills of Indigenous Peoples in the project area. These communities have practiced and adapted different measures over centuries in response to changing climate conditions. Focus has, therefore, been placed on considering the Indigenous and local techniques that are effective in building resilience among vulnerable communities in Nepal.

The project will seek meaningful representation and participation of Indigenous Peoples in climate policy and decision-making processes is crucial.

Infrastructure

Roads

The total length of the project districts is 849 km. Sankhuwasabha district has the largest (235 km) road network and Solukhumbu district has the smallest (37.2 km) (Table XIII-15).

Table XIII-15 Road length by district[155]

District	Road Length (Km)	Road Density per (100 Sq Km)
Sankhuwasabha	235	7
Solukhumbu	37.2	1
Bhojpur	107	7
Dhankuta	134.68	15
Khotang	200.46	13
Okhaldhunga	134.9	13
Total	**849.24**	

Airports

Nepal has one international airport located in Kathmandu. The remainder of the country is serviced by a network of domestic airports (Figure 32).

[155] www.nepal.gov.np

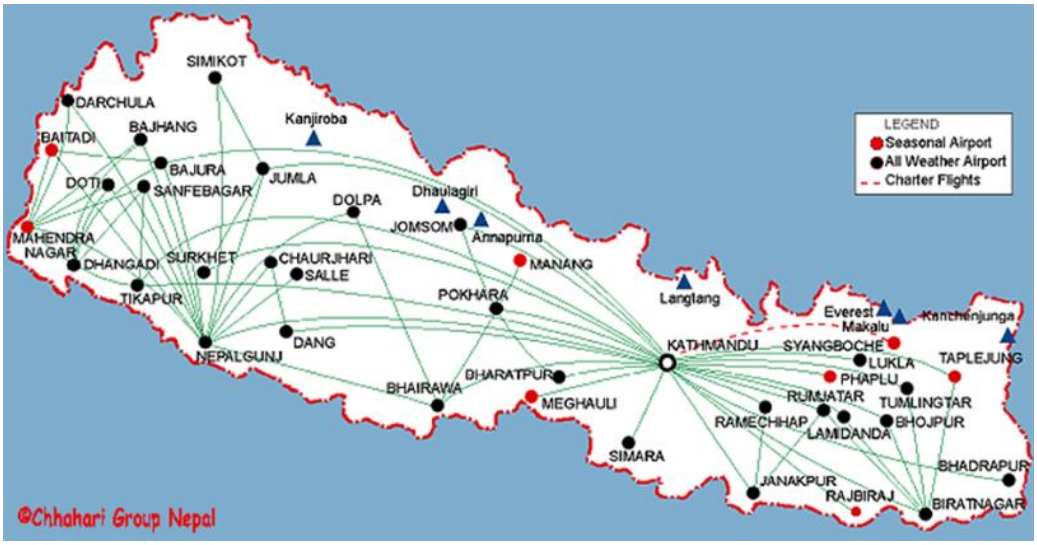


Figure 32 Domestic airports in Nepal

There are nine domestic airports in the project districts (Table XIII-16).

Table XIII-16 Domestic airports that service the project area

District	Number of domestic airport	Location of Airport
Sankhuwasabha	1	Tumlingtar
Solukhumbu	3	Phaplu, Syanboche, Lukla
Bhojpur	1	Bhojpur
Dhankuta	-	-
Khotang	3	Lamidanda, Khanidanda, Thamkharka.
Okhaldhunga	1	Khiji Chandeshwori
Total	9	

Archaeological and Cultural Heritage

According to the Ancient Monument Preservation Act of 1956, an 'Ancient Monument' means a temple, monument, house, abbey, cupola, monastery, stupa, or bihar, etc., which have importance above one hundred years from the point of views of history, the arts, science, architectonic, or art of masonry. 'Ancient Monument' also means the site of a monument as well as of human settlement or place, remnant(s) of ancient settlements such as a sacred or revered cave, an ageless shrine, or other such sites, having value from national or international points of view, irrespective of the fact that such settlements or places adjoin with each other or are separate in the same area, including associated 'archeological objects'.[156] There are 42 monuments and cultural heritage sites in the six project districts as summarized in Table XIII-17, while the names of the cultural heritage sites are provided in Table XIII-18.

Table XIII-17 Number of Temples and Gompas in Project districts

District	Number of temples/gompa
Sankhuwasabha	11
Solukhumbu	11
Bhojpur	6

[156] Archaeological object' means the object made and used by human being in pre-historical period or hand written genealogy, handwritten manuscript, golden inscription, copper inscription , petrography, wood inscription, *bhojpatra* (document written in the bark of birch tree), *tadapatra* (documents written in the leaf or bark of the Palmyra tree),paper, coin, house where historical event has occurred or where historically special personality has resided and things such as stone, wood, soil, ivory, bone , glass, cloth, paper, or metal used by such person or some important portion of the house in which attractively scribed things are used.

Dhankuta	7
Khotang	2
Okhaldhunga	5
Total	42

Table XIII-18 Names of cultural heritage sites by District

Name	District
Manakamana Devi Temple*	Sankhuwasabha
Dudhnaath Mahadev Temple	Sankhuwasabha
Ram Temple	Sankhuwasabha
Basnyaat Pauwa (Mejar Paati)	Sankhuwasabha
Baneshwar Mahadev	Sankhuwasabha
Yaang Guthi Gonpa	Sankhuwasabha
Chhorten Saamba (New Mound)	Sankhuwasabha
Lingang Chholing Gonpa	Sankhuwasabha
Kaangyur Gonpa	Sankhuwasabha
Hedaangana Gadhi (Historical Monument)	Sankhuwasabha
Lungden Gadhi (Historical Monument)	Sankhuwasabha
Bhimsen Temple	Bhojpur
Ajima Maata Temple	Bhojpur
Siddhibinayak Temple	Bhojpur
Panchbuddha Chaitya	Bhojpur
Sidhhakali Temple	Bhojpur
Hatuwa Gadhi	Bhojpur
Halesi Mahadebsthaan	Khotang
Majhuwa Gadhi	Khotang
Chandi Devi Temple	Okhaldhunga
Tolu Gumba Monastery	Okhaldhunga
Chandisthan Gupha (Cave)	Okhaldhunga
Kirateshwor Mahadev Jahakari Baba temple	Okhaldhunga
Kotgadhi	Okhaldhunga
Bhimsen Temple	Dhankuta
Singheshwar Mahadev	Dhankuta
Gokundeshwar Mahadev	Dhankuta
52 Door Palace	Dhankuta
Karmacharya Paati	Dhankuta
Narbadeshwor Mahadev	Dhankuta
Shree Panchami Temple	Dhankuta
Thyangboche Monastery	Solukhumbu
Chiyong Monastery	Solukhumbu
Pangboche Monastery	Solukhumbu
Junibesi Monastery	Solukhumbu
Gumela Monastery	Solukhumbu
Kyorab Monastery	Solukhumbu
Thame Monastery	Solukhumbu
Singefu Monastery	Solukhumbu
Thaksindu Monastery	Solukhumbu
Thaktoo Monastery	Solukhumbu
Goli Monastery	Solukhumbu

* Manakama temple on the Arun River particularly vulnerable to flooding

Figure 33, Figure 34, and Figure 35 show the locations of major cultural heritage sites within the three project watersheds.

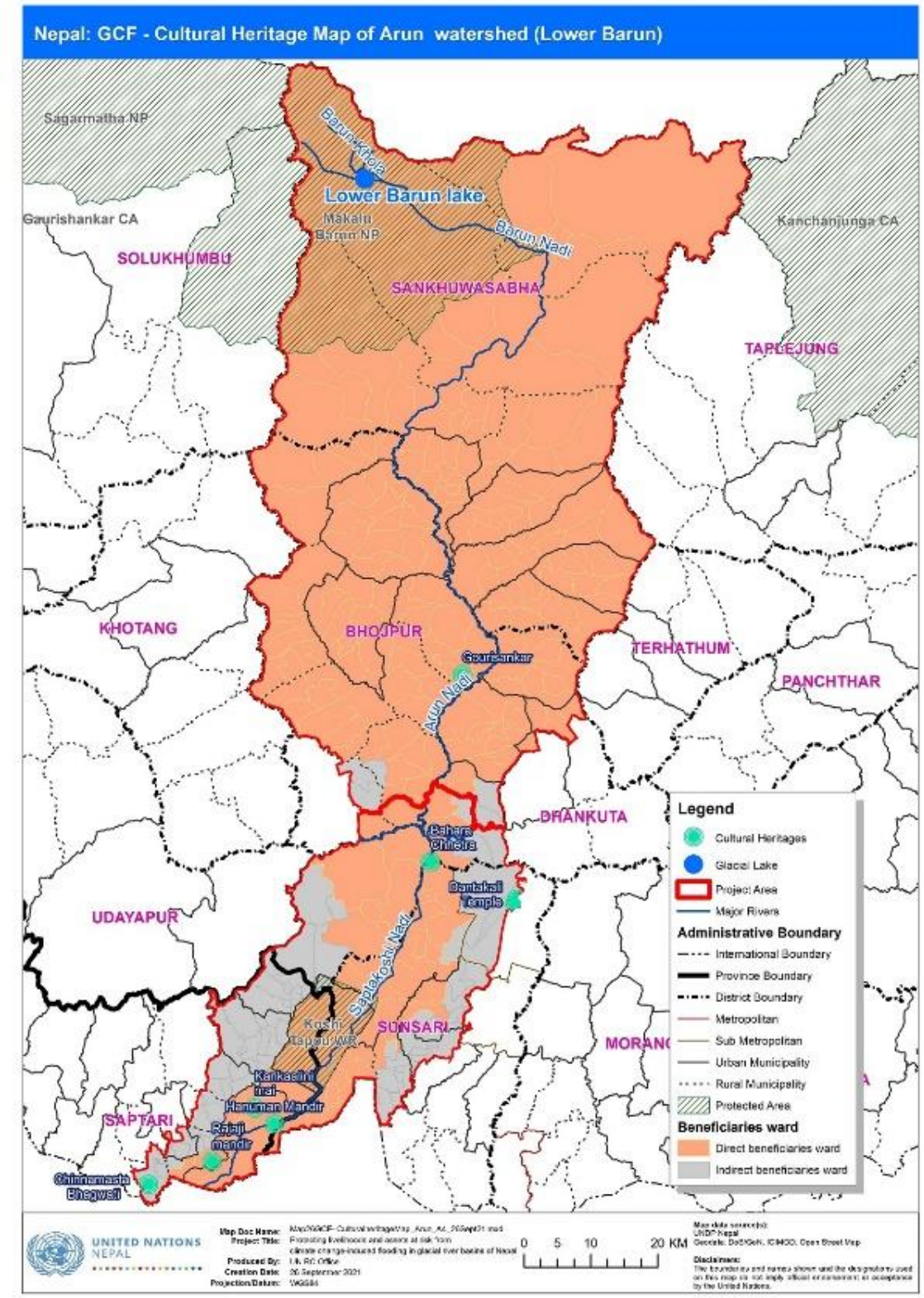


Figure 33 Major cultural heritage sites in Arun watershed

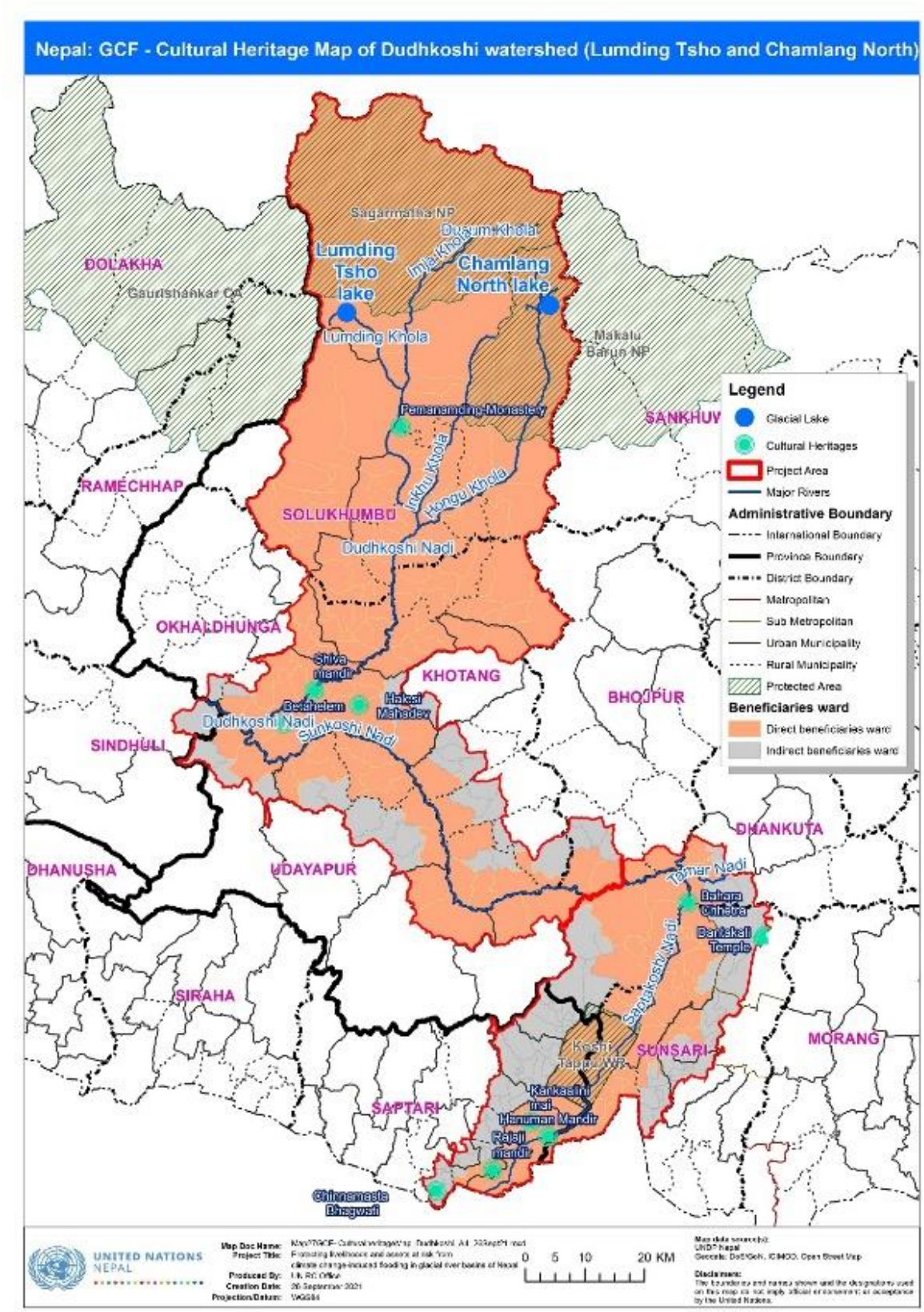


Figure 34 Major cultural heritage sites in Dudkhoshi watershed

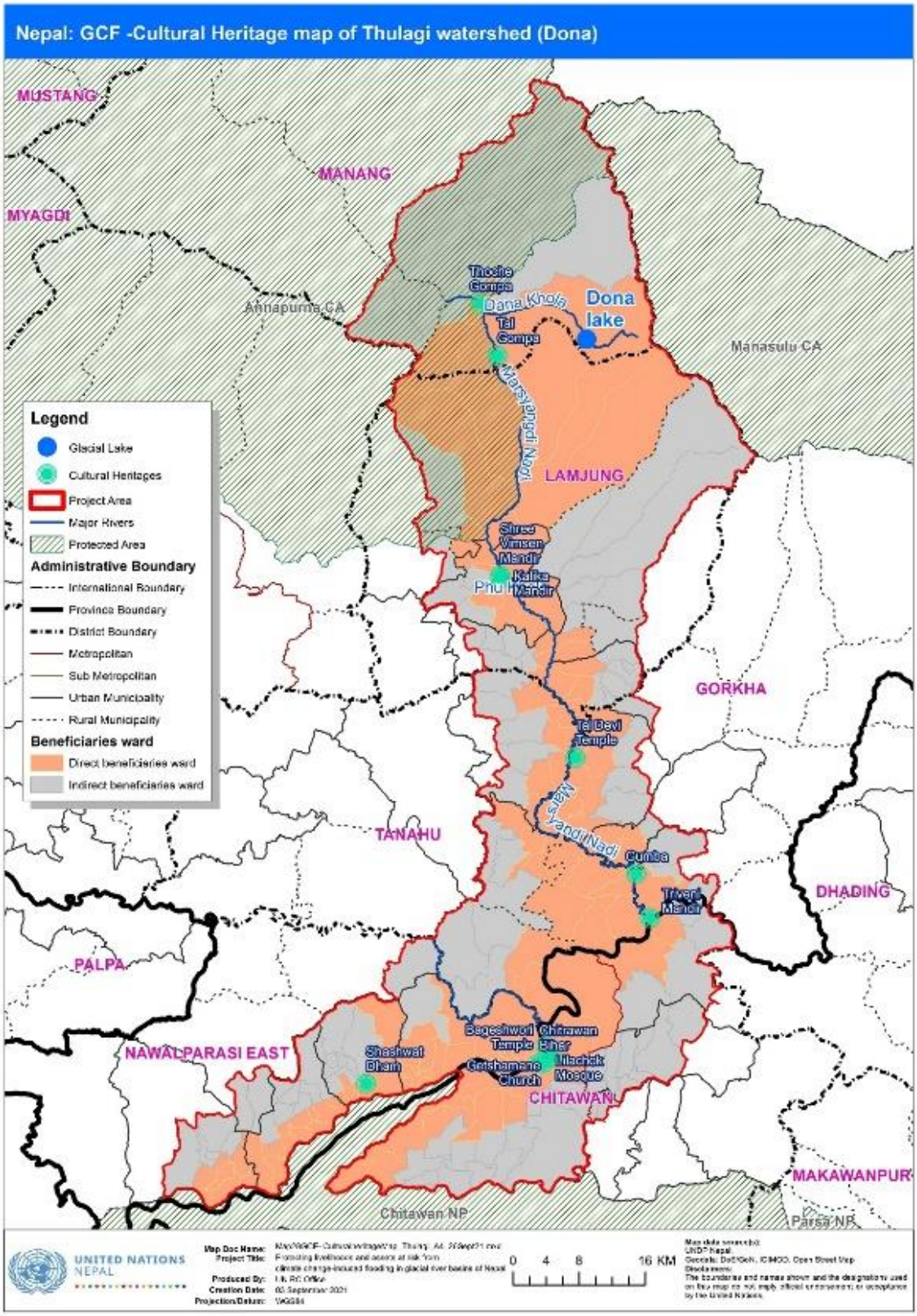


Figure 35 Major cultural heritage sites in Thulagi watershed

Legal and Institutional Framework for Environmental and Social Matters

Legislation, Policies and Regulations

The following legislation is relevant to the project:

- **Constitution of Nepal (2015).** Guarantees people's welfare and all-round progress through economic, social and cultural transformation, while defending and strengthening political achievements and their development. Maintains the rule of law by protecting and practicing human rights and implements international treaties and agreements. Ensures the right to equity, where there shall be no discrimination in the application of general laws (Article 18). Guarantees good governance by ensuring equal access to services provided by the State and making public administration clean, competent, impartial, transparent, accountable and participatory. Expands and develops the means, administration and responsibilities if federal units for the management of resources. Requires maintenance of national forest area goals and incorporation of state policies to control forest encroachment
- **Environment Protection Act, 2076(2019 AD)** - The Act includes additional layers for preparing and approving 'environmental study' report for the prescribed proposal in addition to IEE and EIA. Based on proposed definition, 'environmental study' includes: (i) brief environment study; (ii) IEE; and (iii) EIA reports. A section has been added for 'detailed alternative analysis' of any proposal that requires an environmental study report. Similarly, section 11 has been added for carrying out Supplementary Environmental Impact Assessment (SEIA) of the project whose EIA report has already been approved.
- **Muluki Aparadh Samhita, 2017 (Criminal Code)** - The Criminal Code was adopted in 2017 alongside five other Acts, designed to replace the Civil Code, 2021. This act was issued, pursuant to Article 93 of the Constitution of Nepal, with great object to, inter alia, maintain peace and order in Nepal and to maintain harmonious relations between the people of various classes, castes, tribes and regions.
- **Muluki Debani Samhita, 2017 (Civil Code)** - This act came into action from 1st Bhadra, 2075. Clause 617 states that the tenure of lease contract lasts for forty years for the construction, development and operation of infrastructure like electricity generation. Clause 640 indicates that persons engaging in the manual works under 16 years should not be forced to engage in physically challenging works. Clause 641 states that workers should not be liable to work more than 8 hours a day and 48 hours a week without extra time payments.
- **Soil and Water Conservation Act, 1982** - Section 3 of the Act empowers government to declare any area a protected watershed area. Under Section 10 of the Act, power is extended to the Watershed Conservation Officer to grant permission to construct dams, drainage ditches and canals, cut privately owned trees, excavate sand, boulders and soil, discharge solid waste, and establish industry or residential areas within any protected watershed. The Act outlines the essential parameters necessary for proper watershed management (including both rivers and lakes). The Act is applicable only to protected watersheds.
- **Water Resource Act, 1992 and Water Resource Regulations, 1993** - The Act strives to minimize environmental damage to water bodies, especially lakes and rivers through environmental impact assessment studies and the proponents who wish to use water resources for various purposes should prepare EIA report before a license can be granted. The Act stipulates that soil erosion, flooding, landslides, or any significant impact on the environment should be avoided in all uses of a water resource. Under the Water Resource Regulation, it is mandatory under Rule 17(e) of the regulation that any person or corporate body, who desires to obtain a license for utilization of water resources must state in his application that appropriate measures will be taken to lessen the adverse effects due to the project on the overall environment. Measures are to be taken for the conservation of aquatic life and water- environment, and for mitigating social and economic effects of the project in the concerned area. Local labor should be utilized and the local people should get benefits after the completion of the project. The regulation also emphasizes training to the local people in relation to construction, maintenance and operation of the project. The mitigation plan should give details of people to be evacuated and a necessary plan for their rehabilitation. Rule 19 stipulates that the water resources committee shall publish a notice giving detailed information about the project to the people. If any person finds that the construction and operation of the project concerned is likely to cause adverse effects, he or she may furnish his/her reaction stating the reasons within thirty-five days from the date of publication of the notice. If the committee is satisfied with the reason given by the people, the proponent will be asked to revise the plan.
- **Land Acquisition Act, 2034 (1977)** - Land Acquisition Act 2034 Amendment 2049 is the main legislation to guide the involuntary acquisition of land in the country. Government can acquire land at any place in any quantity by

giving compensation pursuant to the Act for the land required for any public purpose or for the operation of any development project initiated by government or government authorized institution (sections 3 and 4).

- **Ancient Monument Protection Act, 1956 AD** - Section 2 defines the ancient monuments; Sections 3, and 17 empower Government to declare any place or area as a monument site / area; Section 13 restricts transfer, transaction, export or collection of ancient monuments and archaeological objects or curio without prior approval of the government.
- **Labor Act, 2017** - Describes classification of job postings; makes provision of appointment letter and prohibition on child labour and restriction on minors and women; Section 10 - job security; section 12 - retrenchment and reemployment; Section 16, 17, 18 and 19 - working hours; Sections 20, 21, 22, 23, 25 and 26 - remuneration; Sections 27 to 36 - occupational health and safety; Sections 37 to 44 - welfare arrangements; Section 46 - special arrangements for construction sites; Sections 50 to 60 - conduct and penalties; Sections 72 to 82 - settlements of labour disputes.
- **Explosive Act, 1961 AD** - The act defines explosive matters and reserves the right to the government to define the explosive as to the requirement by publication of notice. Without holding the license from the government authorized person, individuals/institutions are prohibited to manufacture, use, sell, transport or import/export explosives defined by the government. The licensee has the obligation to report in case of accidents while manufacturing, using, selling, storing, and transporting of explosives. Those that do not comply with the provisions are treated as offenders of the law and are punishable as per the law provisions.
- **Land Reform Act, 1964 AD** - The land reform act has set a ceiling on the landholding for individual or households. Land holding above the land ceiling could be confiscated as per the provisions of the act. However, with the permission of the authorized government officials, landholding ceiling could be increased for the organizations as per the requirement of the organizational works.
- **Aquatic Animal Protection Act, 1960 AD** - The Aquatic Animal Protection Act, 1961 provides the legislative protection of the aquatic habitats. The section three (3) of the Act renders punishment to any party introducing poisonous, noxious or explosive materials into the water source or destroying any dam, bridge or water system with the intent of catching or killing aquatic life. The section four (4) empowers the government to prohibit catching, killing and harming certain kinds of aquatic animals through notification in the Nepal Gazette.
- **National Foundation for Upliftment of Aadibasi/Janjati Act, 2002** - The Act prescribes a number of provisions to overall improve the lot of the Aadibasi / Janjati by formulating and implementing programs relating to the social, educational, economic and cultural development through: Creating an environment for social inclusion of disadvantaged and indigenous people ensuring participation of disadvantaged groups in the mainstream of overall national development of the country, by designing and implementing special programs for disadvantaged groups; Protecting and preserving their culture, language and knowledge and promoting the traditional knowledge, skills, technology and special knowledge of the Aadibasi / Janjati and providing assistance in its vocational use.
- **Forest Act, 2019** - The National Forest Act, 2076 defines forest area as the grass land, grazing land; snow covered and uncovered barren cliff, road, pond, lake, wetland, river, flood plain and unregistered land except the land under private ownership and land managed by prevailing laws. According to Section 3 of this Act, no one can change the land use pattern, use the forest land, and take the land in lease without the permission of Nepal Government. Section 42 of this Act empowers the government to permit the use of any part of the National Forest for the implementation of a plan or project of national priority without significantly affecting the environment if there is no alternative except to use the forest area. According to Sub Section 2 of Section 42, the project must compensate the National Forest land equivalent to the land occupied by the project. Instead, the project can pay the cash amount for the land used by the project (Sub Section 5 of Section 42). According to Sub Section 6 of Section 42 of this Act, the project proponent itself will be responsible to plant the saplings take care and protect the planted tree for five years with the co-ordination with concerned forest office.
- **National Trust for Nature Conservation Act, 1982** - The Act aims to conserve and manage the nature and natural heritage. The Act forms a trust under the guidance of Nepal government to conserve, promote and manage wildlife and other natural resources. Most importantly the trust aims to manage necessary arrangements related to the development of national parks. Therefore, if any project takes its route from national parks the trust is to be consulted.

- **National Parks and Wildlife Conservation Act, 1973** - Article 5, includes provisions to restrict damage to forest products and to block, divert any river or stream flowing through a national park or reserve, or any other source of water, or restrict the use of any harmful or explosive materials without obtaining written permission; Article 9 lists protected wildlife species that are prohibited from being hunting; Article 13 prohibits collection of samples from National parks and Reserves without obtaining a license.
- **Solid Waste Management Act, 2011** - Solid Waste Management Act aims to manage solid waste and mobilize resources related thereto and ensure the health convenience of the common people by controlling the adverse impact on pollution from solid waste. The commercial or industrial establishments should adhere to the clauses mentioned in the act during the construction and operation phases of the projects.
- **Control International Trade in Endangered Wild Fauna and Flora, 2017** - This act was formulated based on Sub-Article 1 of Article 296 of the Constitution of Nepal for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 1973. The main objective of this act was to protect the endangered flora and faunal species and monitor and control the international trade of those species. According to this Act, the species enlisted in Appendix I of CITES is stated as RARE Flora and Fauna, Appendix II is stated as THREATENED Flora and Fauna and Appendix III is stated as PROTECTED Flora and Faunal Species.
- Section 1 of this Act states that no one can transport, use, keep, plant, grow and have the captive breeding of the endangered flora and fauna cited in Appendix I and II of CITES. If anyone is interested to do research, training or plant and grow the endangered species, he/she has to take the consent letter from the concerned authority.
- Section 8 of this Act states that interested person can keep, utilize, and transport the protected species after getting the license from the concerned authority.
- **Right to Information Act, 2007** - The aim of this act is to make the functions of the state open and transparent in accordance with the democratic system and to make it responsible and accountable to the citizens. It intends to make the access of citizens to the information of public importance held in public bodies simple and easy and to protect sensitive information that could have an adverse impact on the interest of the nation and citizens.
- Clause 3 of the act ensures the Right to Information. It says that every citizen shall, subject to this Act, have the right to information and they shall have access to the information held in the public Bodies unless confidentiality has been maintained by laws.
- Clause 4 of the act describes the Responsibility of a Public Body to disseminate information. It mentions that each Public Body must respect and protect the right to information of citizens. Public Bodies shall have the following responsibilities for the purpose of protecting the right to information of citizens: - to classify and update information and make them public, publish and broadcast to make the citizens' access to information simple and easy; to conduct its functions openly and transparently; to provide appropriate training and orientation to its staffs.
- Public bodies may use different national languages and mass media while publishing, broadcasting, or making information public. A Public Body shall arrange for an Information Officer for the purpose of disseminating information held in its office.
- The clause 7 of the act prescribes the Procedures of acquiring information. It states that a Nepali Citizen, who is interested to obtain any information under this Act, shall apply before a concerned Information Officer by stating the reason to receive such information.
- **Local Government Operation Act, 2017** - This Act states the roles of local bodies in Nepal. The jurisdiction, roles and responsibilities of personnel appointed in local bodies are clearly mentioned in this Act.
- **Land Use Act, 2019** - According to Section 2, 6 (1) before the formation of land use plan, Nepal government, province government and local government must study the increase in demand of the land for the wildlife, population growth rate, necessity of food and shelter, economic development and infrastructure construction. According to Section 3, 8 (1) Article 4 states the land use cannot be changed by using the land that has been classified for another purpose. According to Section 3, 8 (7) irrespective of the fact whatever is written in sub article 1, Nepal government can change the current land use of the places where national priority development projects, industrial area, special economic area, etc. are to be established.
- **Public Road Act, 1974** - In relation to this proposal, the Public Road Act, 1974 has been attracted and this legislation provides provisions to ensure the construction and operation of the road access. The act also empowers the DoR to operate quarries and Borrow pits and other facilities during the access road construction (Section 17). In a nutshell, the Act facilitates construction of access roads and acquires land and property for the

extraction of construction materials and development of other facilities through compensation as negotiated and as well as to maintain greenery along the roadside.

- **Sangkraman Rog Niyantran Ain, 2020** - Section 2 of the Act states that officials can declare the state of pandemics with the required and Standard Operating Procedures, rules, and penalty which can be levied for dishonoring such order. Section 2 A; province can make their own Standard operating Procedure for handling the pandemics or can appoint an official to handle the pandemics and can make necessary provision regarding bringing the pandemic to control.
- Plans and Policies
- **The Fifteenth Plan (2076/77-2080-81) (2019/20-2023/24 AD)** - The plan focuses in developing modern, safe, and sustainable cities and integrated settlements to manage the increasing migration and urbanization. Further, the plans emphasize in construction of dense cities with modern infrastructure, urban corridors, specialized mountain cities and systematic settlements with pollution free urban environment. The plan aims to construct necessary infrastructure for the management and treatment of drinking water and waste at the provincial and local level by constructing large scale projects in the drinking water sector. Enhancing integrated settlement development, construction of civic housing schemes as well as inter-rural and urban areas and building a new city to expand local economic activities and create employment opportunities is another key aspect of the plan related to the land use plan. The plan emphasizes environmental conservation. The state will make such arrangements as may be required to keep the environment clean. The state will give priority to the prevention of adverse impacts in the environment from physical development activities, by increasing the awareness of the public about environmental cleanliness, as well as to the protection of the environment. The plan also emphasizes the need of sustainable utilization of natural resources of Nepal.
- **Nepal National Biodiversity Strategy and Action Plan (2014-2020)** - The NBSAP provides a guiding framework for the management of Nepal's biodiversity. It has been prepared to meet the national needs for managing biodiversity on a sustainable basis for the benefit of present and future generations, and to fulfill the country's international obligations. It has a long-term (i.e. 35 years) vision and includes specific short-term (up to 2020) strategies and priorities for action.
- The specific strategies and associated actions are grouped into six biodiversity themes and 15 cross-cutting subjects. The strategies for managing protected area and forest biodiversity aims at reducing or managing human pressure on natural resources, reducing human-wildlife conflict, controlling invasive alien species, mitigating climate threats to ecosystems, species, and their habitats, and addressing economic and social concerns of local and indigenous communities through targeted programmes, enabling policy and legislative environment. Reducing rate of loss and degradation of forest habitats, improving biological connectivity, enhancing knowledge and understanding about forests, promoting conservation of species and genetic diversities, enhancement of forest-based livelihoods are some of its focus areas.
- **Land Acquisition, Rehabilitation and Resettlement Policy, 2072 BS (2015 AD)** - Recognize the need for resettlement and rehabilitation plan to ensure the livelihoods of project-affected persons or households be at least above the pre-project conditions; Emphasize that the project development agency conducts meaningful consultation with project- affected persons, communities and sensitive groups, particularly poor, landless, senior citizens, women, children, indigenous / Janajati groups, disabled, helpless and persons having no legal rights on the operated land while preparing land acquisition, resettlement and rehabilitation plan; Employment opportunities to seriously project-affected households and Vulnerable groups (Dalit, Janajati or marginalized Indigenous, single women, helpless, disabled, senior citizens, etc.) based on their skills and capabilities, and Requires an adequate mechanism to listen to, register and resolve the grievances of the project-affected persons and communities.
- **Hydropower Development Policy, 2058 BS (1992 AD)** - Over all policy goal is to develop environmentally friendly hydropower to meet the country energy needs and to encourage private sector to invest in hydropower. The policy has a provision to make public the programs and measures identified by the IEE/EIA study for implementation to the local area people. The policy further states that all developers release at least ten percent of minimum monthly average discharges below the water diversion structure for all types of water resource projects. The private parties developing hydropower projects are encouraged to acquire the private land and property required for the project at their own costs. If the lands and houses are not available, the government ensures to acquire such property to the private developers according to prevailing laws. However, private

developers will have to bear all expenditures for such acquisition, and resettlement and rehabilitation of affected people. Government lands shall be made available to the private developers on a lease basis or according to the prevailing laws.

- **National Forest Policy, 2076 BS (2019 AD)** - The Forest Policy emphasizes the protection of soil, water, flora and fauna constituting the main element of forestry to sustain biodiversity. It recognizes that the sustainable forests management is only possible when it gives adequate attention to meet the basic needs of the people, sustainable utilization of forest resources, participation in decision making and sharing of benefits and above all on socio-economic growth.
- **Land Use Policy, 2015** - Land use Policy is a policy relating to limits and protection of Land and Land Resources, optimum use, and effective management thereto. Legal and institutional management for Lands and Land Resources (LLRs), and protection, use and management thereon are done under this Policy. This Policy shall bring about benefits of using Lands and Land Resources by creating a situation of distributing lands in a just manner. The National need of this policy is to ascertain of environment-friendly construction-works by making optimum use of Lands and Land Resources in keeping with a balance between the environment and development, to develop a hygienic, beautiful, well-facilitated and safe human settlement; to enhance a planned and sustainable urbanization of the country, and to achieve sustainable and inclusive economic boost up through devising and executing of all regional development plans of the country under a level-wise Land Use Plans. The vision of this Policy is to make optimum use of available Lands and Land Resources in pursuit of sustainable social, economic, and ecological developments and prosperity of the country as well.
- **National Environment Policy, 2019** - The objectives of the National Environment Policy are:
    - To prevent, avoid, control, minimize and mitigate pollution in these sectors namely noise air, water, soil, electromagnetic waves, chemicals including radioactive substances.
    - Manage solid waste originating from domestic, industrial, and service sectors.
    - To mainstream environmental issues in all development activities.
    - To conduct research and capacity development in the field of environmental protection and management.
- **National Energy Crisis Reduction and Electricity Development Decade Plan, (2016)** - This plan was formulated for the institutional improvement related to energy sector. According to this plan, for the community development of the project area, it is proposed to separate 0.75% of total project cost in case of the project with installed capacity below 100 MW and 0.5% of total project cost of the project with the installed capacity greater than 100 MW for Community Support Program in IEE and EIA report. In this plan, it is mentioned that the recommendation letter from the community forest is not required for the approval of IEE or EIA report. Supplementary IEE or Supplementary EIA is not recommended if significant impact on the environment is not expected due to the change in the project components or if there is change in the forest land requirement by 10%. It is planned to manage the 10% share of total capital of the project to the communities and personnel of the project affected district.
- **Nepal Environmental Policy and Action Plan, 1993** - Five policy principles apply, including: a) to manage efficiently and sustainably natural and physical resources; b) to balance development efforts and environmental conservation for sustainable fulfillment of the basic needs of the people; c) to safeguard natural heritage; d) to mitigate adverse environmental impacts of development projects and human actions; and e) to integrate environment and development through appropriate institutions, adequate legislation and economic incentives, and sufficient public resources.
- **National Water Plan, 2005** - The National Water Plan emphasizes the need for Strategic Environmental Assessment. Section 7 of the NWP highlights the Environment Management Plan (EMP) as a strategic document for the implementation, monitoring and auditing of environmental protection programs.
- **National Climate Change Policy, 2019** - The climate change policy includes climate adaptation and disaster risk reduction; low carbon development and climate resilience; access to financial resources and utilization; capacity building, peoples' participation, and empowerment; study, research, technology transfer, climate friendly natural resources management and institutional set up with legal provisions, and importance of monitoring and evaluation.
- **Working Policy for Construction and Operation of Physical Infrastructure within Conservation Area, 2009** - This policy describes the terms and conditions required for implementing projects inside the National Park or

buffer zone area. This policy states that no land will be made available for construction of any development works except of National priority within the conservation area and buffer zone area. It further states that if the hydropower utilizes the water flowing inside the National Park or along the boundary of the National Park, at least 50% or 10% respectively of monthly discharge or the discharge quantified by the SEIA report should be released. Implementation of mitigation measures, allocation of royalty for the protection of National Park, payment for use of natural resources and monitoring are some of the conditions mentioned in this policy.

- **Rangeland Policy, 2012** - One of the objectives is to help maintain ecological balance by conserving, promoting, and sustainable utilization of rangeland biodiversity. Emphasizes sustainable utilization of biodiversity and natural resources and protection of such commodities by bringing them under the ambit of intellectual property rights legislation. Highlights studying and developing records / data of biodiversity and genetic differences of rangelands and updating them regularly. Promotes in-situ and ex-situ conservation of rangeland-based resources that are rare and on the verge of extinction. Plans carrying out research to learn the contribution of rangelands in carbon sequestration. Sets up a 13-member Steering Committee at the central level and a 15-member District Coordination Committee.
- **National Water Resources policy, 2020** - The policy integrated all use of water resources including drinking water, irrigation, energy, and water induced disaster. The policy has 7 objectives with aimed to multi-dimensional and sustainable development of water resources for the economic and social transformation. The policy will fill the vacuum in the utilization sector in absence of national policy and will ease the disputes among the three tiers of government on water sharing issues.
- Rules and Regulations
- **Environmental Protection Rule 2020** - The newly formed regulation has included three types of environment examination concise environment study for project under schedule 1, Initial environment examination for the project that comes under schedule 2 and Environment impact assessment for the project that come under schedule 3. Section 4 of chapter 2 guides for the scoping works and section 6 guides for conducting the public hearing. Section 7 guides to develop the report with reference to annex 10 for concise environment study report, annex 11 for initial environment examination report and annex 12 for environment impact assessment report. Section 10 mentions strategic environment assessment. Section 16 mentions hazardous substance management. Chapter 3 mentions provision related to pollution control. Schedule 1 includes thresholds to conduct concise environment study, schedule 2 includes thresholds of project to carry out initiation environment examination and schedule 3 includes thresholds of project to carry out environment impact assessment.
- **Labor Regulation, 2018** - Section 11 (3) of the Labor Act provides for the employment contract and the matters to be covered under the employment contract. The Labor Rules require the Employer to provide notice to the Employees for layoff. The Notice should cover (a) reason for lay off and its duration, (b) details of Employee such as name, position, branch or division and job description, (c) information that mentions payment of half remuneration during lay off, (d) other matters as required by the Employer. The Labor Rules also require the Employer to lay off the Employee on rotation if the layoff is partially enforced. The Labor Rules specify the documents requirement for work permits. The application for work permit may be submitted by the Employer or by the foreign national in individual capacity.
- **Wildlife Reserve Rules, 1977** - Rule 4 stipulates provision of entry pass to enter the Parks or Reserve, Rule 6 stipulates restricted activities within the Parks and Reserves, Rule 11 stipulates prior approval for any research activities or study within the parks or reserves.
- **Conservation Area Management Regulation, 1996** - The conservation officer concerned shall constitute a conservation area management committee in each Village Development Committee within the Conservation Area for the effective implementation of the construction works related to the community development activities in the Conservation Area, protection of the natural environment of that area and management program related to the balanced utilization of natural heritage.
- **Child Labour (Prohibition and Regulation) Rules, 2006** - This Rule was framed in exercise of powers conferred by section 27 of the Child Labour (Prohibition and Regulation) Act, 2006. Before, employing a child as a Labor an application shall be filed in the Labor office to examine his /her health in relation to his/her ability and inability to do the work, mentioning the nature of the work and the age of the child. A child working in an Enterprise shall get the monthly remuneration and allowance not less than prescribed by the Government of

Nepal by publishing a notice in Nepal Gazette from time to time. A child working in an Enterprise shall get at least Thirteen days public holiday with full salary each year. A child who goes to school shall get Ten days educational leave during the annual examination in a year.

- **Forest Products Collection, Sale and Distribution Guidelines, 2017** - The clauses 3 to 10 of the guidelines have specified various procedures and formats for getting approvals for vegetation clearance, delineation of lands for vegetation clearance, evaluation of the wood volume etc. and government offices and officials are responsible for the approval. These provisions have direct relevance to the development of the project and need compliance to these provisions.
- **Standard Operation Procedure for Covid 19 (SOP**) - Guides how different stakeholders will act during the pandemics. Control and prevention measures to transmission and treatment and response of the pandemics. MOHP to be the central body to handle the Covid related information. Manage on ground situation, identify the gaps, and manage funds to cope with the pandemics.
- Standards
- **National Indoor Air Quality Standards (NIAQS), 2009 -** The time weighted (1~24hrs) standards are given for PM10, PM2.5, CO and carbon dioxide (CO2) for indoor environments. The units of measure for the standards are parts per million (ppm) by volume, milligrams per cubic meter of air (mg/m^3), and micrograms per cubic meter of air (µg/m^3). Monitoring of carbon dioxide is to ensure the adequacy of the ventilation of the monitoring sites. The provision for measurement of PM2.5 is preferred; the PM2.5 values can be converted to the corresponding PM10 values by application of a PM2.5/ PM10 ratio of 0.5.
- **Exhaust Emission Standards for Diesel Generating Sets, 2012 -** Emissions standards for exhaust emissions of Diesel plants / Generating sets.
- **Nepal Noise Standards, 2012 -** Noise levels for different land use categories and noise generating equipment.
- ***Drinking Water Quality Standards, 2005* -** Quality of drinking water supply in the project camps and construction sites.
- ***Nepal Vehicle Mass Emission Standard, 2012* -** Compliance to Type I to Type V tests for vehicles fueled with gasoline and diesel while importing vehicles for a project.
- ***Nepal Ambient Air Quality Standards, 2012* -** Limits of ambient air quality parameters around construction sites.

Environmental Impact Assessment in Nepal

An umbrella act the *Environment Protection Act, 1997* is in place and environmental regulations have since come into force. The EPA provides the legal basis for the relevant authorities to require an Initial Environmental Examination (IEE) or Environmental Impact Assessment (EIA) for all projects with potentially negative impacts on the environment. The Environment Protection Act makes impact assessment mandatory for major development projects.

The enforcement of the Act means that it is not possible to implement such projects without the approval of the authorities concerned. While the responsibility to conduct an IEE is left to individual implementing agencies, all cases requiring an EIA must be referred to the Ministry of Population and Environment.

The EPA obliges the Ministry of Population and Environment (MOPE) to make the arrangements necessary to make EIA reports public, so that the public may render opinions and suggestions. The Environment Protection Rules (EPR), 1997 further elaborates on the public consultation process to ensure the participation of different stakeholders from initial scoping to final approval. The EPR also obliges the proponent to issue a public notice on the contents prior to the preparation of a scoping report. Once the draft EIA report is prepared, based on the approved Terms of Reference (TOR), the proponent should conduct a Public Hearing at the project site. Following submission of the EIA report to the Ministry of Population and Environment, it should be made public. The MOPE has to make an approval decision on the EIA report within 60 days upon receipt.

The project team is awaiting a decision from MOFE as to whether the project will require an IEE or an EIA. Whichever is the case, MOFE's requirements will be met through the production of the scoped ESIAs planned for each watershed that will be prepared as part of the early implementation of the project. These ESIAs will satisfy both UNDP's SES and Nepalese law.

Multilateral Agreements and Biodiversity Protocols

Nepal is a signatory to various international and regional agreements and conventions, which are related to the environment. They include:

- Plant Protection Agreement for the South-East Asia and Pacific Region, Rome, 1956. Nepal acceded to the Agreement on 12 August 1965.
- Convention on the High Seas, Geneva, 1958. Nepal ratified the Convention on 28 December 1962.
- Treaty Banning Nuclear Weapon Tests in the Atmosphere, Outer Space and Under Water, Moscow, 1963. Nepal ratified the Convention on 7 October 1964.
- Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies, Washington, 1967. Nepal ratified the Convention on 10 October 1967.
- Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Ramsar, 1971. Nepal acceded to the Convention on 17 December 1987.
- Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Seabed and Ocean Floor and the Subsoil Thereof, London, Moscow, Washington, 1971. Nepal ratified the Convention on 6 July 1971.
- Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972. Nepal accepted the Convention on 20 June 1978.
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, 1972. Nepal ratified the Convention on 1 January 1973.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973. Nepal acceded to the Convention on 18 June 1975.
- Vienna Convention on the Protection of the Ozone Layer, 1985. Nepal ratified the Convention in 1994.
- Montreal Protocol on Substances that Deplete the Ozone Layer, 1987. Nepal acceded to the Protocol in 1994.
- London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, 1990. Nepal acceded to the Convention in 1994.
- Agreement on the Network of Aquaculture Centres in Asia and the Pacific, 1988. Date of Ratification/Accession (AC): 4 April 1990 (AC).
- United Nations Framework Convention on Climate Change, 1992. Provides the international framework for managing climate change. Nepal ratified the Convention on 2 May 1994.
- Paris Agreement Under the United Nations Framework Convention on Climate Change, 2015.
- Convention on Biological Diversity, 1992. Nepal ratified the Convention on 23 November 1993.
- Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Basel, 1989. Nepal acceded to the Convention in August 1996.
- Convention on Combating Desertification in Those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa, 1994. Nepal ratified the Convention in 1996.
- Convention (No.169) Concerning Indigenous and Tribal Peoples in Independent Countries. Provides right to the indigenous and tribal people to decide their own priorities for the process of development. However, for the national development plans and programs, it mandates consultation with them in the formulation of the plans and programs. Safeguards rights of the indigenous people in the land and natural resources in territories traditionally occupied by them. In the event that the state retains the right of the natural resources in their territories, it mandates formulation of special provisions under the state legislation for participation in the decision-making process and resettlement process with full compensation of the resulting loss or injury (Article 16).
- United Nations Declaration on the Rights of Indigenous Peoples, 2007. Sets out the individual and collective rights of indigenous peoples, as well as their rights to culture, identity, language, employment, health, education, and other issues (Article 1-4). It also "emphasizes the rights of indigenous peoples to maintain and strengthen their own institutions, cultures and traditions (Article 5) and to pursue their development in keeping with their own needs and aspirations (Article 23)". It "prohibits discrimination against indigenous peoples" (Article 21), and it "promotes their full and effective participation in all matters that concern them and their right to remain distinct and to pursue their own visions of economic and social development" (Articles 25-30).

UNDP Social and Environmental Standards

UNDP's Social and Environmental Standards (SES) underpin the organisations commitment to mainstream social and environmental sustainability into its programs and projects. The SES are an integral component of UNDP's quality assurance and risk management approach to programming. Further details on the UNDP SES are available on the UNDP website.

The UNDP SES have been applied during the development of the project. The SES objectives are to:

- strengthen the social and environmental outcomes of programmes and projects;
- avoid adverse impacts to people and the environment;
- minimize, mitigate, and manage adverse impacts where avoidance is not possible;
- strengthen UNDP and partner capacities for managing social and environmental risks; and
- ensure full and effective stakeholder engagement, including through a mechanism to respond to complaints from project-affected people.

The project has been screened against the UNDP SES using the UNDP Social and Environmental Screening Procedure (SESP) template. Screening identified both moderate and substatial risks, therefore the project is "Substatial Risk" under the UNDP SES (GCF Category B). While some risks are considered to be Substantial, they are not considered to be High prior to application of the various mitigation measures.

A key consideration in determining that the risk is not 'high' is that working under the conditions at the lakes is not uncommon in Nepal. The regular nature of work at high altitudes and in remote settings means that Nepal has developed specific OHS requirements and practices required by law for working in such environments, which therefore cannot be considered mitigation measures as they legally constitute 'business as usual'. This includes several factors that will, as standard, be included in the OHS systems for the project that are not considered project-specific mitigation measures, including:

- Having medical facilities on site
- Use of helicopters to deliver materials, remove waste, and transport people, as required. This regular nature of helicopter flights reduces the 'remoteness' of the project sites.
- Works are only scheduled for appropriate weather windows for example, no work to be done during winter when extreme weather conditions most likely
- Insurance being in place.
- Contract selection criteria will include relevant skills and experience at delivering similar projects in similar environments
- Limited exposure through shift work, with the time at site further limited by daily movement of active teams from site to nearby camps, while replacement teams are accommodated further downhill.
- In addition to this legal baseline for OHS, several other key points have been considered in determining the risk rating each of which is considered standard practice that limits risk. These include:
- The works are to be undertaken in an area that, while remote, is none the less regularly visited. Walking tracks already exist to the sites, and it is these tracks that will be improved to provide better access (still foot access).
- The workforce per site is small, approx. 50 total. The workforce will also be drawn from local populations who live and work at high altitude, so are therefore adapted to working in the local conditions the local labour force, and particularly Sherpas are acclimatised and even genetically suited to living and working at high altitude.
- The work will be primarily manual labour - no blasting or heavy machinery is proposed to be used.

While natural disaster risks cannot be removed, they are rare. The risk of natural disaster such as earthquakes exists both at the project sites and the surrounding settlements due to the regional nature of the risks.

The screening indicated that the project would trigger most of the UNDP social and environmental standards (Table XIII-19).

Table XIII-19 Summary of UNDP Social and Environmental Standards Triggered by the Project and their Requirements for the Project

	Triggered	Requirements Relevant to Project	Relevant Nepalese Polices, Legislation, Regulations to address UNDP SES requirements
Programming Principles			
Human Rights	Yes		**Constitution of Nepal (2015)** - Guarantees people's welfare and all-round-progress through economic, social and cultural transformation, while defending and strengthening political achievements and their development Maintains the rule of law by protecting and practicing human rights and implements international treaties and agreements
Gender Equality and Women's Empowerment	Yes	Promotion of gender equality and the empowerment of women.	**Constitution of Nepal (2015)** - Ensures the right to equity, where there shall be no discrimination in the application of general laws (Article 18) **Local Government Operation Act (2017)** - Local government can implement climate change mainstreaming into local plans, including GESI, and building institutional capacities through making operational guidelines, procedures and criteria. **Forest Policy 2015, National Forest Strategy (2016)** - Measures to enhance participation and capacities of women, Dalits, ethnic minorities and indigenous peoples (promoting proportionate representation, improved representation in leadership positions within forest institutions, etc.), ultimately promoting gender equity, inclusive development and socio-economic development, particularly for poor households, women, Dalits, indigenous persons, and other marginalized groups. Forest Sector Gender and Social Inclusion Strategy 2018
Accountability	Yes		Constitution of Nepal (2015) Right to Information Act, 2007 Local Government Operation Act (2017)

			Environment Protection Act (2019)
Project Level Standards			
Standard 1. Biodiversity Conservation and Sustainable Natural Resource Management	Yes	Precautionary approach to be applied. Risk identification and assessment: Identify and address direct and indirect impacts on natural resources, biodiversity, ecosystems and ecosystem services. Use of experts. Siting preference. Modified habitats and natural habitats. Risk reduction measures follow a mitigation hierarchy that favours avoidance of potential adverse impacts over minimization, mitigation where adverse residual impacts remain, and, as a last resort, application of offset and compensation measures. Management of ecosystems services avoid adverse impacts. no adverse impacts on critical habitats. under no circumstances will species known to be invasive be introduced into new environments. Avoid, and where avoidance is not possible, minimize adverse impacts on soils, their biodiversity, organic content, productivity, structure, water-retention capacity.	**Environment Protection Act (2019) / Environment Protection Regulations (2020)** the project may need to undertake Brief Environmental Studies, Initial Environmental Examination, or Environmental Impact Assessment depending on location/trigger under threshold. Refer Schedule 1 for Projects requiring BES, Schedule 2 for IEEs, and Schedule 3 for EIAs. **Forest Policy 2015, National Forest Strategy (2016)** - Focuses on forest productivity and the sustainable provision of forest products and services, while improving biodiversity, watershed and eco-system services, entrusting forestry sector organizations, ensuring cli-mate resilience, and improving livelihoods Provides system for equitable distribution of timber and firewood from government and community managed forests, particularly to forest-de-pendent poor households, socially marginalized groups and families af-fected by natural disaster. Forest Act 2019 **Revised Land Use Policy (2015)** - Ensures the use of land and land resources follow guidelines set in land use plans to mitigate natural and human created disastrous hazards **Water Resource Strategy (2002)** - Recognizes the connection between human activities, natural factors, and risks of severe flooding and environmental deterioration, economic loss, and displacement of people and that this calls for improved holistic watershed management **Wildlife Reserve Rules (1977)** - Determines the access and activities allowed within reserves. Without written permission from designated authorities, building any infrastruc-ture, occupying any land, grazing, cutting or obstructing any trees, plants, or bushes, retrieving any

			meat and mining or disturbing any stones, sand, mineral, river or water body is considered illegal. Other rules related to fines, vehicle use, permits and waste are also laid out. **National Parks and Wildlife Conservation Act (1973)** - Defines four categories of protected areas: national parks, strictly con-trolled nature reserves, hunting reserves and conservation areas. **National Parks and Wildlife Conservation Regulations (1974)** - Sets forth the services that are allowed to be operated in national parks or reserves, who can be granted access to the parks, provisions on hunt-ing and required related licenses and the fees and procedures related to the above activities. **Soil and Watershed Conservation Act, 2039 (1982)** - Defines "Soil and Watershed Conservation" as acts to prevent or save any area from being destroyed from natural calamities such as flood, landslide and soil-erosion and keep the volume and flow of water in a normal condition or keep on maintaining cleanliness by preventing the flow of water from being muddy. The Act permit to carry out by a conservation officer to maintain the soil fertility and the cleanliness of water and environment in a balanced manner and carry out such other soil and watershed conservation related acts as prescribed by Government of Nepal. Classification of lands within conserved watershed area Nepal National Biodiversity Strategy and Action Plan (2014-2020) Working Policy for Construction and Operation of Physical Infrastructure within Conservation Areas, 2008 Directives on Ecosystem-based Adaptation Implementation, 2020

Standard 2. Climate Change and Adaptation	Yes	Climate change and disaster risk analysis, planning and implementation assess for climate change and disaster risks and their impacts to project activities and outputs as well as the possibility that project activities could increase exposure to such risks.	**Nepal's Nationally Determined Contributions and National Adaptation Plan** - Provides impacts of climate change across sectors including water re-source management (stressing reduced water availability and increased droughts and floods), agriculture, food security and renewable energy. Prioritizes climate-resilient sustainable land and forest management, ecosystem rehabilitation and restoration, strengthening community-based NRM, and improving agricultural techniques. References the legitimate rights of all Nepali people, including disadvan-taged social groups over biological resources Disaster Risk and Management Act, 2074 (2017).
Standard 3. Community Health, Safety and Security	Yes	Protect communities from hazards caused and/or exacerbated by project activities (including flooding, landslides, contamination or other natural or human-made hazards), disease, and the accidental collapse or failure of project structural elements. Assess the risks to, and potential impacts on, the safety of affected communities during the design, construction, operation, and decommissioning of projects and establish preventive measures and plans to address them in a manner commensurate with the identified risks and impacts. Avoid or minimize the potential for community exposure to health risks and diseases that could result from or be exacerbated by project activities. Infrastructure design and safety to be in accordance with national legal requirements, good international practices, and any international obligations and standards. Apply concept of universal access in the design and construction of facilities and services. Avoid, or where avoidance is not possible, minimize potential community exposure to hazardous materials and substances that may be utilized in or released by project activities.	Soil and Watershed Conservation Act, 2039 (1982) Water Resource Strategy (2002) Human Trafficking and Transportation (Control) Act, 2064 (2007) Security of the Health Workers and Health Organizations Act, 2066 (2009). Infectious Disease Act, 2020 (1964). Essential Services Operation Act, 2014 (1957).

		Be prepared for emergencies e.g. plans, training, equipment. and resources. Avoid, mitigate, and manage the risks and potential adverse impacts on health and safety of communities arising from the influx of project-related workers. Avoid, or where avoidance is not possible, minimize such adverse impacts and implement appropriate mitigation measures that aim to maintain the value and functionality of ecosystem services of relevance to local communities. Risks associated with influx of workers. Impacts on ecosystem services which may result in adverse health and safety risks to communities.	
Standard 4. Cultural Heritage	Yes	Protect Cultural Heritage from damage, inappropriate alteration, disruption, removal or misuse Preserve and safeguard Cultural Heritage Promote the equitable sharing of benefits from the use of Cultural Heritage Promote meaningful consultation with stakeholders regarding preservation, protection, utilization and management of Cultural Heritage	**Ancient Monument Protection Act, 1956** - Restricts transfer, transaction, export or collection of ancient monuments and archaeological objects or curio without prior approval of the government. According to Act, an 'Ancient Monument' means a temple, monument, house, abbey, cupola, monastery, stupa, or *bihar*, etc., which have importance above one hundred years from the point of views of history, the arts, science, architectonic, or art of masonry. 'Ancient Monument' also means the site of a monument as well as of human settlement or place, remnant(s) of ancient settlements such as a sacred or revered cave, an ageless shrine, or other such sites, having value from national or international points of view, irrespective of the fact that such settlements or places adjoin with each other or are separate in the same area, including associated archaeological objects. Act can require standalone management plans to be prepared.
Standard 5. Displacement and Resettlement	No		

Standard 6. Indigenous Peoples	Yes	Rights and welfare of indigenous people is not to be compromised. An IPPF/IPP will be required.	The Constitution of Nepal **National Foundation for Development of Indigenous Nationalities Act (2002)** - Established the National Foundation for Development of Indigenous Nationalities (NFDIN), an independent organization that works as the link between the Government and indigenous peoples with the mandate to implement programs that support the development of all indigenous peoples and to recommend to the government strategies to improve the social, economic, and cultural development of indigenous peoples. Defines indigenous peoples (Adivasi/Janajati) and promotes the overall development of indigenous peoples, preservation, and promotion of traditional knowledge, skill and technology, inclusion of indigenous peoples in decision processes and building of an equitable society. Tribal People's Commission Act, 2074 (2017) Language Commission Act, 2074 (2017)
Standard 7. Labour and Working Conditions	Yes	For construction activities, ensure appropriate control of site access, use of appropriate personal protective equipment, safely designed work platforms, appropriate engineering and administrative controls, and safety barriers. Construction personnel will have appropriate qualifications and training. Emergency preparedness: ensure that all parties involved in the project are prepared to respond to accidental and emergency situations. Terms and conditions of employment written labour management procedures. Workers to be advised of the conditions of their employment. Non-discrimination and equal opportunity. Workers organizations freedom of association and recognition of the right to collective bargaining No forced or child labour.	Trade Union Act, 2049 (1992) Arbitration Act, 2055 (1999) (No. 17 of 1999) Labour Act 2017 Human Trafficking and Transportation (Control) Act, 2064 (2007) Bonded Labour (Prohibition) Act, 2002 Child Labour (Prohibition and Regulation) Act, 2000 Children's Act, 2048 (1992) Security of the Health Workers and Health Organizations Act, 2066 (2009).

		Occupational health and safety - protect and promote the safety and health of workers. Workplace grievance mechanism (distinct from project-level grievance	
Standard 8. Pollution Prevention and Resource Efficiency	Yes	Pollution prevention: avoid release of pollutants, where not avoidable, minimise and/or control intensity and mass flow of their release. Wastes: seek to avoid generation of waste, where not possible adopt waste management hierarchy (reduce, reuse, recycle). Hazardous materials: avoid or minimise and control release and exposure to hazardous materials. Resource efficiency: design and implement project in manner that promotes efficient use and consumption of resources.	Environment Protection Act (2019), Environment Protection Regulation (2020) Pesticides Act, 2048 (1991). Solid Waste Management Act of 2011

GCF Environmental and Social Policy

GCF has an overarching framework for achieving improvements in environmental and social outcomes while addressing any unintended adverse impacts of all the GCF-financed activities. GCF incorporates environmental and social considerations into its decision-making and operations and identifies opportunities to "do good" and improve environmental and social outcomes.

GCFs Environmental and Social policy sets out the requirements for accredited entities working with GCF to establish and maintain robust, systematic, accountable, inclusive, gender- responsive, participatory and transparent systems to manage risks and impacts, from GCF-financed activities, pursuant to this policy and the ESS standards adopted by GCF. These requirements complement the accreditation framework and are considered in the accreditation and reaccreditation processes. UNDP is an accredited entity with GCF, therefore its social and environmental standards meet the requirements of GCF.

At the project level level, the policy establishes the requirements for environmental and social risk assessment and management, including SEAH risks, to be aligned to GCF ESS standards ensuring that due diligence is undertaken for all GCF-financed activities, including subprojects financed from GCF-funded programmes or through financial intermediaries, regardless of the financial instruments used or whether these are solely supported by GCF or co- financed by other institutions.

In implementing this project UNDP and the Government of Nepal would ensure that there was compliance with GCF policies and procedures, including in the event of unanticipated risks being identified.

Potential Adverse Environmental and Social Impacts

Potential negative impacts and proposed mitigation measures have been identified for each of the three outputs and sub-activities and will serve as a basis to prepare the ESMPs.

Table XIII-20 Potential adverse impacts and mitigation measures associated with Output 1

Output 1. Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development.	
Potential Adverse Impacts	**Mitigation Measures**
Activity 1.1. Strengthen the knowledge base and technical capacities for improved climate research and risk reduction strategies.	
OHS risks associated with field data collection	Contracts include OHS requirements The project will support the procurement of safety equipment Trainers/extension staff supporting the implementation of activities will be trained on OHS good practices, protocols, and equipment
Discrimination of women	At least 50% of project beneficiaries will be women, including proportional representation from indigenous groups and marginalized communities (including Dalits) Gender Action Plan includes measures to promote women´s empowerment and gender equality within the framework of the project. Diverse groups of women need to be included, such as indigenous women, dalit women, non-dalit and non-IP women etc.
Discrimination or limited engagement of Indigenous Peoples, Dalits, and other marginalized groups.	Indigenous peoples and social inclusion planning Framework include measures for the engagement and participation of indigenous peoples. Invitation of indigenous federations, Dalit organizations and ethnic minority organizations to participate within the project management platform, as well as in the role of project partners supporting awareness raising, training processes and implementation activities. This would include the use of customary institutions of Indigenous Peoples. Promotion of proportional representation within project beneficiaries of indigenous peoples, Dalits, women from diverse groups, and marginalized communities. Knowledge and communication focused activities will include information from national experiences, international best practices as well as local and indigenous knowledge. The integration of knowledge from diverse actors into extension and

	knowledge sharing platforms will promote social inclusion and allow diverse groups to build on local experiences and knowledge.
Trained staff may not be retained by Department, resulting in a loss of corporate knowledge.	Train the trainer program will allow additional staff to be trained, thereby increasing the pool of talent in the government. Selection of staff/participants to consider inclusiveness and diversity. Training can also be extended to communities where appropriate and would be inclusive, considering the needs of women, minorities, and other disadvantaged groups.
Activity 1.2. Develop public-private partnerships for sustainable investment in GLOF and flood risk information services.	
Additional sectors that could benefit may be missed.	Stakeholder engagement to be broad and inclusive. Engagement to include government, private sector, and communities. Incentives to private sector participation should not be limited to specific sectors, but rather to anywhere benefits can be derived and willingness to participate is demonstrated.
Messaging may not meet needs of beneficiaries, in particular vulnerable groups	Stakeholder Engagement Plan has been developed and messaging will be based on broad beneficiary consultation and participation. A GRM provides a mechanism for anyone to raise concerns about the project. The GRM systemises the receipt, management and close out of complaints. Information to be accessible to multiple levels of user
Anticipated private sector investments may not be realized in a timely manner to support implementation.	Cooperation and coordination with the private sector will begin from project inception, and the project will implement awareness raising programs to help engage private sector actors.

Table XIII-21 Potential adverse impacts and mitigation measures associated with Output 2

Output 2. Improved hazard monitoring and the generation of early warnings, including the dissemination of early warnings to local communities and important economic sectors leading to reduced economic loss and loss of human lives from GLOF events	
Potential Adverse Impacts	**Mitigation Measures**
Activity 2.1. Improve observation network density in GLOF watersheds to strengthen the technical capacity of DHM for the monitoring of climate hazard and risk	
Impacts associated with installation of equipment ie construction impacts: Physical issues: air, water, noise pollution, sed/erosion Biological issues: impacts on flora and fauna Socio-economic: GESI, labour force etc	Existing sites and/or public land to be utilised land requirements for DHM infrastructure small (eg 4x6m or 10x10m) thus providing flexibility in site selection. LAP will be prepared to clearly outline the steps required to utilise public or private land (Refer Annexure 6). If private land required (ie for installation of EWS equipment), the process of negotiation and compensation will occur. Land acquisition will be based on willing buyer/willing seller and the following conditions: (i) land markets or other opportunities for the productive investment of the sales income exist; (ii) the transaction occurs with the seller's informed consent; and (iii) the seller will be provided with fair compensation based on prevailing market values No compulsory acquisition will occur. In some instances private partners have offered use of their private land for installation of EWS equipment as a form of co-finance, but it is not anticipated that there will be any change of ownership in these cases. ESIAs will be prepared for each watershed. ESIAs will assess potential impacts associated with the project including physical, biological, and social. The ESIAs will be prepared by a team with appropriate qualifications and experience eg flora and fauna specialists from National Parks, GESI and IP experts, engineering specialists from ICIMOD and government. Based on the outcomes of the ESIAs, ESMPs will be developed (one for each watershed) to ensure appropriate monitoring is in place. Gender and Social Inclusion Plan IPPs will be developed to ensure coverage of IP issues GRM

Training -selection of staff to be inclusive/equitable	Training of trainers for the for the implementation of project activities should include men and women from indigenous groups, Dalit communities and other marginalized groups. LRPs who speak local languages should support trainers as well as awareness raising and information dissemination processes
Maintenance costs and management may not be appropriately budgeted for	Responsible parties are to be engaged in discussion regarding design and maintenance. O&M budgets to be determined and agreed Responsibilities for budget and implementation of work to be clear and transparent
OHS issues associated with in-field maintenance of equipment	ESMPs will include OHS requirements The project will support the procurement of safety equipment
Activity 2.2. Develop and implement early warning systems to strengthen adaptive capacity and response to GLOFs and other climate hazards in vulnerable sectors and communities	
Selection of trainees within DHM discriminates	Training to be inclusive and non-biased. Gender and Social Inclusion Action Plan and IPPF to be implemented.
Information dissemination may not reach all people including illiterate people	To ensure the widest dissemination local and accessible disclosure tools including audio-visual materials as well as flyers, brochures, videos and community radio broadcasts, and publications will be utilized in addition to other tools. The use of local/ethnic languages will be a focus of outreach documents. Furthermore, particular attention will be paid to farmers, indigenous peoples, illiterate or technologically illiterate people, people with hearing or visual disabilities, people with limited or no access to internet and other groups with special needs. Board/ committee members of community-based organizations, customary institutions, and Local Resource Persons will be local focal points who are able to facilitate ongoing communication with project beneficiaries. Local CSOs and project partners will be important to support information dissemination and communications at the local level, using locally accepted practices such as community-meetings, workshops, among other practices.
OHS associated with field maintenance	Operation and maintenance plan will include OHS requirements. The project will support the procurement of safety equipment.
Lack of culturally appropriate practices, technical assistance and information dissemination for the implementation of Activity	Indigenous Peoples Planning Framework includes measures to the engagement and participation of indigenous peoples within the framework of the project. Invitation of indigenous federations, Dalit organizations and other organizations representing marginalized communities, among other CSOs to participate within the project management platforms. Training of trainers for the consultations and workshops, as well as extension support should include men and women from indigenous groups, Dalit communities and other marginalized groups. The project GRM provides a mechanism by which anyone can raise concerns about the project.
Physical impacts associated with installation of equipment eg towers and sirens	The sites are relatively small, so significant adverse impacts are not expected, none the less,ilf any new accessways are required, then these will be assessed as part of the ESIAs by appropriately experienced specialists. Existing Rights of Way would be used. ESMPs will be developed to ensure appropriate mitigation measures and monitoring is in place.
Community-based disaster response plans fail to be inclusive or take into account local issues/variables	Plans to be developed in a participatory way with communities and ward leader. Participatory planning will help ensure that plans empower and engage highly vulnerable households, including indigenous peoples and Dalits. Emergency Response Procedures would include both workers and communities. The project activities include updating existing disaster response plans, which will benefit from the improved early warning systems

	that the project will provide as well as the physical structures that will reduce the risk of GLOFs and lessen the impacts of floods. Project to develop SEP. IPPF to ensure inclusion of IPs.

Table XIII-22 Potential adverse impacts and mitigation measures associated with Output 3

Output 3. Reduced probability of GLOF events and flash floods, through disaster risk reduction measures implemented in priority glacial lake watersheds.	
Potential Adverse Impacts	**Mitigation Measures**
Activity 3.1. Lower the levels of four of the highest risk glacial lakes.	
The lowering of the glacial lakes and the construction of flood structures may result in the diversion of surface or water that could be destructive	Design assessment, including hydrologic modelling, has been undertaken. The structural measures proposed have been vetted, designed and specifications are based on thorough dam breach models and safety protocols. These measures have all been vetted by officials of DHM. An independent technical review and site assessment will be conducted prior to construction of these structural measures and adjustments will be made, as necessary. During implementation, the engineers of DHM will be placed on-site to supervise and monitor construction activities. The purpose of the lake lowering is to reduce the risk to populations downstream in the event of a GLOF, the beneficiaries are all those who live adjacent to the rivers downstream of the glacial lake. In terms of populations potentially impacted by construction, as the project sites are located away from the settlements, project activities during construction period will not bring adverse impact on the community regards to disruption of local water supply system. Based on the experience of lake lowering work in Imja, lake water is gradually drained out through a controlled drainage system to be built. Water flows currently occur downstream of the terminal moraines due to runoff and meltwater. The lowering of lakes would be controlled release, similar to flood events, until the design depth is reached. At that point the moraines will operate as a 'run of river dam' naturally allowing water that flows onto the lake to continue flowing downstream. Activities 3.1 and 3.2 involve physical structures to help mitigate flooding, including diversion of flood waters. Flood structures must not result in destructive diversion. Operation and maintenance plan for lowering to be prepared
Construction impacts (physical, biological and socio-economic)	ESIAs will be undertaken to identify and assess potential impacts (refer Annexure 5). ESIAs to include all components of the lake lowering activity, eg physical works in terminal moraine, downstream works, access tracks, resource supply and stockpiling, worker accommodation and conditions. The ESIAs will be prepared by appropriately experienced and qualified professionals. ESIAs and ESMPs will be submitted to GCF for review. Critical habitats will be avoided by the project. The area where lake lowering works would be undertaken (the terminal moraines) consists entirely of rock, sediments and ice, there is limited habitat diversity in these areas ESIAs will include assessment of biodiversity and identify any management and mitigation measures required. Based on the findings of the ESIAs, ESMPs will be developed to ensure appropriate monitoring is in place. In the unlikely event that the need for a Biodiversity Action Plan is identified then it would be prepared by specialists. An outline for Biodiversity Management Plans is contained in Annexure 7. Project sites are located away from the settlements, project activities during construction period will not bring adverse impact on the community regards to disruption of local water supply system.

	All construction activities will take place during the dry season, to limit damage due to monsoon rains and to limit soil erosion and sedimentation. A Chance Finds Procedure shall be applied in the event of discovery of cultural heritage items during construction.
Lake lowering structures have a negative visual impact on the landscape	Stakeholder engagement should include discussions on potential visual impacts. Visual aids to be used to communicate likely impacts. Local materials to be used where possible to reduce visual impact. Designs to consider inclusion of culturally appropriate elements, such as mani walls/stones, prayer wheels, stupas or prayer flag poles.
Residual risk of GLOF remains	The purpose of the lake lowering is to reduce the risk to populations downstream in the event of a GLOF, the beneficiaries are all those who live adjacent to the rivers downstream of the glacial lake. Interventions will not totally remove risk of GLOFs but will reduce significantly. Designs take account of likely climate change scenarios. Dam break modelling to determine areas of impact if catastrophic failure and assist in identifying mitigation measure designs and identifying 'safe zones'/escape pathways as part of EWS. Communities to be consulted on level of risk that will remain and trained in EWS action plans (capacity building for EWS included as part of Activity 2.2) Additional interventions aim to address some of residual risk. Periodic safety inspections will be undertaken as part of monitoring and maintenance regime. Information from Output 3 to be provided to agencies to allow update of existing DRR plans
OHS risks associated with construction and maintenance	ESMPs to include requirements for OHS management. Earthquakes and landslides are an ever-present risk in the high Himalayas. This risk is recognised in the National Park Mangement Plans. ESMPs to include Emergency Response Procedures. Labour management procedure to be put in place. Refer Annexure 8. Responsible parties and project contractors must: not employ workers under minimum age for employment as determined by national law for applicable parties subject to national law and consistent with the ILO Convention No. 138 not allow children under the age of 18 to perform work in connection with or arising from the project activities which, by its nature or the circumstances in which it is carried out, is likely to harm his/her health, safety or morals, not allow children under the age of 18, in connection with project activities, perform work that is likely to interfere with their compulsory education or be harmful to their physical, mental, spiritual, moral or social development. take immediate steps to correct and remedy any cases where child labour is identified. Guidance on hazardous work to be prohibited in connection with the project shall derive from the ILO Worst Forms of Child Labour Convention, 1999 (No. 182) and ILO Worst Forms of Child Labour Recommendation, 1999 (No. 190). Examples of hazardous work activities prohibited for children include work: (a) with exposure to physical, psychological or sexual abuse; (b) underground, underwater, working at heights or in confined spaces; (c) with dangerous machinery, equipment or tools, or involving handling or transport of heavy loads; (d) in unhealthy environments exposing children to hazardous substances, agents, or processes, or to temperatures, noise or vibration damaging to health; or (e) under particularly difficult conditions

	such as work for long hours, during the night or in unreasonable confinement on the premises of the employer. To this end, the project shall ensure that contractors have adequate systems in place to check workers' ages and keep records of the dates of birth of all employees and ensure that these requirements are complied with. Further, the project shall: screen the capacity of locally available workforce with aim to avoid or reduce labour influx by hiring from the local pool of workforce, ensure Environmental Manager responsibilities regarding oversight of, and reporting on, labour influx and workers' camps (if any), provide influx workers with training on prevention and response to Gender-Based Violence, develop effective reporting and response protocol and referrals for safe and confidential survivor assistance, allow workers to raise their concerns (safety, discontent, maltreatment or else) through the Grievance Mechanism, complaints forms are to be present on the construction site, and promptly investigate allegations of Gender-Based Violence related to project activities Workers to use appropriate PPE and appropriate training to be provided Contractors to prepare Construction Emergency Medical Plans Operation and maintenance plan to be prepared Institutional arrangements for periodic safety inspections, emergency procedures, and overall operation and maintenance (O&M) of GLOF risk reduction, flood risk reduction, and plantation activities will be integrated within existing mandates of DHM and DoFSC. A structured coordination mechanism will be established to ensure effective collaboration among these agencies, local governments, and community-based organizations. The budget for safety inspections, security measures, and emergency procedures will be incorporated within the existing O&M costs, leveraging available resources without requiring additional allocations. Additionally, existing emergency response health facilities at the sites and other emergency protocols will be utilized to enhance preparedness and response during the project period as well as for O&M activities. Periodic capacity-building programs and inter-agency coordination will be set up for the post project scenario and will be clearly reflected in the Exit Strategy.
IPs could be adversely impacted due to the importance of lakes and other landscape features to them culturally	Early and ongoing engagement with national indigenous bodies (eg Nepal Federation of Indigenous Nationalities (NEFIN) and National Indigenous Women's Federation (NIWF). IPs have been engaged in the project development and continue to do so. IPPF to ensure appropriate engagement of IPs and their inclusion in project planning and implementation. As communities consider lakes and mountains as abodes of gods and goddesses, they have deep respect and a spiritual connection with their environment. Therefore, respecting their beliefs and seeking permission and advice on how to ensure that deities believed to be living in the lakes are not disturbed will be obtained prior to undertaking any work. It is critical that local customs are adhered to and that local sentiments are respected. The following is an example of some of the actions that were undertaken during the field investigations undertaken for the design phase: consultation with community leaders during planning field trips to determine concerns and actions required

	religious figures from the community, local leaders, and community members invited to help perform rituals to appease the goddess (Nhepu) and seek her blessings. only start work after carrying out the rituals. undertake daily rituals eg burning incense and juniper leaves as part of a cleansing ceremony. Enumerating the total number of IPs associated with the project, will be an ongoing task as detailed site selection and design of infrastructure. Further discussions with IPs and the development of IPPs will occur as part of implementation. The IPPs will detail the measures (as identified by the IPs) that will be required to be undertaken to protect cultural heritage physical and spiritual.
Sourcing of materials and generation of waste	ESIAs to include consideration of materials and waste generated. Waste to be managed (removed) from construction sites in accordance with National Parks Management Plan. ESMPs to include Waste Management Sub-Plans. Materials to be sourced locally where possible. Lake lowering will include reusing materials excavated, so no loose spoil dumps will remain. Design includes downstream bank stabilisation and/or armouring. Area of disturbance will also be minimal. It is anticipated that rock material removed from the moraines to lower the lakes will be utilised within other works such as spillways, training wall, accessways etc. This will reduce the material needed to be sourced. Only authorised/legal sources of material to be used. Procurement to comply with the Nepal Public Procurement Act 2063 (2007), which addresses issues such as transparency, competitiveness and accountability, and financial administration. A labour management plan will also be prepared (refer Annexure 8). ESMPs would include a Waste Management Plan. Water quality impacts will be managed via Sediment and Erosion Management sub-plans. The ESMPs, and their sub-plans, would be based on the findings of the ESIAs
Project activities could have a negative impact on the two National Parks in which works will occur.	National Park Plans of Management will be reviewed and confirmed to include works to lakes. If any amendments are required, the amendment will follow National Parks processes and will be done in such a way so that revision does not result in other untended exploitation or damaging activities within the park ie revision will be specific to the proposed GCF works. ESIAs will be undertaken to assess the impacts of the proposed works to ensure that any impacts are acceptable and manageable. Based on the findings of the ESIAS, ESMPs will be developed to ensure appropriate mitigation and monitoring is in place.
Social impacts associated with influx of workers (construction)	Local workers to be used where possible. A Labour Management Plan will be prepared (refer Annexure 8). Demands on local infrastructure to be considered prior to importing workers contractor may be required to provide additional facilities (eg medical, accommodation or food). All activities will be closely monitored in coordination with the Department of National Parks and Wildlife Conservation potentially with support from the Nepal Army as per the government policy. This will reduce risk of poaching and increase readiness in event of natural disaster. GRM includes mechanism for managing GBV/SEAH
Activity 3.2. Construction of structural and non-structural measures (Civil and NbS/ Bioengineering) for the risk reduction of GLOF and flash flood.	
Rights holders, particularly IPs, may not have the capacity to claim their rights.	Implement SEP and GRM Confirm land tenure at all project sites as part of detailed site survey during implementation stage (public land proposed to be used).

	A Land Acquisition plan (LAP) will be prepared (refer Annexure 6). LAP to describe process for identification of tenure and process for obtaining legal use of land (note, there will be no compulsory land acquisition). The application of the LAP and IPP will ensure that land is unencumbered and that restriction of access to natural resources or traditional uses is not adversely impacted. In the case of use of public lands in the project, some sites legally belong to the local government but are managed by the IPs as prevailing customary rights of the IPs on the land. In a very few instances, where communities have customary user rights (but not legal ownership rights) these areas will be avoided, as far as possible. In cases where it is unavoidable, the local government will facilitate consultations with affected communities and use land for project activities only upon agreement of the affected communities. UNDP will work closely with the IP and other users who depend on public land to ensure that the any public land used by the project is unencumbered and/or not land on which local livelihoods depend. IPPs to be developed for each catchment
Increased flows could damage interventions and/or downstream infrastructure	Designs have taken account of likely climate change parameters Modelling to test effectiveness of interventions under different scenarios has been undertaken Apply lessons learnt from Imja Lake project eg water to gradually drain out through a controlled drainage system. Periodic safety inspections will be undertaken as part of monitoring and maintenance regime.
Construction impacts (physical, biological, socio-economic)	Project sites are located away from the settlements, project activities during construction period will not bring adverse impact on the community regards to disruption of local water supply system. ESMPs to be developed. ESMPs to include a sediment and erosion plan. Heritage items, such as mani walls, stupas etc to be protected
Sourcing of materials and generation of waste	ESIAs to include consideration of materials and waste generated. Materials to be sourced locally where possible. As much as possible excavated material will be reused in the construction of the structural elements of the project. mainly in filling open areas and gullies and in stabilization of river channel embankments, including with bio-engineering measures and plantation on embankments. Only authorised/legal sources of material to be used.
Land required for installation of infrastructure	Public land to be prioritised. The majority (>95%) of construction activities will be on public land. Use of private land would be a last resort and due to sites on public land not being technically feasible. The sites where actual lake lowering work will be conducted are away from human settlements and the land there belongs to the government. So, there is no issue of land acquisition and compensation. For physical small-scale interventions downstream, these areas fall mostly in government-owned land. However, where private land is required for construction work, standard practices will be followed, as in the case of other projects, i.e. local governments will facilitate community negotiations, especially engaging affected private landowners. Public lands where communities have customary user rights (but not legal ownership rights) will be avoided, as far as possible. In cases where it is unavoidable, the local government will facilitate consultations with affected communities and use land for project activities only upon agreement of the affected communities. UNDP will work closely with the IP and other users who depend on public land to ensure that any public land

	used by the project is unencumbered and/or not land on which local livelihoods depend. LAP to be prepared which will outline processes required for use of public land, communal land and private land (refer Annexure 6). Where access to private land required, the negotiations by PMU will be conducted and appropriate compensation agreed. Use/ acquisition of private land will be based on willing buyer/willing seller and the following conditions will be followed: (i) land markets or other opportunities for the productive investment of the sales income exist; (ii) the transaction took place with the seller's informed consent; and (iii) the seller was provided with fair compensation based on prevailing market values. No forced private land acquisitions. Community will be involved and provide approval to the use of any communal lands. Where it is indigenous peoples customary land, then FPIC mechanism to be applied.
Potential conflicts over the selection of priority intervention areas.	Stakeholder Engagement Plan has been developed. Decision making is transparent and supporting studies and information (reports, minutes from consultations and workshops) are made publicly available. Strong focus on capacity building within all project activities will help raise awareness of climate risks and the link between climate change and natural disasters with unsustainable natural resource management, as well as the benefits of climate-resilient infrastructure. In the case where any household/ person feels discriminated against or has a problem with the project, they can access the project´s grievance redress mechanism.
Activity 3.3. Implement Eco-disaster Risk Reduction and nature-based solutions to reduce the impact of GLOFs and flash floods.	
Land required for installation of eco-DRR and nature-based solutions	Public land to be prioritised. No forced private land acquisitions. Community should be involved and agree to the use of any communal lands. LAP will be developed to describe the processes for obtaining legal right to use land use (refer Annexure 6). Where it is indigenous peoples customary land, then FPIC mechanism to be applied. The application of the LAP and IPP will ensure that land is unencumbered and that restriction of access to natural resources or traditional uses is not adversely impacted,
Construction impacts (physical, biological, and socio-economic)	Scoped ESIAs to assess potential impacts ESMPs to be developed.
Site-specific impacts due to the inappropriate planting of tree species based on site conditions.	Guidance on site-species matching will be developed for project sites, providing information on key tree species that are adapted to the area and their ideal site-conditions. In addition to native species, the project will only promote tree species which are already locally adapted and do not pose a risk to the local biodiversity. It will ensure compliance with Nepal´s Forestry Policy (2015). If required, a Biodiversity Action Plan will be prepared (refer Annexure 7).
In practice in may be challenging to have equal participation due to gender discrimination, especially against women from indigenous groups and marginalized minority groups	At least 50% of project beneficiaries will be women, promoting proportional representation from indigenous groups, Dalit communities and other marginalized groups. Gender and Social Inclusion Action Plan includes measures to promote women´s empowerment and gender equality within the framework of the project. The plan includes detailed measures that target women and aims to empower them within the project, whilst considering their differentiated contexts and vulnerabilities. PMU M&E specialist and PPSU staff will regularly monitor the implementation of the GAP and work together with CSOs and other actors to strengthen the engagement of women within the project.

Sourcing of materials eg trees and shrubs, rock	The establishment of small-scale community-based nurseries will comply with relevant national legislation (Forest Policy, Environmental Protection Act), and will promote equitable hiring policies ensuring equitable employment opportunities for women, indigenous peoples, Dalits and other marginalized households. Existing legal quarries or other sources of rock only to be used.

Procedures for Screening, Assessment and Management

As part of the implementation, environmental and social risks will continue to be assessed and appropriate management mechanisms put in place. The project has been screened using the UNDP SESP. The SESP assisted in identifying the safeguard documents and processes that are required to adequately manage risks associated with the project.

Step 1: Environmental and Social Risk Screening

UNDP SESP

The UNDP screening checklist (UNDP´s SESP) has been completed for the project and moderate and substantial category risks associated with Outputs 2 and 3 identified. No High Risk activities have been identified. High risk activities are not permitted. Section 5.1.1.1 lists prohibited activities.

As a result of this screening and risk categorization, additional environmental and social impact assessment has been determined to be necessary to meet the UNDP SES requirements. As an accredited entity, UNDPs SES also meets GCFs requirements.

Prohibited Actions

Consistent with the project SESP and identified risks, project implementation will ensure that no supported action:

- is detrimental to the conservation status of habitats and species, has measurable adverse impacts to critical habitats, or leads to a reduction in endangered species;
- is significantly harmful to the status or the ecological potential of surface water bodies and groundwater bodies;
- creates significant risks to communities and workers during construction and implementation;
- leads to significant damage, or removal of cultural heritage;

Requires or involves:

- Production or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements.
- Purchase, application or storage of harmful pesticides or hazardous materials;
- Production or activities involving forced labour / harmful child labour;
- Production or trade in wood or other forestry products from unmanaged forests;
- forced evictions
- physical or economic displacement of Indigenous Peoples
- leads to any significant increase in the emissions of pollutants as compared with the situation before the activity started.

In addition to the above prohibited actions, the project will not support any activities that are deemed to be “High Risk” under the UNDP SES Policy as identified through the ESIAs. If any unanticipated social and environmental risks are identified, relevant activities will not proceed until appropriate measures or adjustments are confirmed to ensure compliance with UNDP and GCF policies and procedures.

Government of Nepal Requirements

- GoN Environmental and Social Screening to determine level of assessment required
- Review available environmental and social information relevant to the sub-activities and their surrounding Project Influence Areas (PIAs[157]). The following steps are key to the screening.

[157] ***Project area of influence*** can be defined as: The area likely to be affected by the project, including all its ancillary aspects, such as access roads, borrow and disposal areas, and construction camps, as well as unplanned developments induced by the project (e.g., spontaneous settlement, logging,

- Confirm presence of environmentally sensitive areas from secondary information and site observations
- Identify potential negative and positive direct or indirect impacts and provide clarity on issue, which needs to be investigated Category B EA type (for higher impact category requires ESIA, for medium impact category requires abbreviated EMP and for lower impact category require Best Environmental Practices-BEP).
- Incorporate feedback of public consultation and answer to published notice
- Additionally, GoN specific Environmental Impact Assessment (EIA)/Initial Environmental Examination (IEE)/Brief Environment Studies (BES) requirements to be complied with EPA/EPR 2020
- Determine applicable of regulatory and policy and requirement of clearances and permissions
- Identify of key environmental and social concerns and vulnerable groups
- Scope environmental and social impact assessment and mitigations.
- Undertake Environmental/Social Assessments

As noted, based on the UNDP SESP, scoped ESIAs have been identified as being required. Three ESIAs are proposed, one for each watershed, to address the risks identified in Table XIII-21 and Table XIII-22, specifically the moderate to substantial risks associated with Activities 2.1, 2.2, 3.1, 3.2 and 3.3. Each watershed area for which an ESIA will be developed will be considered as a subproject. The ESIAs will give details and assess potential impacts of the risks identified for both permanent and temporary works eg access tracks, worker camps etc. The ESIAs will be scoped so as to meet both UNDP SES and GoN requirements (ie the ESIAs will meet GoN requirements for EIA, IEE or BES).

Early in the project implementation (within the first 6-12 months), activities in Outputs 2 and 3 in each watershed will be assessed to identify potential location-specific impacts. It is proposed initially do two ESIAs concurrently and then remaining ESIA (two lakes) so that any lessons learnt can be incorporated into the final ESIA. For the assessments, the existing environmental and social baselines will be described and assessments of potential impacts made against that baseline for the specific activities being assessed. As part of the ESIA scoping process, risks will be rescreened to confirm that the risk category identified in the initial SESP has not increased. "No high-risk" activity will be undertaken.

Social risk assessments will include screening for SEAH risks, as per the processes described in Section 6.2.

The ESIAs will be submitted to GCF for review.

Step 2: Development of Environmental and Social Management Plans

An ESMP is the key document focused on implementation of mitigation measures, once the potential impacts are identified. It starts operationalizing the avoidance / minimization aspects from design/pre-construction phase and ensures that the project impacts are reduced to an acceptable level during implementation of the sub-project.

ESMPs will be developed for each of the watersheds to address the impact risks identified in the corresponding ESIAs. An indicative outline of the ESMPs is provided in Annexure 9. Like the ESIAs, the ESMPs will be scoped to address the impacts associated with moderate and substantial risk activities under Output 2 (Activities 2.1 and 2.2) and Output 3 (Activities 3.1 and 3.2). The ESMPs will be submitted to GCF for review.

The ESMPs should be activity specific, clearly, and concisely describing adverse impacts, selected management measures to bring it to an acceptable level and timelines for implementing these measures. It should also clarify roles and responsibilities of various entities such as Project Proponent, Municipalities, Contractors, and other stakeholders. The key components of an ESMP are the following:

- Mitigation measures to be adopted for potential adverse impacts identified during the screening and environmental/social impact assessments for all phases of the project (Design, Pre-construction, Construction/Implementation and Operation)
- Implementation of emergency preparedness and response protocols, disaster risk reduction and climate change adaptation as appropriate
- Enhancement plans for positive impacts
- Monitoring Plan with indicators, mechanisms, frequency, locations,
- Budgetary allocations for all the above activities

or shifting agriculture along access roads). The area of influence may include, for example, (i) the watershed within which the project is located; off-site areas required for resettlement or compensatory tracts; (iv) the airshed (e.g., where airborne pollution such as smoke or dust may enter or leave the area of influence); (v) migratory routes of humans, wildlife, or fish, particularly where they relate to public health, economic activities, or environmental conservation; and (vi) areas used for livelihood activities (Hunting, fishing, grazing, gathering, agriculture, etc.) or religious or ceremonial purposes of a customary nature.

- Institutional arrangements for each activity and mitigation measures, i.e. who is responsible for carrying out mitigation and monitoring measures for operation, supervision, enforcement, monitoring of implementation, remedial actions, financing, reporting and staff training.

Implementation schedules for each activity.

Monitoring and reporting procedures to ensure early detection of impacts that necessitate mitigation measures and to provide information on the progress and results of mitigation (e.g. by annual audits and surveys to monitor overall effectiveness of this ESMF). The mitigation and monitoring measures recommended in each ESMP should be developed in consultation with affected groups to incorporate their concerns and views in the design of the ESMP.

It is proposed that three ESMPs will be produced based on watershed:

- **ESMP for Arun watershed** Activities 2.1 and 2.2 (installation and maintenance of equipment), Activity 3.1 (lowering of Lower Barun Lake), Activity 3.2 (construction of check dams and other diversion infrastructure), and Activity 3.3 (construction of nature-based solutions).
- **ESMP for Dudhkoshi watershed** Activities 2.1 and 2.2 (installation and maintenance of equipment), Activity 3.1 (lowering of Lumding Tsho and Hongu lakes), Activity 3.2 (construction of check dams and other diversion infrastructure), and Activity 3.3 (construction of nature-based solutions).
- **ESMP for Thulagi watershed** - Activities 2.1 and 2.2 (installation and maintenance of equipment), Activity 3.1 (lowering of Thulagi Lake), Activity 3.2 (construction of check dams and other diversion infrastructure), and Activity 3.3 (construction of nature-based solutions).

Step 3 ESMP Implementation, Monitoring and Reporting

The ESMPs are to be submitted to UNDP, GoN and GCF for endorsement prior to the commencement of any activities that are within the scope of the ESMP ie no moderate or substantial risk activities are permitted to be implemented ahead of sign off on the ESIAs and ESMPs. All approvals are to be obtained and management measures in place before activities are implemented.

Once the ESMPs are endorsed by UNDP HQ, GoN and GCF, the safeguard specialist will ensure ESMPs are included and reported upon, along with stakeholder engagement in the context of the monitoring plan.

In this context, field staff (PMU staff in coordination with provincial and local authorities and extension agents) will be responsible for monitoring the progress as relevant in the monitoring plan, as well as to identify any potential risks that may emerge through the implementation phase. This information will be compiled in progress reports, including a section on environmental and social risk management.

Information from progress reports will be received by the safeguard and gender specialist in the PMU who will compile the information received in the progress reports, as well as information related to grievances in an annual report on the Environmental and Social Safeguards Performance to be endorsed by the UNDP HQ as part of the APR process.

Compliance with National Park Management Plans

The glacial lakes Hongu 2 (also known as Chamlang North) and Lower Barun fall under the jurisdiction of Makalu Barun National Park (MBNP), while Lumding Tsho fall under the territory of the Buffer Zone of Sagarmatha National Park (SNP). Therefore, project activities related to lake lowering and installation of hydro-met stations and EWS in these areas will need to be permissible and meet all the requirements of the respective national park management plans.

The Government of Nepal, through DNPWC, has committed to reviewing and updating the existing national parks management plans (Appendix 4). The GoN has requested assistance from UNDP.

In this connection, UNDP is collaborating with DNPWC for:

- Preparation of Climate Resilient Protected Areas/ National Park Management Plan Framework
- Revision of Management Plan of MBNP (including Initial Environment Examination (IEE) to make it climate resilient.
- Provide support to DNPWC to carry out the Initial Environment Examination (IEE) of Climate Resilient Management Plan of SNP

This collaboration is expected to make the management plan of National Park and Protected Areas System in Nepal resilient to Climate Change impacts as envisaged by Protected Areas Management Strategy (2022-2030). Note, a similar approach was adopted to update the Sagarmatha NP Management Plan previously when UNDP collaborated with Government of Nepal to reduce the GLOF risks of Imja Glacial Lake, which is inside the Sagarmatha National Park.

The revised management plans are expected to integrate implementation of GLOF Risks Reduction measures and establishment of hydro-met stations and Early Warning System in three lakes and it's downstream of the watershed.

None the less, as part of the GCF project, the National Parks Management Plans will be reviewed, and the permissibility of the proposed interventions confirmed. Should any minor amendments be required, the project team will work with DNPWS to ensure that the necessary changes are made, and in such a way as to prevent unintended exploitation of or development in the national parks.

Noting the above, before any project-related physical works commence, UNDP will ensure that the updated park management plan legally permits the execution of physical activities proposed under the project.

Institutional Arrangements and Capacity Building

Project Implementation Arrangements

The project will be implemented following UNDP's National Implementation Modality (NIM) with support from the UNDP Country Office.

The Ministry of Energy, Water Resources and Irrigation (MoEWRI) will lead the project execution on behalf of the Government of Nepal, while several government agencies will implement different components of the project as outlined in

Figure 36.

The implementation mechanism for this project will engage a wide range of stakeholders, ensuring their sustained engagement from project design to implementation, to monitoring and evaluation (M&E).

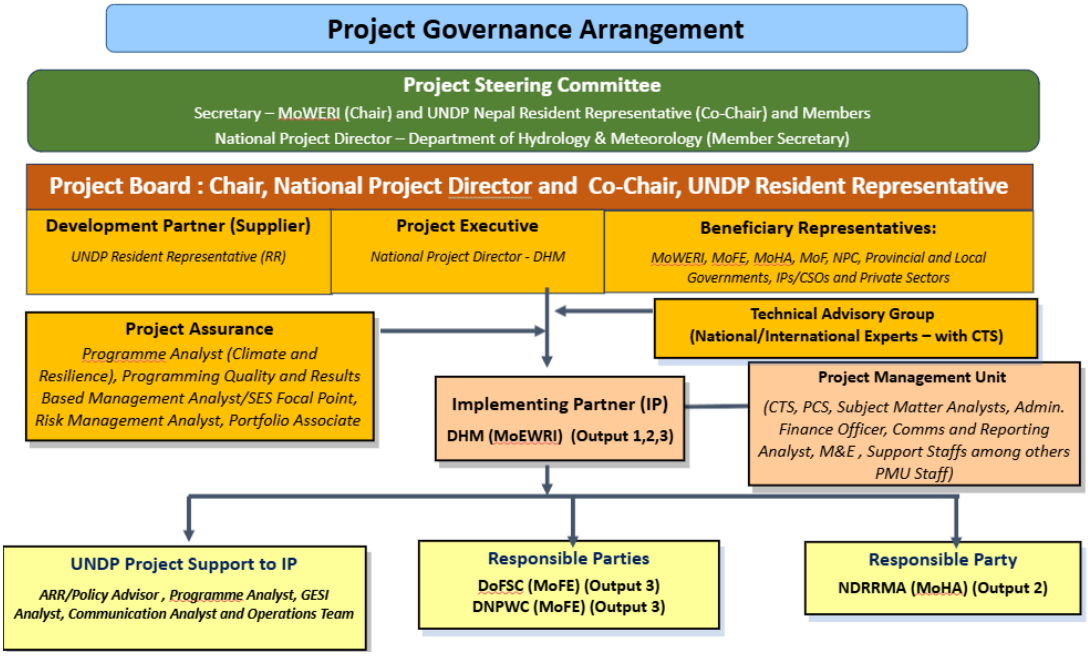


Figure 36 Governance and Institutional Implementation Structure.

Accredited Entity

UNDP provides oversight and quality assurance involving UNDP staff in Country Offices and at regional and headquarters levels. Their quality assurance role requires objective and independent project oversight and monitoring functions. As the Accredited Entity to the GCF for the project, UNDP will deliver GCF-specific oversight and quality assurance services including: i) day-to-day oversight and supervision; ii) oversight of project completion; and iii) oversight of project reporting. This will include overseeing the achievement of project management milestones that are established as per the GCF Board-approved Funding Proposal. Project assurance is independent of the Project Management function. Therefore, the National Project Steering Committee cannot delegate any quality assurance responsibilities to the Project Coordination Specialist and/or anyone paid for by the project resources. The project assurance role is covered by the Accredited Entity fee, provided by the GCF.

Implementing Partner

The Implementing Partner (IP) for this project is the Department of Hydrology and Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of Nepal. The Implementing Partner is the entity to which the UNDP Administrator has entrusted the implementation of UNDP assistance specified in this signed project document along with the assumption of full responsibility and accountability for the effective use of UNDP resources and the delivery of outputs, as set forth in this document. The IP is accountable to UNDP for managing the project, including monitoring and evaluating project interventions, achieving project outcomes, and the effective use of UNDP resources.

The Implementing Partner is responsible for executing this project. Specific tasks include:

- Project planning, coordination, management, monitoring, evaluation, and reporting. This includes providing all required information and data necessary for timely, comprehensive, and evidence-based project reporting, including results and financial data, as necessary. The Implementing Partner will strive to ensure that project-level M&E is undertaken by national institutes and aligned with national systems, so that the data used and generated by the project support national systems.
- Overseeing the management of project risks as included in this project document and new risks that may emerge during project implementation.
- Procurement of goods and services, including human resources.
- Financial management, including overseeing financial expenditures against project budgets.
- Approving and signing the multiyear workplan.
- Approving and signing the combined delivery report at the end of the year; and,

- Signing the financial report, the funding authorization, and the certificate of expenditures
- Establishing and maintaining a transparent and accessible Grievance Redress Mechanism

Responsible Parties

- The Implementing Partner (IP) will enter into agreements with the Responsible Parties (as listed below) to assist in the successful delivery of project outcomes. The RPs are directly accountable to the IP, the Department of Hydrology and Meteorology (DHM), as outlined in the terms of their agreement:
- The Department of Forests and Soil Conservation (DoFSC) of Ministry of Forests and Environment (MoFE),
- The Department of National Parks and Wildlife Conservation (DNPWC) of the Ministry of Forests and Environment (MoFE)
- National Disaster Risk Reduction and Management Authority of Nepal (NDRRMA)

Table XIII-23 Activities and Responsible Parties

Outputs	Activity	Responsible Party
Output 1: Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development.	1.1. Strengthen the knowledge base and technical capacities for improved climate research and risk reduction strategies.	DHM
	1.2. Develop policy and financial mechanisms for sustainable GLOF and flood risk information services.	DHM
Output 2: Improved hazard monitoring and the generation of early warnings, including the dissemination of early warnings to local communities and important economic sectors leading to reduced economic loss and loss of human lives from GLOF events	2.1. Improve observation network density in GLOF watersheds to strengthen the technical capacity of DHM for the monitoring of climate hazard and risk.	NDRRMA
	2.2. Improve early warning systems to strengthen adaptive capacity and response to GLOFs and other climate hazards.	NDRRMA
Output 3: Reduced probability of GLOF events and flash floods, through disaster risk reduction measures implemented in priority glacial lake watersheds.	3.1. Lower the levels of four of the highest risk glacial lakes for GLOF Risk Reduction	DoFSC DNPWSC
	3.2. Construct the Structural and non-structural flood risk reduction measures in the downstream of the glacial Lakes	DoFSC DNPWSC
	3.3 Implement eco-disaster risk reduction and nature-based solutions to reduce the impact of GLOFs and flash floods.	DoFSC DNPWSC

Project Steering Committee

Project Steering Committee (PSC) will be formed in the chair of the Secretary of MoEWRI, responsible for Water Resources and Irrigation and co-chaired by UNDP Resident Representative. The member secretary of the PSC will be NPD of the project. One of the PSC's member will be Director General of DHM as head of the IP and other mebers will be finilized in the first PBM meeting.

The main function of the PSC will be to provide strategic guidance and ensure inter-government coordination within and across various government ministries and agencies involved in project implementation. The PSC meetings will be held at least once a year. The Secretary may designate a Joint Secretary level staff of MoEWRI to support PSC meetings. The Department of Hydrology and Metrology (DHM) will work as the Secretariate for the PSC and support the MoEWRI in organization of regular PSC meetings.

Project Board

The Project Board reviews project performance based on monitoring, evaluation, and reporting, including progress reports, risk logs and the combined delivery report. The Project Board is responsible for making management decisions by consensus. Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency, and effective international competition. In case consensus cannot be reached within the Board, the UNDP representative on the board will mediate to find consensus

and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed. The Project Board will meet on a quarterly basis in general, but bi-annual meetings will be mandatory.

Following are the key responsibilities of the Project Board:

Oversee project execution:

- Agree on Project Coordination Specialist's tolerances as required, within the parameters outlined in the project document, and provide direction and advice for exceptional situations when the Project Coordination Specialist's tolerances are exceeded.
- Appraise annual work plans prepared by the Implementing Partner and RPs for the Project; review combined delivery reports prior to certification by the implementing partner.
- Address any high-level project issues raised by the Project Coordination Specialist and project assurance and seek Inform PSC about issues and challenges faced by the proejct and seek timely guidance from PSC as required.
- Advise on major and minor amendments to the project within the parameters set by UNDP and the donor and refer such proposed major and minor amendments to the UNDP-BPPS/NCE Executive Coordinator (and the GCF Secretariat and/or GCF Board, as required by GCF policies);
- Provide guidance to the project management unit to ensure that the agreed deliverables are produced satisfactorily and according to plans
- Track and monitor co-financed activities and the realization of co-financing amounts of this project.
- Approve the Inception Report, Baseline Report, GCF APRs, Interim Independent Evaluation and terminal evaluation reports, other reports that GCF may require.
- Ensure commitment of human resources to support project implementation, arbitrating any issues within the project.

Risk Management:

- Provide guidance on evolving or materialized project risks and agree on possible mitigation and management actions to address specific risks.
- Review and update the project risk register and associated management plans based on the information prepared by the Implementing Partner. This includes risks related that can be directly managed by this project, as well as contextual risks that may affect project delivery or continued UNDP compliance and reputation but are outside of the control of the project. For example, social and environmental risks associated with co-financed activities or activities taking place in the project's area of influence that have implications for the project.
- Address project-level grievances.

Coordination:

- Ensure coordination between various donor and government-funded projects and programmes.

Ensure coordination with various government agencies and their participation in project activities.

Other specific functions:

- Approve project's annual and quarterly works plans and budgets and project reports (substantive and financial) and ensure execution support provided by UNDP are aligned to project priorities and work plan
- Review project progress, milestones, targets, and implementation strategies and coordination structures.
- Review IP's and RP's project expenditure against activities and outcomes and approve readjustments in existing work plan and budget
- Assess project performance, ensure efficiency and effectiveness of implementation and report to PSC
- Ensure project budget is reflected into respective government ministry's LMBIS and Red Book and project co-financing is reflected into respective agencies' annual budget
- Ensure compliance to fiduciary risk management, gender, environmental and social safeguard standards, in compliance with GCF guidelines
- Support conducting project audits through Office of Auditor's General of Nepal (OAG)'s of Nepal while complying with GCF requirements
- Ensure setting up project field offices & mechanism in place for handling grievances in fair & timely manner , assess grievances
- Ensure timely fund disbursements from MoF to MoEWRI and from MoEWRI to the RPs and maintaining account of project co-financing.

Technical Advisory Group

UNDP in consultation with the Chair of the PSC will set up a Technical Advisory Group (TAG) chaired by a senior national expert. The CTS of the project appointed by UNDP and senior technical specialists and experts of MoEWRI, DNPWC, DSCWM and NDRRMA will be the members of the TAG. Other members of TAG will include technical experts working in other government agencies, research institutions, development partner organizations and national and international organizations, with relevant experience in various thematic areas of the project, as decided by UNDP in consultation with the Chair of the PSC. The main function of the TAG will be to provide technical advice and inputs to the IP and RPs based on international best practice, regards to thematic assessments and technical studies conducted by the project. Including the Chair, the number of TAG members will be limited to a maximum of eleven. Meetings of the TAG will be organized up to twice a year, though it can meet on an ad hoc basis as and when required.

Project Management Unit (PMU)

The PMU will include the Project Coordination Specialist , thematic experts, Administration and Finance Officer and 'Thematic Officers' (Environmental and Social Safeguards Officer, Gender and Social Inclusion Expert, Monitoring and Evaluation Expert), as well as other support members as deemed to be required.

The PMU, under the management of the NPM, will be responsible for overall and day-to-day management of the project on behalf of the Implementing Partner.

Environmental and Social Safeguards (ESS) Officer

The PMU's Environmental and Social Safeguards Officer responsibilities will include the following:

- Assist the Implementing Partner and RP/s in the preparation of the applicable safeguards documents as may be required by GON, UNDP and/or GCF. This aspect may include the following tasks (among others):
- Updating/refinements of the ESMF
- Oversight of the preparation of the three ESIAs
- Preparation of Environmental and Social Management Plans (ESMPs)
- Ensuring the other safeguard plans listed in this document are prepared and implemented
- Facilitate and confirm overall compliance with all GoN rules and regulations on safeguards (i.e., environment, land tenure/land acquisition, indigenous peoples (IPs)) as well as assist the various RPs in securing the relevant permits/clearances for the project;
- Confirm/Validate whether the applicable safeguards documents or requirements (e.g., Environmental Compliance Certificate (ECC), Free Prior and Informed Consent (FPIC)) are integrated in the bidding documents and other contracts;
- Oversee implementation of the safeguards aspects of the sub-projects and ensure that the various safeguards management plans are implemented by the RPs and contractors;
- Provide support in institutional development, capacity building, safeguards implementation, community awareness and participation;
- Conduct periodic monitoring of safeguards performance in the various development stages;
- Consolidate quarterly safeguards monitoring reports from the various RPs and submit annual safeguards monitoring reports to UNDP;
- Ensure timely disclosure of the safeguards and similar documents in locations and form accessible to the public; and
- Work closely with the RPs in addressing grievances brought about by the project-affected persons through the grievance redress mechanism (GRM) in a timely manner.

Project Assurance

Project assurance is the responsibility of each project board member; however, UNDP has a distinct assurance role for all UNDP projects in carrying out objective and independent project oversight and monitoring functions. UNDP performs quality assurance and supports the Project Board by carrying out objective and independent project oversight and monitoring functions, including applying and ensuring compliance with UNDP's risk management and social and environmental management systems. Project assurance is totally independent of project execution. The Project Board cannot delegate any of its quality assurance responsibilities to the PMU or Project Coordination Speciallist . A designated representative of UNDP playing the project assurance role will attend all board meetings and support board processes as a non-voting representative and provide board members with the required documentation related to quality assurance. The Partnership and Quality Assurance Specialist of UNDP will mainly take responsibility for the assurance function with support from other staff.

Gender Action Plan (GAP) and GBV/SEAH Action Plan

A Gender Action Plan has been developed during the project's design phase. It constitutes an Annex to the ProDoc and will guide all actions pertaining to SES implementation.

A SEAH Action Plan has been developed as part of the ESMF (Table XIII-24) and should be implemented in conjunction with other safeguard plans. This includes consideration of SEAH risks identified under Table 6-2 during risk screening procedures noted under Section 5.

Table XIII-24 SEAH Action Plan

Potential Risk Identified	Action to address SEAH risk	Timeline	Responsibility	Monitoring
There is a risk that challenges related to SEAH faced by the concerned stakeholders are not heard/addressed	As part of the project's stakeholder consultations, properly inform those affected by the project of SEAH risks and project activities to get their feedback on project design and safeguard issues. Consultations need to engage with a variety of stakeholders (political, cultural or religious leaders, health teams, local councils, social workers, women's organizations, organisations working with marginalised groups working and children) and should occur at the start and throughout the implementation of the project.	Consultations need to be throughout the project cycle, not just during preparation.	IA	Quarterly Monitoring of implementation of SEP. Stakeholder engagement will be a regular agenda item on PMU meetings Ongoing consultations, particularly when ESMP is updated. Report of consultation meetings Reporting on SEP activities, including grievances, will be included in Annual Reports
There is a risk of potential GBV incidents occurring within the beneficiary community and workforce.	Disseminate information, in collaboration with stakeholders working to combat GBV, on GBV referral pathway and the importance of timely seeking services	During implementation	IA	GRM, including SEAH/GBV referrals will be a standing agenda item at PMU/PSC meetings Summary provided to GCF as part of annual reporting
There is a risk that the local community, Indigenous Peoples, and workforce may be affected by SEAH-related incidents.	Make certain of the availability of an effective GRM with multiple channels to initiate a complaint - Include specific procedures for SEAH (eg confidential reporting with safe and ethical documenting of SEAH cases).	Prior to contractor mobilizing.	IA	Confirm GRM/SEAH systems in place with contractor prior to execution of the field level activities Ongoing monitoring and reporting on GRM to verify it is working as intended.
	Organize orientation sessions to workers and communities on PSEA /SEAH, the reporting mechanism in case of any cases during the project implementation	During the initiation phase of the project		Confirm orientation sessions to workers and communities on PSEA /SEAH held following initial to stage of project Reports of the refresher/sensitization programme to the communities, indigenous people and

				workforce on SEAH and the available mechanism to report and how to be safe.
There is a risk that the community or workforce lacks adequate information and mechanisms to prevent SEAH, or to handle cases with safety, confidentiality and sensitivity.	Map out SEAH prevention and response actors in project adjoining communities. Inform on the national mechanism to address SEAH in addition to the UNDP mechanism. Provide with the detail of the contact address/phone etc of the national mechanism if any cases of SEAH is witnessed or faced.	During preparation and Implementation	IA UNDP to provide technical support as appropriate	Update mapping as appropriate Make the agenda to be discussed in all the missions and re-emphasize it on the Zero tolerance on SEAH.
There is a risk that potential vendors may not have a code of conduct, policy and the capacity in place to address SEAH.	Clearly define the zero tolerance to SEAH and expected actions to be taken by organisations in bid documents.	Procurement.	IA.	Policy on prevention of SEAH [158]
	Define the requirements to be included in the bidding documents for a Code of Conduct and policy to combat SEAH.	Procurement.	IA	UNDP Policy on prevention of SEAH UNDP Nepal Action Plan SEAH[159] UNDP Guidance note on Assessing and monitoring SEA and SH capacities of implementing partners and responsible parties[160]
There is a risk that potential vendors' code of conduct, policy and capacity in/of SEAH is not in place.	Evaluate the contractor's SEAH Accountability and Response Framework in the ESMP and confirm prior to finalizing the contract the contractor's ability to meet the project's SEAH prevention and response requirements.	Procurement.	IA	Review by UNDP UNDP Guidance note on Assessing and monitoring SEA and SH capacities of implementing partners and responsible [161]parties
There is a risk that the ESMP may not have appropriate mitigation actions and measures.	Review ESMP to verify that appropriate mitigation actions are included	Implementation	IA	Review by UNDP Review by GCF

[158] UNDP 2018 Harassment, Sexual Harassment, Discrimination, and Abuse of Authority, and the Secretary-General Bulletin ST/SGB/2003/13: Special Measures for Protection from Sexual Exploitation and Sexual Abuse.
[159] UNDP Nepal 2018 Action Plan to Prevent Sexual Harassment in the Workplace and Sexual Exploitation and Abuse
[160] UNDP Guidance note on Assessing and monitoring SEA and SH capacities of implementing partners and responsible parties
[161] UNDP Guidance note on Assessing and monitoring SEA and SH capacities of implementing partners and responsible parties

There is a risk that the complaints and grievances particularly those related SEAH and GBV may not be addressed or handled properly and in timely manner.	Review that the GRM receives and processes complaints in a timely manner referring to an established mechanism to review and address the complaints. Escalate to the appropriate mechanism as soon as the case is registered. Organize sessions on the importance of the confidentiality and evidence of the case and on the mechanism where to report.	During project implementation		Ongoing reporting Monitoring of complaints and the action taken. Report of the sessions conducted on SEAH with emphasis on confidentiality and importance of evidence.
There is a risk that it may be perceived that hired or contracted UNDP personnel, contractors, consultants, vendors, and organizations are not held accountable.	Codes of Conduct signed and understood 1) Ensure requirements in CoCs are clearly understood by those signing. Have CoCs signed by all those with a physical presence at the project site. Train project staff/personnel on the behavior obligations under the CoCs. Disseminate CoCs (including visual illustrations) and discuss with employees and local communities. Create an appropriate Accountability and Response Framework.	Initiated prior to contractor mobilization and continued during implementation.	Contractor, Consultant, IA.	Review of SEA/SH risks during project supervision (e.g., Mid-term Review) to assess any changes in risk with particular emphasis on accountability. Supervising Engineer reporting that CoCs are signed and that workers have been trained and understand their obligations. Monitoring of GRM for SEA/SH complaints. Discussion at public consultations. Monitoring of the effective implementation of the accountability and response framework. UNDP Guidance note on Assessing and monitoring SEA and SH capacities of implementing partners and responsible parties[162]
There is a risk that GBV/SEAH/PSEA may be misunderstood or misused by project workers or the community, resulting in	Develop Training Materials/key messages for project workers sensitization, community awareness and for sensitization targeting Project management and Contractor management Training materials to be provided in Nepali language/and effort to be made in local language to and	At the start of the project implementation		Confirm that training and communication materials developed, and strategies developed ahead of resource mobilization to the field.

[162] UNDP Guidance note on Assessing and monitoring SEA and SH capacities of implementing partners and responsible parties

confusion or unintended consequences.	should include at least the following topics: • Definition of GBV, SEAH/PSEA Where/or whom to report if case of GBV, SEAH and PSEA and where to go for further information in case of confusion. What is prohibited action, importance of the confidentiality, evidence, reporting mechanism and accountability mechansim • Roles and responsibilities of project stakeholders Project staff Code of Conduct (CoC)Case (PSEA/SEAH/GBV) reporting mechanism, accountability structures, and referral procedures within agencies and for community members to report cases related to project staff; and • Services available for survivors of GBV and SEAH.			
There is a risk that project workers and local community may not be aware of SEA/SH/PSEA.	Have project workers and local community undergo training on SEA/SH/PSEA.	Implementation	IA, Contractors, Consultants	After engagement of new contractors and/or commencing work in a new community Ongoing reporting MTR
There is a risk that adequate monitoring and evaluation is not conducted thoroughly or regularly, hence SEA/SH/PSEA events may go unnoticed, leading to ineffective prevention and response measures.	Undertake regular M&E of progress on SEA/SH/PSEA prevention and response activities, including reassessment of risks as appropriate.	Implementation	IA, Contractors, Consultants	Monitoring of GRM-standing agenda item at PMU meetings. Ongoing reporting-quarterly reports + APR
There is a risk that inadequate implementation of safety measures and the local communities and Indigenous Peoples including other marginalized communities are	Implement appropriate project-level activities to reduce SEAH/PSEA risks prior to civil works commencing such as: Have separate, safe and easily accessible facilities for women and men working on the site. Locker rooms and/or latrines should be in separate areas, well-lit and include the ability to be locked from the inside.	Prior to works commencing	Contractor (implementation) Supervising engineer (supervising / enforcing contract)	Ongoing reporting and reviews during implementation support missions (audits to be undertaken during missions) Mission reports

exposed to SEAH/PSEA due to poor infrastructures.	Visibly display signs around the project site (if applicable) that signal to workers and the community that the project site is an area where SEASH/PSEA is prohibited. As appropriate, ensure public spaces around the project grounds are well-lit.			

The UNDP SES Policy integrates Gender-Based-Violence, and concerns about GBV were raised during the consultations, therefore, the ESIA will need to specifically investigate gender issues and GBV/SEAH risks and if necessary, update the GAP to integrate any additional measures necessary to address the risk.

Stakeholder Engagement and Public Participation

Public consultation and Environmental and Social Disclosure

During the development of the project there were discussions with a wide range of stakeholders including relevant government departments, industry groups, NGOs, representatives of indigenous peoples, and individual community members. Consultation has been ongoing since 2018, with the most recent round of consultation occuring in January 2024. A list of stakeholder groups consulted and timing is contained in Annexure 1.. Full details of consultations are contained in a separate Stakeholder Engagement Report.

A Stakeholder Engagement Plan has been prepared as part of this ESMF (**Error! Reference source not found.**). The SEP i ncludes public consultation as well as engagement with directly affected stakeholders. The SEP also notes the inclusion of indigenous peoples and is therefore linked to the IPPF.

The UNDP and GoN will develop and release updates on the project on a regular basis to provide interested stakeholders with information on project status. Updates may be via a range of media eg print, radio, social media or formal reports. A publicized telephone number will be maintained throughout the project to serve as a point of contact for enquiries, concern, complaints and/or grievances. All enquiries, concern, complaints and/or grievances will be recorded on a register and the appropriate manager will be informed. All material must be published in English and Nepali as appropriate.

Where there is a community issue raised, the following information will be recorded:

- time, date and nature of enquiry, concern, complaints and/or grievances
- type of communication (e.g. telephone, letter, personal contact)
- name, contact address and contact number
- response and investigation undertaken because of the enquiry, concern, complaint and/or grievance
- actions taken and name of the person taking action.
- Some enquiries, concerns, complaints and/or grievances may require an extended period to be addressed. The complainant(s) will be kept informed of progress towards rectifying the concern. All enquiries, concerns, complaints and/or grievances will be investigated, and a response given to the complainant in a timely manner. A grievance redress mechanism (Section 0) has been included in the ESMF to address any complaints that may not be able to be resolved quickly.
- Nominated PMU/contractor staff will be responsible for undertaking a review of all enquiries, concern, complaints and/or grievances and ensuring progress toward resolution of each matter.

Disclosure

Disclosure of relevant project information helps stakeholders effectively participate. The UNDP will disclose information in a timely manner, that is accessible and culturally appropriate, placing due attention to the specific needs of community groups that may be affected by project implementation (such as literacy, gender, differences in language or accessibility of technical information or connectivity).

UNDP has a Transparency Portal to publicly disclose projects' documentation related to environmental and social safeguards (eg environmental and social analyses, ESIAs, ESMFs and ESMPs, indigenous peoples and social inclusion plans and other relevant documents. The website is: https://open.undp.org/

To meet UNDP disclosure requirements, the ESIA and ESMPs will be made available at least 60 days prior to implementation of activities that could cause impacts. The documents will be disclosed in English and the local language via electronic links on both UNDPs and GCF's website and in locations convenient to affected peoples during implementation.

GCF Disclosure Requirements

The GCF Information Disclosure Policy prescribes specific schedules and methods of disclosure for certain types of information.

For Category B projects environmental and social safeguards reports from Accredited Entities (AE) must be disclosed 30 days prior to the GCF or AE Board Meeting date (whichever is earlier). (This will be met by UNDPs more rigorous requirement noted above). Disclosure is to be on the AE website / Locations convenient to affected peoples / Posted on GCF website together with funding proposal.

Further information on GCFs disclosure requirements can be found at: https://www.greenclimate.fund/about/disclosure

Stakeholder Engagement Plan

See Annex J below.

To ensure the widest dissemination and disclosure of project information, including any details related to applicable environmental and social safeguards, local and accessible disclosure tools including audiovisual materials such as flyers, brochures, videos, and community radio broadcasts will be utilized in addition to other tools. Furthermore, particular attention will be paid to women, indigenous peoples, marginalized minority groups (including Dalits), illiterate or technologically illiterate people, and people with hearing or visual disabilities, people with limited or no access to internet and other groups with special needs. The dissemination of information among these groups will be carried out with the project counterparts and local actors such as municipalities, producers´ associations, indigenous federations, organizations representing marginalized minority groups, women's organizations, government and other regional actors.

Grievance Redress Mechanism

A grievance mechanism has been devised to acknowledge and address any negative impacts of complaints that arise because of the project. The GRM provides a single mechanism that is open to all to manage all grievances, ie project stakeholders, NGOs/CNOs, workers, team members and government.

Any grievances should be analyzed and mitigated as quickly as possible to avoid any tensions or conflicts. The grievance mechanism proposed here is cost effective as it is integrated into the institutional mechanism of the project.

The objectives of the grievance redress mechanism are to:

- Provide affected people an avenue through which they can voice their concerns and dissatisfaction
- Create a platform in which stakeholders and community members can freely raise concerns and complaints to be effectively addressed
- Demonstrate to project stakeholders and communities that they play an important role in project design and implementation
- Follow up and report on efforts to take corrective action.

Table XIII-25 Overview of grievance review procedure

Steps	Procedures
1. Receive and register	Community organizations, households, individuals, or other stakeholders submit their grievances to the PMU safeguard officer and supporting officers within implementing units. Safeguard Officers will receive grievances or feedback through telephone/SMS, email, feedback/complaint box or other written or oral formats.

2. Acknowledge, screen, assess and assign	PMU-M&R specialist will screen each grievance to ensure eligibility and either will assign staff to assess and investigate the grievance or forwards the grievance to higher institutional levels if too complicated to be addressed at the respective level. Officers responsible for the investigation and addressing the grievance prepares and presents report on grievance with potential resolution options
3. Respond and address	PMU-M&R specialist proposes options to address the grievance to the complainant and any other related parties to reach an agreement
4. Implement and monitor	PMU-M&R specialist requests to implement the agreed upon redress option and, along with input from other PMU officers, assigns a relevant officer to monitor the progress and effectiveness of implementation
5. Report	PMU M&R specialist prepares a report, based on a standardized template, on the status of all grievances. This report is then submitted to the National Project Director (NPD) and the PMU´s Safeguard Officer. The report will be available on the official website for public access

Grievance Redress Mechanism Structure

The GRM has been designed to address any complaints or grievances to the project. All complainants shall be treated respectfully, politely and with sensitivity, this includes specific procedures for GBV/SEAH (eg confidential reporting with safe and ethical documenting of SEAH cases). The GRM will be communicated to stakeholders through a range of channels, including UNDPs website, social media, radio, project information packages/newsletters, at community meetings and consultations, village notice boards and/or pamphlets.

The proposed structure has grievances first flow through an internal national process, where most issues are expected to be addressed. Within this internal structure, the grievance will first be filed to the local municipality (as per the LGOA 2017), who will also share the grievance report with the implementing units. The Chief Administrative Officer will process the grievance and, if it is not possible to solve it, will transfer the grievance to the PMU. If it is not possible to address the grievance within the local municipality/implementing party, PMU or PSC level, the grievance will be transferred to the UNDP Resident Representative. When considered necessary, the RR can further transfer the issue to the UNDP Regional Representative.

If the complaint relates to GBV/SEAH, the Chief Administrative Officer will notify a nominated staff focal point who are informed of all GBV services/referral focal points for their community and how to access them. The staff focal point will help reduce the risk of exposure of GBV survivors and reduce undermining confidence. The SEAH focal point will assist SEAH survivors by referring them to GBV service provider/s for support immediately after receiving a complaint directly from the survivor. Information in the GRM will remain confidential for SEAH complaints, the GRM will serve primarily to: a) refer complainants to the GBV service provider; and b) record resolution of the complaint.

The following flow chart shows how the GRM would operate.

Level 1: The complaint should be submitted directly to the Local Municipality (as per LGOA 2017), who will also share with the implementing party the filed grievance. The Chief Administrative Officer will receive and begin processing the grievance. The complaint can be provided in writing or orally to the representatives directly. At this stage the grievance will be registered by the implementing party and investigated by the Local Municipality.	
Local Municipality Level (Chief Administrative Officer)	Should respond in 10 working days upon receiving the reported grievance. Contact for Local Chief Administrative Officers in project municipalities to be included within 6 months of project inception



Level 2: The complaint should be submitted directly to the implementing party. The implementing party will receive and begin processing the grievance. The complaint can be provided in writing or orally to the representatives directly. At this stage, the grievance will be registered and investigated by the implementing party.	
PPSU	Should respond in 10 working days upon receiving the reported grievance. *Contact for implementing party safeguards officer to be included within 6 months of project inception*

Level 3: If the grievance cannot be solved at the provincial level, then the implementing partyt should send the grievance to the PMU. If the grievance is related to inter provincial jurisdiction issues, the PMU Safeguard Officer can send the reported issue directly to the National Project Director and PSC.	
PMU	Should respond in 10 working days after consultation with the implementing party *Contact for PMU Safeguard Officer to be included within 6 months of project inception*

Level 4: If the grievance cannot be solved at the provincial level (implementing party) or national level (PMU), then the PMU safeguards officer will send the grievance to the PSC, in coordination with the National Project Director.	
Project Steering Committee (PSC)	Should respond in 10 working days after consultation with PMU Safeguard Officer. *Contact for PMU Safeguard Officer to be included within 3 months of project inception*

Level 5: In the instance where national authorities cannot solve or address the reported grievance, the Chair of the PSC will send the grievance to the assigned national UNDP Representative

External Resolution Mechanisms

The Project Grievance Redress Mechanism does not replace or exclude other existing avenues for complaint resolution.

All complainants have the right to use the judicial system of Nepal (ie courts) at any time to seek resolution.

Two additional independent grievance mechanisms are also available to complainants:

- UNDP Stakeholder Response Mechanism - www.undp.org/secu-srm
- GCF Independent Redress Mechanism - https://irm.greenclimate.fund

Informal and Customary Grievance Review

Customary practices of different community, ethnic and religious groups to manage conflicts will also be integrated into the formal grievance mechanism. In many instances grievance cases have been addressed in an informal manner by local communities under the direction of community or traditional leaders. The M&R specialist will consider the opinions or recommendations of leaders from any informal redress mechanisms before making any decisions.

Resolution

Once a grievance has been addressed and the party that filed the grievance has accepted the solution, an agreement should be signed by all parties involved. Records of all grievances made and addressed should be preserved to ensure continued compliance and a transparent grievance review mechanism.

Monitoring and Evaluation Arrangements

The effectiveness of the ESMF is to be evaluated every six months to monitor the implementation of the ESMF and adoption of specific social and environmental management plans, including parameters to be measured and arrangements for stakeholder participation.

The ESMF document is to also be reviewed every six months by the PMU. The objective of the review is to update the document to reflect knowledge gained during project delivery and to reflect new knowledge and changed community standards (values).

The ESMF will be reviewed, and amendments will be made in the event of any of the following:

- New or previously unidentified environmental risks are identified;

- Information from the project monitoring and surveillance methods indicate that current control measures require amendment to be effective;
- There are changes to environmental legislation that are relevant to the project;
- There is a request made by a relevant regulatory authority.

Results of reviews and evaluations will be provided to the PMU and incorporated into Annual Progress Reports.

External third-party review will be undertaken as part of the mid-term project review.

Action Plan and Budget

Implementation Action Plan

Following approval of the project funding, a series of actions related to safeguards will be initiated, including the following key actions:

- Engagement of safeguards team
- Inception workshop Safeguards presentation
- Operationalise SEP and GRM
- Operationalise GAP
- Initiate IPPF actions consultation with IPs, assess need for FPIC as activities designed (detail). Commence preparation of IPPs (if required)
- Screen detailed activities and identify any environmental and social assessment needs
- Undertake required impact assessments (including detailed baseline)
- Review and update ESMF as required
- Develop ESIA/ESMPs
- Develop Land Acquisition Plan (as part of ESMP) LAP will describe process for identifying/confirming land tenure, and mechanisms for obtaining legal right to use land, both public, private and communal (eg Gethi). No compulsory land acquisition will be permitted
- Implement ESMPs as part of project execution
- Monitoring and reporting

Budget

All costs related to the ESMF implementation have been incorporated into the overall budget for the project. A budget estimate has been prepared for the implementation of the ESMF (Table XIII-26).

Table XIII-26 ESMF budget estimate

Item		**Cost**
Staff allowance	Safeguards Officer	$190,524
	Gender and youth specialist	$190,524
	IP specialist/s	$63,000
	M&E specialist/s	$190,524
Plan Preparation	ESMP Preparation (3 ESMPs) - inclusive of the cost required for ESIA, biodiversity assessment and BAP	$45,000
	LAP	$5,000
	IPPs preparation	$150,000
Implementation	Stakeholder Engagement and IPP implementation	$180,000
	General ESMF Expenses	$20,000
	Water Quality Monitoring (including purchase of WQ instrument)	$50,000
	Erosion, Drainage and Sediment Controls	$100,000
	Grievance Redress Mechanism	$50,000
	ESMF/ESMP updates and auditing	$50,000
	Total	**$1,284, 572**

Appendix One: Summary of Stakeholder Consultation During Project Formulation (2018 to 2022)

Table A1 summarises consultations with communities/individuals, government, CDOs/Ips, and private sector organisations during the formulation of the project. Based on the Stakeholders Consultation Report, in general 40%-80% of participants were indigenous peoples. Disaggregated data will be collected during inception/ before implementation as part of the implementation of the IPPF.
The consultations were carried out at different stages of project development and informed the design of the interventions.
The consultation agenda over the period were:

a) Issues and challenges faced by the community due to changing climate
b) Ongoing and planned initiatives
c) Priority actions that need to be undertaken in the communities and roles of the communities/ CSOs / Local Government
d) Roles of various Stakeholders at all levels
e) Components / Outputs of the project
f) Social and Environmental safeguards- Proposed components EWS, Lake Lowering and Downstream Flood Risk Reduction Measures
g) Possible Collaboration and Co-financing for the project

The inputs of various stakeholders have been used iteratively during the design of the project, for example the concerns of IPS are reflected in the IPPF and will be explored further and resolved more fully in the IPPs that will be prepared during implementation, local labour will be sought as much as possible (and a Labour Management Plan will be prepared), blasting will not be undertaken, religious and cultural ceremonies will be held as per the practice and IP and local requirements, public land will be used to avoid land acquisition. Expert inputs from flood specialists, dam break experts, ICIMOD, NGOs, ESS specialists, and government departments have all contributed to the design of the project.

Detailed records of the various consultations are contained within Annex 7a and 7b of the Funding Proposal.

Table A1. Consultations undertaken during project formulation

Male	Female	IP	Dalits	Brahman/Chettri	Madhesi	Others	Total
68%	32%	64.0%	3.7%	29.2%	2.7%	0.5%	100%

Thematic Consultations	Date	Location	Male	Female	IP	Dalits	Brahman / Chettri	Madhesi	Others	Total
	6-Aug-19	Makalu Rural Municipality 5, Phyaksingda besi	7	11	7	3	8	0	0	18
Consultations for Gender Assessment and Action plan	6-Aug-19	Makalu Rural Municipality-5, Saraswoti Tole	13	1	2	12	0	0	0	14
	6-Aug-19	Makalu Rural Municipality, Numbazar	6	6	8	2	2	0	0	12
	7-Aug-19	Khandbari Municipality-9, Samghuri, Tumlingtar	9	12	21	0	0	0	0	21
	7-Aug-19	Venus Hotel, Khandbari, Sankhuwasabha	12	3	11	1	3	0	0	15
	9-Aug-19	Agriculture Research Centre, Pakhribas, Dhankuta	7	1	1	0	6	1	0	8
	9-Aug-19	Pakhribas Municipality	9	3	7	0	5	0	0	12
	10-Aug-19	Hatuwagaadhi Rural Muncipality-6, Bhojpur	7	17	23	1	0	0	0	24
	11-Aug-19	Koshi Rural Municipality ward no: 3	6	18	1	20	1	3	0	24
	1-Oct-19	Dhokaima Cafe - Yalamaya Kendra, Patan Dhoka	12	18	15	1	11	2	0	30
Consultation with Indigenous Peoples, CSO and Local Communities	9-Jan-18	Gorkha	29	5	13	3	17	1	0	34
	9-Jan-18	Dharche Rural Municipality (FGD 1)	4	8	12	0	0	0	0	12
	9-Jan-18	Dharche Rural Municipality (FGD 2)	7	5	11	1	0	0	0	12
	9-Jan-18	Dharche Rural Municipality (FGD 3)	7	1	5	0	3	0	0	8
	16-Jan-18	Hotel Landmark, Lakeside, Pokhara	37	18	55	0	0	0	0	55
	19-31 Jan 2018	Nasong-1, Manang	8	24	29	2	1	0	0	32
		Nasong-2, Manang	18	12	29	1	0	0	0	30
		Danda Kharche/Gauri Shankar 3, Dolakha	10	6	15	0	1	0	0	16
		Gumba Danda Gaurishankar 4, Dolakha	21	10	31	0	0	0	0	31
		Gauri Shankar 3, Dolakha	9	4	5	0	8	0	0	13
		Gharpjhing 3 and 5 Mustang	22	9	30	1	0	0	0	31

		Gharpjhing 4, Mustang	17	13	30	0	0	0	0	30
		Bhotkhola 4, Sankhuwasabha	27	8	35	0	0	0	0	35
		Bhotkhola 5, Sankhuwasabha	31	2	33	0	0	0	0	33
		Thulung Dudhkosika-3, Solukhumbu	23	9	32	0	0	0	0	32
		Thulung Dudhkosika-4, Solukhumbu	16	5	18	0	3	9	0	21
		Dharche-3, Gorkha	8	16	24	0	0	0	0	24
		Chumnubri-1 and 2, Gorkha	17	9	26	0	0	0	0	26
		Aisalukharka-4, Khotang	19	10	29	0	0	0	0	29
		Aisalukharka-5, Khotang	27	3	27	1	2	0	0	30
		Marsyandi-3, Khudi, Lamjung	1	15	14	1	1	0	0	16
		Marsyandi-4, Lamjung	21	14	32	1	2	0	0	35
		Phaktanlung-2, Taplejung	18	12	28	0	2	0	0	30
		Phaktanlung-6, Taplejung	7	10	17	0	0	0	0	17
		Zoom	4	5	7	0	2	0	0	9
	24-Jan-18	Khotang	1	0	1	0	0	0	0	1
	26-Jan-18	Consultation at Sankhuwasabha	48	8	24	1	28	3	0	56
	26-Jan-18	Solududh Kunda Municipality	5	1	5	0	1	0	0	6
	27-Jan-18	Khandbari Bazar, Bhotkhola	4	0	4	0	0	0	0	4
	27-Jan-18	Makalu Rural Municipality	16	5	18	2	2	0	0	21
	27-Jan-18	KII at Sankhuwasabha	1	0	1	0	0	0	0	1
	27-Jan-18	Kalinchowk Rural Municipality	8	0	0	0	8	0	0	8
	28-Jan-18	Dudhkoshi Rural Municipality	9	3	6	0	6	0	0	12
	28-Jan-18	Charikot, Bhimeshwor Municipality	8	4	1	0	11	0	0	12
	28-Jan-18	Solukhumbu	7	6	12	0	1	0	0	13
	29-Jan-18	Sotang Rural Municipality (FGD 1)	10	0	3	0	7	0	0	10
	29-Jan-18	Sotang Rural Municipality (FGD 2)	0	10	1	0	9	0	0	10
	29-Jan-18	Dolakha	16	1	5	0	12	0	0	17
	30-Jan-18	Thulung Dodhkoshi Rural Municipality	6	0	4	0	2	0	0	6

	30-Jan-18	Mahakulung Rural Municipality (FGD 1)	9	1	7	0	2	1	0	10
	30-Jan-18	Mahakulung Rural Municipality (FGD 2)	6	1	6	0	1	0	0	7
	30-Jan-18	Dudhkoshi Rural Municipality	2	1	3	0	0	0	0	3
	30-Jan-18	Taplejung Dovan	14	2	8	0	7	1	0	16
	30-Jan-18	KII at Taplejung	1	0	0	0	1	0	0	1
	30-Jan-18	Makalu Rural Municipality	7	4	11	0	0	0	0	11
	30-Jan-18	Makalu Rural Municipality	6	1	4	0	2	1	0	7
	13-Feb-18	Marsyangdi Rural Municipality (FGD 1)	16	0	3	1	12	0	0	16
	13-Feb-18	Marsyangdi Rural Municipality (FGD 2)	7	1	4	0	4	0	0	8
	14-Feb-18	Lamjung	18	2	6	0	12	1	0	20
	14-Feb-18	Besisahar Municipality	6	2	1	0	7	0	0	8
	15-Feb-18	Manang	10	0	1	1	6	1	0	10
	15-Feb-18	Mustang	17	2	2	1	13	2	0	19
	23-Feb-18	Jumla	18	0	3	0	12	1	0	18
	24-Feb-18	Nasong Rural Municipality	12	1	7	1	4	1	0	13
	25-Feb-18	Chhayanath Rural Municipality, Mugu District	21	2	6	0	11	3	0	23
	29-Jan-18	Bhimeshwor Municipality, Bigu & Gaurishankar Rural Municipality	7	0						7
	3-Aug-21	Virtual with FECOFUN	1	4	2	0	3	0	0	5
Second Round Discussions with Indigenous People Groups and Communities	24-Aug-23	NIWF meeting Hall	6	19	22	0	3	0	0	25
	1-Sep-23	NEFIN Meeting Hall	9	3	9	1	2	0	0	12
Re-Engagement Consultations with Indigenous Peoples	9-Jan-24	Khandbari, Sankhuwasabha	33	16	46	0	3	0	0	49
	11-Jan-24	Salleri, Solukhumbu	25	18	39	2	2	0	0	43
	20-Jan-24	Besishahar, Lamjung	30	15	41	0	4	0	0	45
	26-Jan-24	NEFIN Office, Kathmndu	24	10	32	0	2	0	0	34
	8-Jul-21	Ministry of Forest and Environment (MoFE), Singhadurbar, Kathmandu	6	1	0	0	7	0	0	7

Consultations with Government of Nepal	8-Jul-21	Ministry of Energy, Water Resources, and Irrigation (MoEWRI), Singhadurbar, Kathmandu	6	0	0	0	6	0	0	6
	11-Jul-21	Project Office of Building a Resilient Churia Region Nepal (BRCRN), Babarmahal, Kathmandu	2	0	0	0	2	0	0	2
	11-Jul-21	DoFSC, Babarmahal, Kathmandu	2	0	0	0	2	0	0	2
	23-Jul-21	NDRRMA, Singhadurbar, Kathmandu	7	1	1	0	7	0	0	8
	2-Aug-21	DHM, Babarmahal, Kathmandu	13	0	4	0	9	0	0	13
	9-Aug-21	DoWRI, Jawalakhel, Lalitpur	6	0	0	0	6	0	0	6
	9-Aug-21	WECS, Singhadurbar, Kathmandu	6	0	0	0	6	0	0	6
	9-Aug-21	MoFAGA, Singha durbar, Kathmandu	5	0	0	0	5	0	0	5
	12-Aug-21	DNPWC, Babarmahal, Kathmandu	6	0	0	0	6	0	0	6
	16-Aug-21	MoALD, Singhadurbar, Kathmandu	6	0	0	0	6	0	0	6
	19-Aug-21	MoEWRI, Singhadurbar, Kathmandu	13	1	2	0	10	1	1	14
	25-Aug-21	DMG, Lainchour, Kathmandu	10	2	2	0	10	0	0	12
	29-Aug-21	Ministry of Finance, Singhadurbar, Kathmandu	7	1	1	0	7	0	0	8
	7-Sep-21	Virtual Meeting - Gandaki Province	3	1	0	0	4	0	0	4
	23-Sep-21	Virtual Meeting - Province-1	6	0	1	0	5	0	0	6
Telephonic Consultation Meeting for preparation of environmental & social management framework (ESMP) and including IPs planning framework at local level	18-29 Dec 2021	Virtual	10	19	29	0	0	0	0	29
	16-Jun-22	Panchakhapan Municipality-Sankhuwasabha	2	1	1	0	2	0	0	3

	16-Jun-22	Sabhapokhari Rural Municipality-Sankhuwasabha	1	2	2	0	1	0	0	3
	17-Jun-22	Bhotkhola Rural Municipality-Sankhuwasabha	1	2	2	3	0	0	0	3
SES, Co-Financing, Project Components at Local Level	20-Jun-21	Khandbari Municipality - Sankhuwasabha	1	2	2	1	0	0	0	3
	27-Jun-22	Chainpur Municipality-Sankhuwasabha	1	2	1	1	1	1	0	3
	27-Jun-22	Mahalaxmi Municipality, Dhankuta	2	2	3	0	1	0	0	4
	1-Jul-22	Silichong Rural Municipality-Sankhuwasabha	1	3	2	1	1	0	0	4
	1-Jul-22	Dharmadevi Municipality-Sankhuwasabha	2	2	3	0	1	0	0	4
	1-Jul-22	Salpasilichho Rural Municipality-Bhojpur	3	1	1	0	2	1	0	4
	1-Jul-22	Shadananda Municipality-Bhojpur	2	2	4	0	0	0	0	4
	6-Jul-22	Bhojpur Municipality-Bhojpur	2	0	2	0	0	0	0	2
	8-Jul-22	Solududhakunda Municipality, Solukhumbu	2	3	5	0	0	0	0	5
	11-Jul-22	Arun Rural Municipality, Bhojpur	3	0	3	0	0	0	0	3
	24-Jul-22	Tyamkemaiyunm Rural Municipality, Bhojpur	1	1	2	0	0	0	0	2
	26-Jul-22	Pakharibas Municipality, Dhankuta	3	0	3	0	0	0	0	3
	4-Oct-21	Khumbupasanglamhu Rural Municipality, Solukhumbu	2	1	3	0	0	0	0	3
	4-Oct-21	Sotang Rural Municipality, Solukhumbu	1	2	3	0	0	0	0	3
	17-Oct-21	Makalu Rural Municipality-Sankhuwasabha	1	2	3	0	0	0	0	3
	18-Oct-21	Mahakulung Rural Municipality, Solukhumbu	1	2	3	0	0	0	0	3
	4-Nov-21	Mapya Dudhkoshi Rural Municipality, Solukhumbu	2	1	3	0	0	0	0	3
	5-Nov-21	Chichila Rural Municipality-Sankhuwasabha	2	2	2	1	1	0	0	4
	14-Nov-21	Thulung Dudhkoshi Rural Municipality, Solukhumbu	1	2	3	0	0	0	0	3
	16-Jun-22	Panchakhapan Municipality-Sankhuwasabha	1	3	2	0	1	0	0	4
	16-Jun-22	Sabhapokhari Rural Municipality-Sankhuwasabha	1	3	3	0	1	0	0	4
	17-Jun-22	Bhotkhola Rural Municipality-Sankhuwasabha	0	4	4	0	0	0	0	4
	27-Jun-22	Chainpur Municipality-Sankhuwasabha	1	1	0	0	2	0	0	2
	27-Jun-22	Mahalaxmi Municipality, Dhankuta	1	2	2	0	1	0	0	3

	1-Jul-22	Dharmadevi Municipality-Sankhuwasabha	1	1	0	0	2	0	0	2
	1-Jul-22	Salpasilichho Rural Municipality-Bhojpur	1	3	4	0	0	0	0	4
	6-Jul-22	Bhojpur Municipality-Bhojpur	1	2	3	0	0	0	0	3
	6-Jul-22	Chisankhugadhi Rural Municipality, Okhaldhunga	1	4	5	0	0	0	0	5
	6-Jul-22	Kepilasgadhi Rural Municipality, Khotang	2	1	2	0	1	0	0	3
	7-Jul-22	Siddhicharan Municipality, Okhaldhunga	2	1	3	0	0	0	0	3
	7-Jul-22	Manebhanjyang Rural Municipality, Okhaldhunga	1	3	4	0	0	0	0	4
	7-Jul-22	Diktel Rupakot Majhuwagadhi Municipality, Khotang	1	3	3	0	1	0	0	4
	8-Jul-22	Solududhakunda Municipality, Solukhumbu	1	2	3	0	0	0	0	3
	11-Jul-22	Arun Rural Municipality, Bhojpur	1	2	2	0	1	0	0	3
	12-Jul-22	Halesi Tuwachung Municipality, Khotang	1	2	1	0	2	0	0	3
	24-Jul-22	Tyamkemaiyunm Rural Municipality, Bhojpur	1	2	1	1	1	0	0	3
	26-Jul-22	Pakharibas Municipality, Dhankuta	1	3	2	0	1	0	0	4
	26-Jul-22	Rawabesi Rural Municipality, Khotang	1	2	2	0	1	0	0	3
	1-Aug-22	Ainselukharka Rural Municipality, Khotang	1	3	2	0	1	0	0	4
	10-Aug-22	Nechasalyan Rural Municipality, Solukhumbu	1	3	4	0	0	0	0	4
		Ramprasad Rai Rural Municipality, Bhojpur	1	3	2	0	1	0	0	4
		Chhathar Jorpati Rural Municipality, Dhankuta	1	3	1	0	2	0	0	4
Wider Stakeholder Consultation	6-Dec-21	Hybrid (MOF & Virtual)	107	30	31	2	86	9	9	137
Consultation with Academia, Research Institutions/INGOs/IGOs and UN Agencies			10	1	6	0	5	0	0	11
Private sector and Others on-blending financing and on-granting mechanism	7 - 11 March 2022	NMB Bank Ltd, Salleri	2	0	1	0	1	0	0	2
		Global IME Bank Ltd., Salleri	1	1	1	0	1	0	0	2
		Nirdhan Uthhan 3		0	0	0	3	0	0	3

		Laghubitta Sanstha Branch office, Salleri								
		Young Star Club, Dorpu Bazaar, Salleri	3	0	0	0	3	0	0	3
		Thulung Dudhkoshi RM Office	4	0	1	0	3	0	0	4
		Mahakulung RM Office	13	0	8	0	4	1	0	13
		Everest Bank Ltd. Branch office, Mahakulung	2	0	1	0	1	0	0	2
		Sotang RM Office	9	1	4	1	5	0	0	10
		Mapya Dudhkoshi RM Sunrise Hotel, Salleri	4	0	1	0	3	0	0	4
		Laxmi Bank Ltd. Branch office, Salleri	2	0	1	0	1	0	0	2
		Century Commercial Bank Ltd. Branch office, Salleri	2	0	0	0	2	0	0	2
		Others consultated	28	6	2	0	31	1	0	34
	6-Oct-21	Nepal Tourism Board (NTB) - Virtual	4	0	0	0	4	0	0	4
	20-Oct-21	Independent Power Producer Association of Nepal (IPPAN) Meeting Hall	5	0	0	0	5	0	0	5
	7-Feb-24	Independent Power Producer Association of Nepal (IPPAN) Meeting Hall	7	2	3	0	5	1	0	9
Stakeholder Consultations for early warning system and Hydro-met station	9 March - 2 April 2021	Middle Marsyangdi Hydropower Project	21	8	13	3	8	5	1	29
		Mother's Group	0	23	22	1	0	0	0	23
		Marsyangdi Youth Club	16	4	20	0	0	0	0	20
		Nache	36	25	59	0	1	1	0	61
		Dharapani	7	3	3	1	5	1	0	10
		Rawabasi	12	1	3	2	8	0	0	13
		Rabuwa Bazar	16	0	13	0	3	0	0	16
		Lamidada	31	10	20	3	15	3	0	41
		Jayaramghat - Thakle	19	11	12	1	16	0	0	30
		Manebhanjyang	8	0	3	0	4	1	0	8

Technical Clearance Workshop on Protecting	26-27 September 2021	Club Himalaya, Nagarkot	18	3	8	0	11	2	0	21
Addressing Climate Risks Reduction in Khumbu Region	20-Feb-24	Hotel Himalaya, Lalitpur	30	7	21	0	14	2	0	37
TOTAL			**1528**	**708**	**1432**	**83**	**653**	**61**	**11**	2236
			Male	**Female**	**IP**	**Dalits**	**Brahman/Chettri**	**Madhesi**	**Others**	**Total**
			68%	**32%**	**64.0%**	**3.7%**	**29.2%**	**2.7%**	**0.5%**	

**Details consultation report with minutes in the Stakeholders' Consultation Report.*

Appendix Two: Guidance for Submitting a Request to the Social and Environmental Compliance Unit and/or the Stakeholder Response Mechanism





Empowered lives.
Resilient nations.

Guidance for Submitting a Request to the Social and Environmental Compliance Unit (SECU) and/or the Stakeholder Response Mechanism (SRM)

Purpose of this form

- **If you use this form, please put your answers in bold writing to distinguish text**
- **The use of this form is recommended but not required. It can also serve as a guide when drafting a request.**

This form is intended to assist in:

(1) Submitting a request when you believe UNDP is not complying with its social or environmental policies or commitments and you believe you are being harmed as a result. This request could initiate a 'compliance review', which is an independent investigation conducted by the Social and Environmental Compliance Unit (SECU), within UNDP's Office of Audit and Investigations, to determine if UNDP policies or commitments have been violated and to identify measures to address these violations. SECU would interact with you during the compliance review to determine the facts of the situation. You would be kept informed about the results of the compliance review.

and/or

(2) Submitting a request for UNDP "Stakeholder Response" when you believe a UNDP project is having or may have an adverse social or environmental impact on you and you would like to initiate a process that brings together affected communities and other stakeholders (e.g., government representatives, UNDP, etc.) to jointly address your concerns. This Stakeholder Response process would be led by the UNDP Country Office or facilitated through UNDP headquarters. UNDP staff would communicate and interact with you as part of the response, both for fact-finding and for developing solutions. Other project stakeholders may also be involved if needed.

Please note that if you have not already made an effort to resolve your concern by communicating directly with the government representatives and UNDP staff responsible for this project, you should do so before making a request to UNDP's Stakeholder Response Mechanism.

Confidentiality If you choose the Compliance Review process, you may keep your identity confidential (known only to the Compliance Review team). If you choose the Stakeholder Response Mechanism, you can choose to keep your identity confidential during the initial eligibility screening and assessment of your case. If your request is

eligible and the assessment indicates that a response is appropriate, UNDP staff will discuss the proposed response with you and will also discuss whether and how to maintain confidentiality of your identity.

Guidance

When submitting a request please provide as much information as possible. If you accidentally email an incomplete form, or have additional information you would like to provide, simply send a follow-up email explaining any changes.

Information about You

Are you…

1. A person affected by a UNDP-supported project?

Mark "X" next to the answer that applies to you: Yes: No:

2. An authorized representative of an affected person or group?

Mark "X" next to the answer that applies to you: Yes: No:

If you are an authorized representative, please provide the names of all the people whom you are representing, and documentation of their authorization for you to act on their behalf, by attaching one or more files to this form.

3. First name:
4. Last name:
5. Any other identifying information:
6. Mailing address:
7. Email address:
8. Telephone Number (with country code):
9. Your address/location:
10. Nearest city or town:
11. Any additional instructions on how to contact you:
12. Country:

What you are seeking from UNDP: Compliance Review and/or Stakeholder Response

You have four options:

- Submit a request for a Compliance Review;
- Submit a request for a Stakeholder Response;
- Submit a request for both a Compliance Review and a Stakeholder Response;
- State that you are unsure whether you would like Compliance Review or Stakeholder Response and that you desire both entities to review your case.

13. Are you concerned that UNDP's failure to meet a UNDP social and/or environmental policy or commitment is harming, or could harm, you or your community? Mark "X" next to the answer that applies to you: Yes: No:
14. Would you like your name(s) to remain confidential throughout the Compliance Review process?

Mark "X" next to the answer that applies to you: Yes: No:

If confidentiality is requested, please state why:

15. Would you like to work with other stakeholders, e.g., the government, UNDP, etc. to jointly resolve a concern about social or environmental impacts or risks you believe you are experiencing because of a UNDP project?

Mark "X" next to the answer that applies to you: Yes: No:

16. Would you like your name(s) to remain confidential during the initial assessment of your request for a response?

Mark "X" next to the answer that applies to you: Yes: No:

If confidentiality is requested, please state why:

17. Requests for Stakeholder Response will be handled through UNDP Country Offices unless you indicate that you would like your request to be handled through UNDP Headquarters. Would you like UNDP Headquarters to handle your request?

Mark "X" next to the answer that applies to you: Yes: No:

If you have indicated yes, please indicate why your request should be handled through UNDP Headquarters:

18. Are you seeking both Compliance Review and Stakeholder Response?

Mark "X" next to the answer that applies to you: Yes: No:

19. Are you unsure whether you would like to request a Compliance Review or a Stakeholder Response? Mark "X" next to the answer that applies to you: Yes: No:

Information about the UNDP Project you are concerned about, and the nature of your concern:

20. Which UNDP-supported project are you concerned about? (if known):
21. Project name (if known):
22. Please provide a short description of your concerns about the project. If you have concerns about UNDP's failure to comply with its social or environmental policies and commitments, and can identify these policies and commitments, please do (not required). Please describe, as well, the types of environmental and social impacts that may occur, or have occurred, as a result. If more space is required, please attach any documents. You may write in any language you choose
23. Have you discussed your concerns with the government representatives and UNDP staff responsible for this project? Non-governmental organisations?

Mark "X" next to the answer that applies to you: Yes: No:

If you answered yes, please provide the name(s) of those you have discussed your concerns with

Name of Officials You have Already Contacted Regarding this Issue:

First Name	Last Name	Title/Affiliation	Estimated Date of Contact	Response from the Individual

24. Are there other individuals or groups that are adversely affected by the project?

Mark "X" next to the answer that applies to you: Yes: No:

25. Please provide the names and/or description of other individuals or groups that support the request:

First Name	Last Name	Title/Affiliation	Contact Information

Please attach to your email any documents you wish to send to SECU and/or the SRM. If all of your attachments do not fit in one email, please feel free to send multiple emails.

Submission and Support

To submit your request, or if you need assistance please email: project.concerns@undp.org

Appendix Three: Indigenous Peoples Planning Framework

Introduction

In line with the relevant international legal framework, the UNDP Standard 6 on Indigenous Peoples, the following Indigenous Peoples Planning Framework has been developed to ensure that all due efforts will be made to respect, include, and promote issues important to Indigenous Peoples, Dalits and other excluded/marginalized groups during project implementation, including their right to Free, Prior and Informed Consent (FPIC).

The framework will constitute the basis for the engagement of Indigenous Peoples, Dalits, and other excluded/marginalized groups as project *stakeholders*, promote ongoing consultations and communication throughout the project´s lifespan, develop a feedback and grievance mechanism, clarify monitoring and evaluation arrangements, promote measures to minimize and mitigate any potential adverse effects and ensure project activities are implemented in a culturally appropriate manner.

'Excluded´ or marginalized groups in Nepal are defined as include those who have experienced inter-generational discrimination and have been systematically excluded due to their "*economic [situation], caste, ethnicity, gender, disability, sexual orientation, and geographical reasons*" (GESI Working Group 2017). This includes groups including women, poor people, Dalits, Adivasi/ Janajati, Madheshis, Muslims, people with disabilities, third gender and people living in remote areas. Initiatives in Nepal which are focused on social inclusion and support to marginalized communities therefore tend to include Dalits along with vulnerable indigenous groups.

Baseline Information

In Nepal, indigenous peoples are popularly known as Adivasi or Janajati. The Act to Estab-lish the Foundation for the Development of Indigenous Nationalities (2002) defines Indige-nous Nationalities as "…ethnic groups or communities who have their own mother tongue and traditional customs, different cultural identify, distinct social structure, and written and oral history". While 59 indigenous nationalities are formally identified within this act, a technical committee established by the Government of Nepal in 2010 identified 81 Adivasi/ Janajati groups in Nepal. There are over 9.5 million indigenous peoples living in Nepal, representing around 35% of its population.

The Nepal Federation for Indigenous Nationalities (NEFIN) has categorized the indigenous nationalities of Nepal into four geographical regions (Mountain, Hills, Inner-Terai and Te-rai), and five categories of developmental status based on their level of socio-economic development (advanced, disadvantaged, marginalized, highly marginalized and endangered. Over half of Indigenous Nationalities of Nepal are considered margin-alized or highly marginalized. Ten indigenous nationalities are considered endangered, of which 50% are in the hill region and the remaining 50% in the inner-Terai and Terai regions.

Although many indigenous groups have been able to control their traditional way of life in the mountain areas, in the Hills, Inner-Terai and Terai regions, indigenous peoples have been gradually losing control due to the cultural, economic and political influence of more dominant groups. The majority of indigenous peoples lost ownership and control of their ancestral lands by the 1960s due to land policies such as Birta (feudal rulers allocating land for patronage), Jagir (land given in lieu of salary) and the abolition of Kipat (communal/collective land ownership) land tenure systems. The establishment of national parks, wildlife reserves andother protected areas has also sometimes clashed with indigenous claims to lands, including forced relocation. As a result of these socio-economic and political factors, many marginalized indigenous communities are located in remote, marginal or hazard-prone areas.

Table A3-1 Classification of Indigenous Nationalisities of Nepal based on ecological zones

Ecological Zone	Advanced	Disadvantaged	Marginalised	Highly marginalised	Endangered
Mountain (18)	Thakali	Bara Guanle, Byanshi, Chhairotan, Marpahali-Thakali, Sherpa, Tangbe, Tinguale	Bhote (Bhutia), Dolpo, Larke, Lhopa, Mugali, Topkegola, Walung	Siya, Lhomo (Shingsawa), Thudam	
Hill (23)	Newar	Chantyal, Gurung, Jhirel, Limbu, Maga, Rai, Yakha, Hyolmo	Bhujel, Dura, Pahari, Phree, Sunuwar, Tamang	Baramu, Thami, Chepang	Bankariya, Hayu, Kushbadiya, Lepcha, Surel
Inner Terai (8)			Darai, Kumal	Bote, Danuwar, Majhi	Raji, Raute, Kusunde
Terai (10)			Dhimal, Gangai, Rajbanshi, Tajpuriya, Tharu	Dhanuk, Jhangad, Satar	Kisan, Meche

This, along with the heavy dependence of indigenous and marginalized communities on natural resources for livelihoods, makes indigenous, Dalit and excluded/marginalized groups disproportionally affected by climate change. Although climate effects are cross sectoral, rural livelihoods are most affected and become increasingly vulnerable as climate variations affect the natural resources base on which these livelihoods and cultures are dependent.

National policies and international commitments

Historically indigenous peoples have often experienced cultural discrimination, economic exploitation, social exclusion and political oppression. The political consolidation of Nepal under a feudal regime throughout the 19th and 20th centuries discriminated against these groups, as did the Panchayat regime of the 1950s-80s.153 The creation of national parks in the 1970s also displaced many indigenous peoples from their ancestral lands and led to loss of customary rights of indigenous peoples over land, forest and water resources.

Issues of social exclusion and discrimination came to the forefront after the 1990 demo-cratic movement opened the floor for conversation regarding Nepal's Indigenous Peoples. The Constitution of 1990 and Interim Constitution of 2007 recognise the distinct cultures and rights of Indigenous Peoples. The Constitution of Nepal (2015) includes a Right to Equality stating that all citizens should be equal before the law, that they should not be denied equal protection and that nothing should bar the making of special provisions for the protection, empowerment or advancement of those lagging behind, including Indigenous Peoples. A sub-article dealing with social justice and inclusion exists and it supports the securing of rights to Indigenous Peoples to live with their respective identities, be included in decision making processes and have their traditions, culture and social practices preserved and maintained.

The first legislation specifically on Indigenous Peoples, The National Foundation for Development of Indigenous Nationalities Act was passed in 2002. The law established the National Foundation for Development of Indigenous Nationalities (NFDIN), an independent organization that works as the link between the Government and Indigenous Peoples with the mandate to implement programs that support the development of all Indigenous Peoples and to recommend to the government strategies to improve the social, economic and cultural development of Indigenous Peoples. This act replaced the previous National Com-mittee for Development of Nationalities with NFDIN, which defines Indigenous Peoples (Adivasi/Janajati) and promotes the overall development of Indigenous Peoples,

preservation and promotion of traditional knowledge, skill and technology, inclusion of IPs in deci-sion processes and building of an equitable society.

Nepal has also ratified the International Convention on the Elimination of All Forms of Ra-cial Discrimination in 1971 to secure the rights of Indigenous Peoples, Dalits and others who have suffered racial discrimination. The ratification of the International Labour Organization (ILO) Convention in 2007 further represents Nepal's commitments to address the needs of indigenous nationalities. In particular, the ILO Convention states that Indigenous Peoples have the right to self-determination and can freely determine their political, economic, social and cultural status and development. Although there have been many difficulties in the efficient implementation of these treaties and conventions, the ILO Office in Nepal has actively been engaging with the Nepali Government and Indigenous Peoples to support their implementation. Nepal has also made several other international commitments to non-discrimination, gender equality and social justice. These include, among others:

- Universal Declaration of Human Rights
- Declaration on the Rights of Persons Belonging to National or Ethnic, Religious and Lin-guistic Minorities
- Beijing Declaration and Platform for Action
- Durban Declaration and Programme of Action
- International Decades of the World's Indigenous People
- United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)
- National Laws and Policies
- Constitution of Nepal (2015). The Constitution states that it is the responsibility of the state to make "special arrangements to ensure the rights of Adivasi Janajatis (indigenous ethnic groups) to lead a dignified life with their respective identifies, ensuring their participate in decision making processes that concern them, and preserving and maintaining the traditional knowledge, skills, experience, culture and social practices of Adivasi Janajatis and local communities" (Article 51, j, 8).
- Nepal National Climate Change Policy (2019) makes clear mention of Indigenous Peoples, Women and other marginalised communities.
- Framework on Local Adaptation Plans of Action (LAPA) 2019 requires vulnerable community assessments.
- Nepal Environment Policy 2019
- Environment Protection Act 2019
- Environment Protection Regulation 2020
- National DRR/ M Strategy Plan of Action 2018- 2030 and (7 provinces)
- DRR/M Act 2017
- Local Disaster and Climate Resilient Management Planning Guidelines
- Fifteenth Plan 18 (2019/2020-2023/2024)

Consultation with Indigenous Peoples

As part of the project development, specific consultation with IP representatives from the project areas was undertaken by NEFIN. The activities undertaken and outcomes are detailed the report NEFIN (2018) "Indigenous Peoples Consultation to Understand Potential Glacial Lake Outbursts Flood Risks For Safeguarding Livelihood".

Total of five hundred ninety five people were consulted. The consultation was conducted with the representatives of 18 wards of 9 districts. Those districts are in 3 different provinces and in 2 different river basins namely Koshi and Gandaki. Communities within the defined rural municipalities were selected based on the concentration of population, accessibility, feasibility of conducting consultation in the given timeframe and the resources available. The research team collected data through Joint Consultation Workshop, Key Informant Interviews (KIIs), Timeline, Focus Group Discussions (FGDs) and Community Consultation Workshop in the communities of 9 districts.

UNDP'S POLICY ON INDIGENOUS PEOPLES

UNDP has an established Social and Environment Standards with three overarching principles that apply to Human Rights, Gender Equality and Women's Empowerment, and Environmental Sustainability. There are seven project level standards, including Standard 6 on Indigenous Peoples. The applicability of Standard 6 is established during the

SES process and applies to all projects that may affect human rights, natural resources, territories and traditional rights of IPs, regardless of:

- whether the Project is located within or outside of the lands and territories inhabited by the indigenous peoples in question
- whether or not title is possessed by the affected indigenous peoples over the lands and territories in question, or
- whether the indigenous peoples are recognized as indigenous peoples by the country in question.

Table A3-2 summarises the requirements of UNDPs Standard 6.

UNDP will ensure that particular attention is paid to women and children of IP groups, most marginalised and vulnerable IP groups, uncontacted and voluntarily isolated IPs, cultural heritage, etc. If the project is determined to affect the rights, lands, resource es and territories of IPs, an IP Plan will be prepared in consultation with IPs and in accordance with the UNDP Indigenous Peoples Plan.

Table A3-2 Requirements of UNDPs Standard 6 and Relevant Nepalese Legal Instruments

UNDP Standard 6 Requirement	Relevant Nepalese Law/Policy
Respect for domestic and international law: UNDP does not participate in a project that violates the human rights of indigenous peoples as affirmed by Applicable Law and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).	Nepal is a signatory of ILO and UNDRIP
Identification of indigenous peoples: For purposes of the Standard, "indigenous peoples" refers to distinct collectives, regardless of the local, national and regional terms applied to them, who satisfy any of the more commonly accepted definitions of indigenous peoples eg has pursued its own concept and way of human development in a given socio-economic, political and historical context; has tried to maintain its distinct group identity, languages, traditional beliefs, customs, laws and institutions, worldviews and ways of life; has exercised control and management of the lands, territories and natural resources that it has historically used and occupied, with which it has a special connection, and upon which its physical and cultural survival as indigenous peoples typically depends; self-identifies as indigenous peoples; and/or pre-dates those who colonized the lands within which the collective was originally found or of which it was then dispossessed.	Constitution of Nepal (2015) National Foundation for Upliftment of Aadibasi/Janjati Act, 2002 United Nations Declaration on the Rights of Indigenous Peoples, 2007
Land, territories and resources: UNDP projects recognize that indigenous peoples have collective rights to own, use, and develop and control the lands, resources and territories that they have traditionally owned, occupied or otherwise used or acquired, including lands and territories for which they do not yet possess title. Project activities that may undermine or inadvertently weaken such rights are avoided. If the project involves activities that are contingent on establishing legally recognized rights to lands, resources, or territories that indigenous peoples have traditionally owned, occupied or otherwise used or acquired, then an action plan is developed to outline the steps and timetable for achieving legal recognition of such ownership, occupation, or usage. In such	Land Acquisition, Rehabilitation and Resettlement Policy, 2072 BS (2015 AD) National Forest Policy, 2076 BS (2019 AD) Convention (No.169) Concerning Indigenous and Tribal Peoples in Independent Countries United Nations Declaration on the Rights of Indigenous Peoples, 2007 Local Governance Operation Act 2017

cases, UNDP, with the consent of the relevant authority or implementing partner, supports such activities aimed at delimiting, demarcating and titling such lands, resources, and territories with due respect to the customs, traditions and land tenure systems of the indigenous peoples concerned.	
Legal personality: UNDP recognizes that indigenous peoples' right to legal personality is critical to the protection, respect and fulfillment of their human rights.	Constitution of Nepal (2015) National Foundation for Upliftment of Aadibasi/Janjati Act, 2002 UNRIP 2007
Involuntary resettlement: No project supported by UNDP will result in the forcible removal of indigenous peoples from their lands and territories.	The United Nations Permanent Forum on Indigenous Issues
Relocation: No relocation of indigenous peoples will take place without the free, prior and informed consent (FPIC) of the indigenous peoples concerned and only after agreement on just and fair compensation and, where possible, with the option of return.	United Nations Declaration on the Rights of Indigenous Peoples, 2007
Full, effective and meaningful participation and FPIC: At the earliest stage of project conceptualization and design, and iteratively throughout implementation and closure, mechanisms are identified and implemented to guarantee the meaningful, effective and informed participation of indigenous peoples on all matters. Culturally appropriate consultation are carried out with the objective of achieving agreement and FPIC is ensured on any matters that may affectpositively or negativelythe indigenous peoples' rights and interests, lands, territories (whether titled or untitled to the people in question), resources, traditional livelihoods, and/or tangible and intangible Cultural Heritage. This includes any potential relocation and activities proposing the development, utilization or exploitation of mineral, forest, water or other resources on lands and territories traditionally owned, occupied or otherwise used or acquired by indigenous peoples, including lands and territories for which they do not yet possess title. Project activities that may adversely affect the existence, value, use or enjoyment of indigenous lands, resources or territories are not conducted unless agreement has been achieved through the FPIC process.	National Foundation for Upliftment of Aadibasi/Janjati Act, 2002 Right to Information Act, 2007 Convention (No.169) Concerning Indigenous and Tribal Peoples in Independent Countries United Nations Declaration on the Rights of Indigenous Peoples, 2007
Documentation: Engagement processes with indigenous peoples require at a minimum documentation of (i) a mutually accepted process to carry out good faith negotiations, (ii) outcomes of good faith negotiations, including all agreements reached as well as disagreements and dissenting views, and (iii) efforts aimed at accommodating indigenous peoples' expressed interest and concerns in the final programming design.	
Prior social and environmental impact study: projects that may impact the rights, lands, resources and territories of indigenous peoples undertake prior review and/or assessment of potential impacts and benefits. Such reviews and assessments will be conducted transparently and with the	Environment Protection Act, 2019 Environment Protection Regulations 2020 National Environmental Policy 2019 Land Use Policy 2015 National Forest Policy 2019

full, effective and meaningful participation of the indigenous peoples concerned.	Forest Act 2019 The Lands Act 1964
Appropriate benefits: UNDP ensures that arrangements, evidenced in a documented outcome, are concluded with indigenous peoples for the equitable sharing of benefits to be derived by the project in a manner that is culturally appropriate and inclusive giving full consideration to options preferred by the indigenous peoples concerned. The provision of compensation and benefits takes into account the institutions, rules, and customs of affected indigenous peoples and may occur on a collective basis with mechanisms for effective distribution of benefits to all members of affected groups, as far as practical. Indigenous peoples affected by project activities should share equitably in benefits derived from any commercial development of indigenous peoples' lands, territories or resources or from the use or development of indigenous peoples' Cultural Heritage	United Nations Declaration on the Rights of Indigenous Peoples, 2007
Support rights implementation: UNDP projects support countries to implement their duties and obligations under domestic and international law regarding the rights of indigenous peoples, including relevant treaty obligations.	United Nations Declaration on the Rights of Indigenous Peoples, 2007

GCFs Policy on IPs

The GCF Indigenous Peoples Policy recognises that indigenous peoples often have identities and aspirations that are distinct from mainstream groups in national societies and are disadvantaged by traditional models of mitigation, adaptation and development. The GCF IP policy reflects the importance of fully and effectively engaging with indigenous peoples in the design, development and implementation of the strategies and activities to be financed by GCF, while respecting their rights

The implementation of this IPPF, along with Nepalese Law, the project ESMF, Stakeholder Engagement Plan and the Greivance Redress Mechansim will ensure that the project is aligned with the GCF IP policy.

Potential Impacts to Indigenous Peoples

Section 4 of the ESMF describes the potential impacts of the project in general. The following section outlines the potential impacts associated with indigenous peoples.

Output 1. Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development.	
Potential Adverse Impacts	**Mitigation Measures**
Activity 1.1. Strengthen the knowledge base and technical capacities for improved climate research and risk reduction strategies.	
Discrimination of women	At least 50% of project beneficiaries will be women, including proportional representation from indigenous groups and marginalized communities (including Dalits) Gender Action Plan includes measures to promote women´s empowerment and gender equality within the framework of the project. Diverse groups of women need to be included, such as indigenous women, dalit women, non-dalit and non-IP women etc.

Discrimination or limited engagement of Indigenous Peoples, Dalits, and other marginalized groups	IPPF includes measures for the engagement and participation of indigenous peoples. Invitation of indigenous federations, Dalit organizations and ethnic minority organizations to participate within the project management platform, as well as in the role of project partners supporting awareness raising, training processes and implementation activities. This would include the use of customary institutions of Indigenous Peoples. Promotion of proportional representation within project beneficiaries of indigenous peoples, Dalits, women from diverse groups, and marginalized communities. Knowledge and communication focused activities will include information from national experiences, international best practices as well as local and indigenous knowledge. The integration of knowledge from diverse actors into extension and knowledge sharing platforms will promote social inclusion, and allow diverse groups to build on local experiences and knowledge.
Activity 1.2. Develop public-private partnerships for sustainable investment in GLOF and flood risk information services	
Messaging may not meet needs of beneficiaries, in particular IPs and vulnerable groups	Implementation of the IPPF will ensure that IPs are appropriately engaged and their needs understood. Stakeholder Engagement Plan has been prepared and to be implemented and messaging to be targeted towards IPs where needed. Information to be accessible to multiple levels of user

Output 2. Improved hazard monitoring and the generation of early warnings, including the dissemination of early warnings to local communities and important economic sectors leading to reduced economic loss and loss of human lives from GLOF events	
Potential Adverse Impacts	**Mitigation Measures**
Activity 2.1. Improve observation network density in GLOF watersheds to strengthen the technical capacity of DHM for the monitoring of climate hazard and risk	
Impacts associated with installation of equipment.	Where no existing observation station exists, then IPPs to determine if specific actions required based on consultation with IPs. FPIC potentially required where a new site to be used in area of IP interest.
Training - selection of staff to be inclusive/equitable	Through implementation of IPPF and engagement with IPs, their training needs and preferred mechanisms should be identified. Training of trainers for the for the implementation of project activities should include men and women from indigenous groups, Dalit communities and other marginalized groups. LRPs who speak local languages should support trainers as well as awareness raising and information dissemination processes
Activity 2.2. Develop and implement early warning systems to strengthen adaptive capacity and response to GLOFs and other climate hazards in vulnerable sectors and communities	
Selection of trainees within DHM discriminates	Training to be inclusive and non-biased. IPPF to be implemented, and where potential candidates exist, weighting be given to IPs.

Information dissemination may not reach all people including illiterate people	IPPF to be implemented to ensure appropriate engagement with IPs. Board / committee members of community-based organizations, customary institutions, and Local Resource Persons will be local focal points who are able to facilitate ongoing communication with project beneficiaries. Local CSOs and project partners will be important to support information dissemination and communications at the local level, using locally accepted practices such as community-meetings, workshops, among other practices.
Lack of culturally appropriate practices, technical assistance, and information dissemination for the implementation of Activity	IPPF includes measures for the engagement and participation of indigenous peoples within the framework of the project. Invitation of indigenous federations, Dalit organizations and other organizations representing marginalized communities, among other CSOs to participate within the project management platforms. Training of trainers for the consultations and workshops, as well as extension support should include men and women from indigenous groups, Dalit communities and other marginalized groups.
Physical impacts associated with installation of equipment eg towers and sirens	Public land is proposed, however if the sites are within areas of significance to IPs (eg lake surrounds, religious forests, conservation ponds) then specific actions may be required, possibly even FPIC. IPPs to identify requirements
Community-based disaster response plans fail to be inclusive or take into account local issues/variables	Plans to be developed in a participatory way with communities and ward leader. Participatory planning will help ensure that plans empower and engage highly vulnerable households, including indigenous peoples and Dalits. Project to develop SEP. IPPF to ensure inclusion of IPs.

Output 3. Reduced probability of GLOF events and flash floods, through disaster risk reduction measures implemented in priority glacial lake watersheds.	
Potential Adverse Impacts	**Mitigation Measures**
Activity 3.1. Lower the levels of four of the highest risk glacial lakes.	
Some of the IP communities assign a special significance to the lakes, therefore works associated with the lake lowering might be construed negatively by IPs	IPPF to ensure appropriate engagement of IPs and their inclusion in project planning and implementation. IPP IPs to identify any concerns and to detail specific requirements for each lake and interested parties. As the proposed works have potential for significant risk, and that lakes hold a special significance to some IPs, FPIC may be required. Specific ceremonies (eg blessings or traditional spiritual services) may be required by IPs and other communities prior to commencement, during or upon completion of works. GRM provides an additional avenue for grievances. ESMPs will be developed to ensure appropriate monitoring is in place

Lake lowering structures could be perceived by IPs to have a negative visual impact on the landscape	IPP to identify the relevant IPs for each catchment and specifically include in the stakeholder engagement discussions on potential visual impacts. Visual aids to be used to communicate likely impacts. Designs to consider inclusion of culturally appropriate elements, such as mani walls/stones, prayer wheels, stupas or prayer flag poles, based on discussions with IPs and other community members.
Activity 3.2. Construction of structural and non-structural measures (Civil and NbS/ Bioengineering) for the risk reduction of GLOF and flash flood.	
Land required for installation of infrastructure	Public land is proposed to be used. No forced private land acquisitions. Where indigenous peoples have an interest over the public land eg religious forests, conservation ponds, then FPIC mechanism to be applied.
Activity 3.3. Implement Eco-disaster Risk Reduction and nature-based solutions to reduce the impact of GLOFs and flash floods.	
Land required for installation of eco-DRR and nature-based solutions	Public land is proposed to be used No forced private land acquisitions. Where indigenous peoples have an interest over the land, then FPIC mechanism to be applied.
Construction impacts (physical, biological)	IPs have a spiritual connection to the land and the natural environment, therefore engagement with IPs is important to understand site specific issues and requirements. Implement IPPF, develop IPPs to complement the ESMPs.
In practice in may be challenging to have equal participation due to gender discrimination, especially against women from indigenous groups and marginalized minority groups	At least 50% of project beneficiaries will be women, promoting proportional representation from indigenous groups, Dalit communities and other marginalized groups. Gender Action Plan includes measures to promote women´s empowerment and gender equality within the framework of the project. The plan includes detailed measures that target women and aims to empower them within the project, whilst considering their differentiated contexts and vulnerabilities.
Sourcing of materials eg trees and shrubs, rock could provide employment opportunities for IPs	The establishment of small-scale community-based nurseries will comply with relevant national legislation (Forest Policy, Environmental Protection Act), and will promote equitable hiring policies ensuring equitable employment opportunities for women, indigenous peoples, Dalits and other marginalized households. Existing legal quarries or other sources of rock only to be used.

Activities where FPIC Could be Required.

Through the implementation of the IPPF and the development of the three IPPs, activities or sites requiring FPIC will be identified / confirmed. However, it is considered that FPIC could be required if activities involve the following:

- Lakes as noted above, IPs often ascribe spiritual significance to the mountain lakes, and the lowering of the lakes represents a potential significant impact. Therefore, FPIC may be required to undertake the lake lowering works.
- New weather or gauging station sites the project intends to upgrade numerous existing manual weather stations and gauging stations, however where there is no existing station, then land will be required. It is

proposed to use public land, however IPs may still have an interest in the land therefore FPIC may be required for sites where there is no existing station.

- Religious Forests activities within religious forests may require FPIC
- Conservation Ponds (Pokari ponds) activities in or around conservation ponds may require FPIC.

Implementation Arrangements for the Indigenous Peoples Planning Framework

The IPPF is be aligned with the project implementation arrangements (refer to ESMF for organisational chart). The Ministry of Energy, Water Resources and irrigation (MoEWRI), in consultation with the relevant partners, including the NEFIN, and UNDP will set up a monitoring mechanism of the IP Plan. The project will ensure meaningful participation of indigenous peoples throughout the project cycle.

The consultation framework for indigenous peoples will follow the structure typically used in Nepal as shown in Figure A3-1.

The GRM outlined in the ESMF will also apply to IPs. That is, all grievances are to be processed on an equal basis.

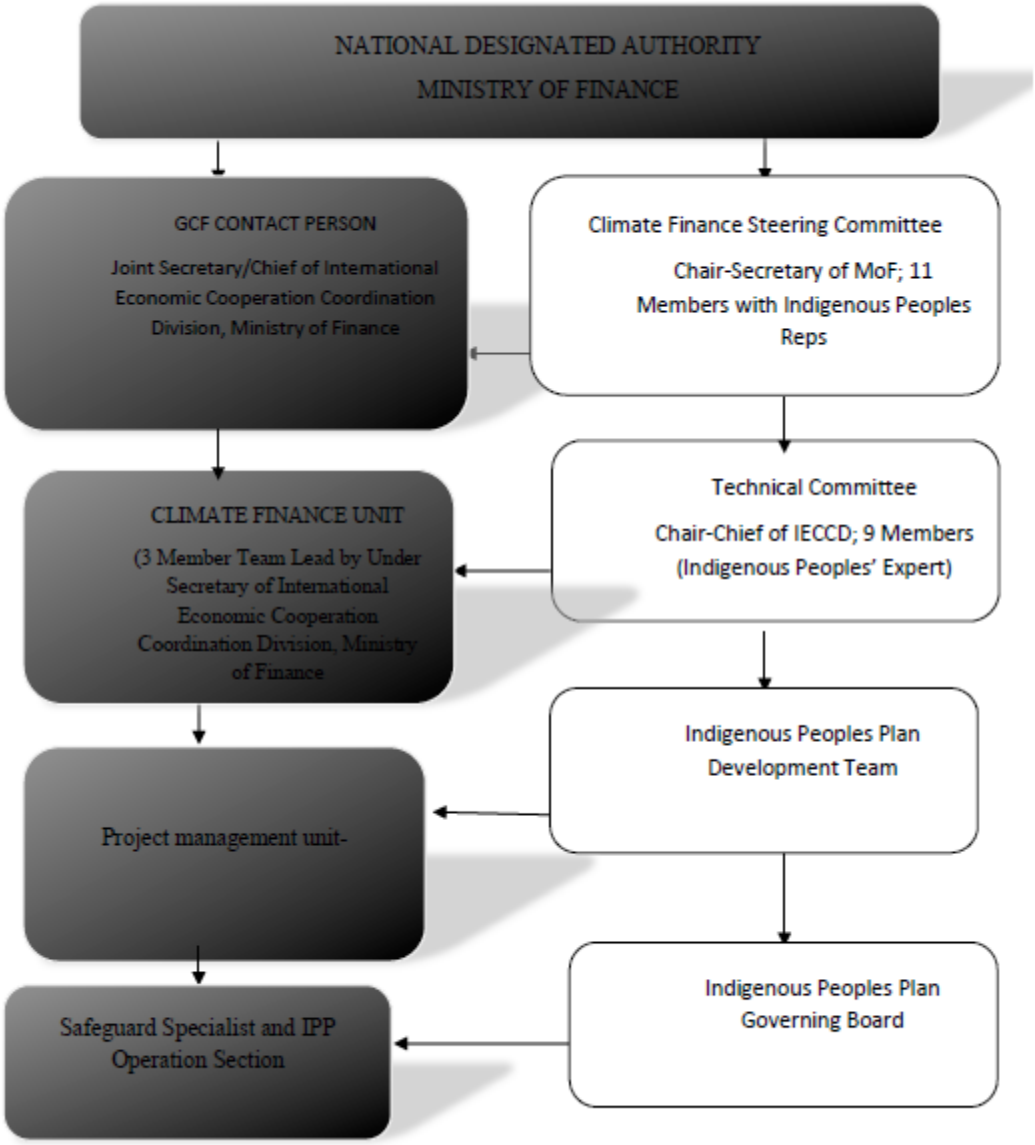


Figure A3-1 IP consultation hierarchy

Social and Environmental Assessment and Indigenous Peoples Plans key elements and outline

When project activities are implemented in locations where IPs reside, and where their land and resources are likely to be impacted, Standard 6 is determined to be applicable and the full range of potential social and environmental impacts have to be assessed.

This assessment of potential impacts and adoption of appropriate mitigation and management measures are to be completed, disclosed and discussed with stakeholders prior to implementation of project activities that may cause social or environmental impacts.

This assessment with detailed data and assessment reports is prepared in the form of an IP Plan, with the full participation of the affected IPs. As indicated in the IP Plan outline, their inputs will be recorded and reflected in the

assessment report. UNDP's Guidance Note on Social and Environmental Assessment provides the guidance and general steps for assessing the potential impacts of Moderate, Substantial and High Risk projects.[163]

The preparation of IPPs will be done at the initial phase of project implementation and integrated into the design and implementation of the project. It is proposed to develop three IPPs, one for each catchment. This is in line with the proposed development of three ESIAs and three ESMPs, thus the documents will complement each other.

UNDP has an established a process for developing an IPP (*Annex I: Indicative Outline of Indigenous Peoples' Plan*)) which aligns with the GCF's guidance under the Indigenous Peoples' Policy. The IPP will ensure that that the activities proposed will be consistent with applicable law and obligations of the state and relevant international treaties and agreements, particularly with regards the FPIC during project and programme design, implementation, and expected outcomes related to the risks and impacts affecting the indigenous peoples.

The IPP will explicitly describe the involvement of indigenous peoples, including women, girls, and youth, in the design and implementation of the activities, and provide detailed outcomes of the consultation process of the indigenous peoples. The Plan will also include documented evidence of agreement between parties on the outcome of the negotiations.

As per guidance provided by GCF, and in line with UNDP's SES, the Indigenous People' Plan will include the following elements:

- Baseline information (from independent and participatory environmental and social risks and impacts assessment processes);
- Key findings and analyses of impacts, risks and opportunities;
- Measures to avoid, minimize and mitigate negative impacts, and enhance positive impacts and opportunities;
- Community-based natural resource management;
- Results of consultations (during environmental and social risks and impacts assessment processes), including a list of people and organizations that participated, a timetable, who was responsible for each activity, the free, prior and informed consent, and future engagement plans;
- Gender assessment and action plans;
- Benefit sharing plans;
- Tenure arrangements;
- Grievance redress mechanisms;
- Costs, budgets, timetables, institutional arrangements, organizational responsibilities for implementation of the IP Plan; and
- Monitoring, evaluation and reporting: The IP Plan will clearly spell out a) the manner in which indigenous peoples will participate in monitoring activities, b) progress indicators and an estimated budget to ensure robust monitoring, c) the participatory selection and involvement of an independent expert, where needed, d) schedules for monitoring activities, and e) the mechanism for redress and corrective action

As noted in the ESMF and UNDP Standard 6 Guidance Note, while all consultations with indigenous peoples should be carried out in good faith with the objective of achieving agreement, Standard 6 stipulates circumstances in which FPIC must be pursued (Annex 2) and secured before proceeding with the specified actions:

- **Rights, lands territories, resources, traditional livelihoods**: FPIC will be ensured on any matters that may affect the rights and interests, lands, resources, territories (whether titled or untitled to the people in question) and traditional livelihoods of the indigenous peoples concerned. Project activities that may adversely affect the

163 https://info.undp.org/sites/bpps/SES_Toolkit/SES%20Document%20Library/Uploaded%20October%202016/Final%20UNDP%20SES%20Indigenous%20Peoples%20GN_Jan2017.pdf

existence, value, use or enjoyment of indigenous lands, resources or territories shall not be conducted unless agreement has been achieved through the FPIC process. (Requirement 9)

- **Resettlement:** No relocation of indigenous peoples will take place without the free, prior and informed consent (FPIC) of the indigenous peoples concerned and only after agreement on just and fair compensation, and where possible, with the option of return (Requirement 8).
- **Cultural Heritage:** UNDP will respect, protect, conserve and not take or appropriate the cultural, intellectual, religious and spiritual property of indigenous peoples without their free, prior and informed consent (Requirement 13d).

To determine whether project activities may require an FPIC process, the UNDP Checklist for Appraising Whether an Activity May Require an FPIC Process (refer below) will be used. If the answer is 'Yes' to any of these questions, FPIC will likely be required from the potentially affected peoples for the specific activity that may result in the impacts. In such as case, the potentially affected IPs will be engaged to confirm the need for FPIC and reach agreement on the scope and format of the FPIC process and the scope of the IPP/IPPF. This process should be launched as early as possible.

In all cases, no activities predicated on the granting of FPIC will be initiated until the outcomes of the FPIC process and the associated project IPP are validated and any required mitigation measures are in place.

The indigenous peoples who may be affected by the project will have a central role in defining the FPIC process and the establishment of the IPP. A facilitator who speaks the necessary languages should be hired to lead the process, if required. The facilitator needs to be available throughout the sub-project, be aware of the project context, and be culturally and gender-sensitive. If possible, the facilitator should be identified by the affected indigenous peoples.

Facilitators, in cooperation with the government and stakeholders, are responsible for ensuring, among other things, that the following key arrangements are part of the FPIC process:

- Full, accurate information regarding the project (e.g. positive and negative, potential risks and short and/or long term impacts, benefits) is communicated in the most appropriate language and medium, ensuring that is easily understandable and accessible.
- Information reaches all members of affected ethnic minority community and is consistent with the community's mechanisms for information sharing
- A secure, culturally appropriate and trusted environment for discussions is provided
- Decision-making processes, timelines, and languages for communicating are determined by the affected IPs without interference
- Customary laws and practices of the affected IPs are respected.

The overall aim of the FPIC process with all stakeholders is to obtain a signed agreement or oral contract witnessed by an independent entity agreed to by both parties, ensuring that the greatest number of community members are involved and represented, including potentially marginalized groups. The community's customs and norms for participation, decision making and information sharing are to be respected.

While the objective of the FPIC process is to reach an agreement (consent) on the project or project components and the IPP/IPPF between the relevant partiesbe it a signed agreement or otherwise formalized oral contract this does not mean that all FPIC processes will lead to the consent of and approval by the rights-holders in question. At the core of FPIC is the right of the peoples concerned to choose to engage, negotiate and decide to grant or withhold consent, as well as the acknowledgement that under certain circumstances, it must be accepted that the activities (or project) for which FPIC could not be ascertained will not proceed and/or that engagement must be ceased if the affected peoples decide that they do not want to commence or continue with negotiations or if they decide to withhold their consent to the activities and/or project.

The FPIC process should be well-documented in writing and reflected in the sub-project IPP and made publicly available. The outcomes documentation should clarify if consent was provided or withheld and record whether the community provided consent through an oral contract. It is important to document the whole FPIC process in the

IPP (or subsequent reports), including commitments and requirements agreed upon to reach such agreement as well as ideas, questions and concerns raised, so that it is possible to review the whole process during monitoring and in the event a grievance or dispute arises.

This will ensure that all activities will avoid adverse impacts on IPs, and when avoidance is not possible, will minimize, mitigate and/or compensate appropriately and equitably for such impacts, in a consistent way and improve outcomes over time; promote benefits and opportunities; and respect and preserve indigenous culture, including the IP's rights to lands, territories, resources, knowledge systems, and traditional livelihoods and practices.

Indicative Outline for Indigenous Peoples Plan

An "Indigenous Peoples Plan" (***IPP***) needs to be elaborated and included in the Project documentation. The ***IPP*** is to be prepared and implemented in a manner consistent with the UNDP Social and Environmental Standards and have a level of detail proportional to the complexity of the nature and scale of the project and its potential impacts on indigenous peoples and their lands, resources and territories. With the effective and meaningful participation of the affected peoples, the ***IPP*** shall be elaborated and contain provisions addressing, at a minimum, the substantive aspects of the following outline:

Executive Summary of the Indigenous Peoples Plan

This section concisely describes the critical facts, significant findings, and recommended actions.

Project Description

This section provides a general description of the project; discusses project components and activities that may bring impacts on Indigenous Peoples/Ethnic Minorities; and identify project area.

Description of Indigenous Peoples

A description of affected indigenous people(s) and their locations, including:

1. description of the community or communities constituting the affected peoples (e.g. names, ethnicities, dialects, estimated numbers, etc.);
2. description of the resources, lands and territories to be affected and the affected peoples connections/ relationship with those resources, lands, and territories; and
3. an identification of any vulnerable groups within the affected peoples (e.g. uncontacted and voluntary isolated peoples, women and girls, the disabled and elderly, others).

Summary of Substantive Rights and Legal Framework

A description of the substantive rights of indigenous peoples and the applicable legal framework, including:
An analysis of applicable domestic and international laws affirming and protecting the rights of indigenous peoples (include general assessment of government implementation of the same).

Analysis as to whether the Project involves activities that are contingent on establishing legally recognized rights to lands, resources, or territories that indigenous peoples have traditionally owned, occupied or otherwise used or acquired. Where such contingency exists (see Standard 6 Guidance Note, sections 6 & 7), include:

i. identification of the steps and associated timetable for achieving legal recognition of such ownership, occupation, or usage with the support of the relevant authority, including the manner in which delimitation, demarcation, and titling shall respect the customs, traditions, norms, values, land tenure systems and effective and meaningful participation of the affected peoples, with legal recognition granted to titles with the full, free prior and informed consent of the affected peoples; and

ii. list of the activities that are prohibited until the delimitation, demarcation and titling is completed.

Analysis whether the Project involves activities that are contingent on the recognition of the juridical personality of the affected Indigenous Peoples. Where such contingency exists (see Standard 6 Guidance Note, section 7):

iii. identification of the steps and associated timetables for achieving such recognition with the support of the relevant authority, with the full and effective participation and consent of affected indigenous peoples; and
iv. list of the activities that are prohibited until the recognition is achieved.

Social Impact Assessment

- A summary of the findings and recommendations of the required prior social and environmental impact studies (e.g. limited assessment, ESIA, SESA, as applicable) provides baseline information on the demographic, social, cultural, and political characteristics of the affected Indigenous Peoples/Ethnic Minorities;
- the land and territories that they have traditionally owned or customarily used or occupied; and the natural resources on which they depend. This should include the manner in which the affected indigenous peoples participated in such study and their views on the participation mechanisms, the findings and recommendations.
- identifies key project stakeholders and elaborate a culturally appropriate and gender-sensitive process for meaningful consultation with Indigenous Peoples/Ethnic Minorities at each stage of project preparation and implementation, taking the review and baseline information into account;
- assesses, based on meaningful consultation with the affected Indigenous Peoples/Ethnic Minority communities, and the potential adverse and positive effects of the project. Critical to the determination of potential adverse impacts is a gender-sensitive analysis of the relative vulnerability of, and risks to, the affected Indigenous Peoples/Ethnic Minority communities given their particular circumstances and close ties to land and natural resources, as well as their lack of access to opportunities relative to those available to other social groups in the communities, regions, or national societies in which they live;
- Where potential risks and adverse impacts to indigenous peoples, their lands, resources and territories are identified, the details and associated timelines for the planned measures to avoid, minimize, mitigate, or compensate for these adverse effects. Identification of special measures to promote and protect the rights and interests of the indigenous peoples including compliance with the affected peoples' internal norms and customs.
- If the Project will result in the relocation of indigenous peoples from their lands and territories, a description of the consultation and FPIC process leading to the resulting agreement on relocation and just and fair compensation, including the possibility of return.
- A description of measures to protect traditional knowledge and cultural heritage in the event that the Project will result in the documentation and/or use and appropriation of such knowledge and heritage of the indigenous peoples and the steps to ensure FPIC before doing so.
- identifies and recommends, based on meaningful consultation with the affected Indigenous Peoples/Ethnic Minorities communities, the measures necessary to avoid adverse effects or, if such measures are not possible, identifies measures to minimize, mitigate, and/or compensate for such effects and to ensure that Indigenous Peoples/Ethnic Minorities receive culturally appropriate benefits under the project.

Information Disclosure, Consultation, Participation and FPIC Processes

- Describes the information disclosure, consultation and participation process with the affected Indigenous Peoples/Ethnic Minority communities that can be carried out during project preparation;
- Summarizes their comments on the results of the social impact assessment and identifies concerns raised during consultation and how these have been addressed in project design;
- In the case of project activities requiring broad community support, documents the process and outcome of consultations with affected Indigenous Peoples/Ethnic Minority communities and any agreement resulting from such consultations for the project activities and safeguard measures addressing the impacts of such activities;
- Describes consultation and participation mechanisms to be used during implementation to ensure Indigenous Peoples/Ethnic Minorities participation during implementation; and

- Confirms disclosure of the draft and final to the affected Indigenous Peoples/Ethnic Minority communities.

Beneficial Measures

- This section specifies the measures to ensure that Indigenous Peoples/Ethnic Minorities receive equitable social and economic benefits that are culturally appropriate and gender responsive, including a description of the consultation and consent processes that lead to the determined benefit sharing arrangements.

Mitigative Measures

- This section specifies the measures to avoid adverse impacts on Indigenous Peoples/Ethnic Minorities; and where the avoidance is impossible, specifies the measures to minimize, mitigate and compensate for identified unavoidable adverse impacts for each affected Indigenous Peoples/Ethnic Minorities.

Capacity Building

- Description of Project activities aimed at increasing capacity within the government and/or the affected indigenous peoples, and facilitating exchanges, awareness, and cooperation between the two.
- Description of measures to support social, legal, technical capabilities of indigenous peoples' organizations in the project area to enable them to better represent the affected indigenous peoples more effectively
- Where appropriate and requested, description of steps to support technical and legal capabilities of relevant government institutions to strengthen compliance with the country's duties and obligations under international law with respect to the rights of indigenous peoples.

Grievance Redress Mechanism

- A description of the procedures available to address grievances brought by the affected indigenous peoples arising from Project implementation, including the remedies available, how the grievance mechanisms take into account indigenous peoples' customary laws and dispute resolution processes, as well as the effective capacity of indigenous peoples under national laws to denounce violations and secure remedies for the same in domestic courts and administrative processes.

Monitoring, Reporting and Evaluation

- Mechanisms and benchmarks appropriate to the Project for transparent, participatory joint monitoring, evaluating, and reporting, including a description of how the affected indigenous peoples are involved.
- Define the mechanisms put in place to allow for periodic review and revision of the IPP in the event that new Project circumstances warrant modifications developed through consultation and consent processes with the affected indigenous peoples.

Institutional Arrangement

- Describes institutional arrangement responsibilities and mechanisms for carrying out the measures contained in the ***IPP***, including participatory mechanisms of affected indigenous peoples. Describes role of independent, impartial entities to audit, conduct social and environmental assessments as required, and/or to conduct oversight of the project.

Budget and Financing

- This section provides an appropriately costed plan, with itemized budget sufficient to satisfactorily undertake the activities described.

Note: The ***IPP*** will be implemented as part of Project implementation. However, in no case shall Project activities that may adversely affect indigenous peoples including the existence, value, use or enjoyment of their lands, resources, or territories take place before the corresponding activities in the ***IPP*** are implemented. The relationship between the implementation of specific ***IPP*** measures and the permitted commencement of distinct Project activities shall be detailed within the ***IPP*** to allow for transparent benchmarks and accountability.

Where other Project documents already develop and address issues listed in the above sections, citation to the relevant document(s) shall suffice.

Determining if FPIC is required

If the risk assessment using UNDP SESP indicates that IPs are likely to be impacted and that Standard 6 is triggered, the following checklist will be used to determine whether FPIC is required.

Checklist for appraising whether an activity may require an FPIC process (partial listing) [164]	Yes/No
1. Will the activity involve the relocation/resettlement/removal of an indigenous population from their lands?	
2. Will the activity involve the taking, confiscation, removal or damage of cultural, intellectual, religious and/or spiritual property from indigenous peoples?	
3. Will the activity adopt or implement any legislative or administrative measures that will affect the rights, lands, territories and/or resources of indigenous peoples (e.g. in connection with the development, utilization or exploitation of mineral, water or other resources; land reform; legal reforms that may discriminate de jure or de facto against indigenous peoples, etc.)?	
4. Will the activity involve natural resource extraction such as logging or mining or agricultural development on the lands/territories of indigenous peoples?	
5. Will the activity involve any decisions that will affect the status of indigenous peoples' rights to their lands/territories, resources or livelihoods?	
6. Will the activity involve the accessing of traditional knowledge, innovations and practices of indigenous and local communities?	
7. Will the activity affect indigenous peoples' political, legal, economic, social, or cultural institutions and/or practices?	
8. Will the activity involve making commercial use of natural and/or cultural resources on lands subject to traditional ownership and/or under customary use by indigenous peoples?	
9. Will the activity involve decisions regarding benefit-sharing arrangements, when benefits are derived from the lands/territories/resources of indigenous peoples (e.g. natural resource management or extractive industries)?	
10. Will the activity have an impact on the continuance of the relationship of the indigenous peoples with their land or their culture?	

If the answer is 'Yes' to any of these questions, it is likely that FPIC will be required of the potentially affected peoples for the specific activity that may result in the impacts identified in the questions.

NOTES ON FREE, PRIOR AND INFORMED CONSULTATIONS (FPIC)

Indigenous Peoples or *Masyarakat Adat* (Customary Communities) may be vulnerable to the loss of, alienation/resettlement from or exploitation to natural and cultural resources. IPs communities are often among the poorest of the poor in the community and closely tied to their settlements, lands and related natural resources upon which the sustenance of their livelihoods depends. Frequently, these lands and settlements are traditionally owned or under customary use and often not legally recognized by national laws. In recognition of this vulnerability, interventions introduced through this project with the objectives to improve land administration and address informal settlements may potentially alienate and/or displace IPs if the mechanisms for *Free, Prior and Informed Consultations* (FPICs) to obtain broad support are not built into project design and implementation.

164 https://info.undp.org/sites/bpps/SES_Toolkit/SES%20Document%20Library/Uploaded%20October%202016/Final%20UNDP%20SES%20Indigenous%20Peoples%20GN_Jan2017.pdf

Objective.

The extent, frequency and degree of engagement required by the consultation process should commensurate with the identified project risks and adverse impacts and with the concerns raised by affected IPs. FPICs are built on mutually accepted process between affected communities and project actors.

Procedures.

FPICs should be orientated towards obtaining broad community support and by which, broad community support consists of a collection of expressions by affected community members and/or their recognized representatives in support of the project/sub-project activities.

FPICs do not necessarily require unanimity and in some instances, decisions may be achieved even individuals or groups within the community disagree, FPICs lay out organized and iterative processes through which decisions and measures adopted by the project incorporate the views of the affected IPs on matters that affect them directly.

The stakeholder engagement needs to be built on gender-sensitive and intergenerationally inclusive approaches. Effective FPICs are built upon two-way processes that should:

- Involve members of affected communities and their recognized representative bodies and organizations in good faith.
- Capture the views and concerns of men, women and vulnerable community segments including the elderly, youth, displaced persons, children, people with special needs, etc. about impacts, mitigation mechanisms, and benefits where appropriate as reflected in sub-project design. If necessary, separate forums or engagements need to be conducted based on their preferences.
- Begin early in the process of identification of environmental and social risks and impacts and continue on an ongoing basis as risks and impacts arise.
- Be based on the prior disclosure and dissemination/socialization of relevant, transparent, objective, meaningful, and easily accessible information which is in a culturally appropriate language(s) and format and is understandable to affected IPs. In designing consultation methods and use of media, a special attention needs to be paid to include the concerns of Indigenous women, youth, and children and their access to development opportunities and benefits.
- Focus on inclusive engagement on those directly affected than those not directly affected;
- Ensure that the consultation processes are free of external manipulation, interference, coercion and/or intimidation. The ways the consultations are designed should create enabling environments for meaningful participation, where applicable. In addition to the language(s) and media used, the timing, venues, participation composition need to be carefully thought through to ensure everyone could express their views without repercussions.
- Be documented.

In deciding whether to proceed with the activity, the project team in consultation with IPs whether affected IPs provide their broad support to the project. Where there is such a support, then the PMU should ensure that the following is prepared:

- Documented evidence of FPICs as well as measures taken to avoid and minimize risks to and adverse impacts of the affected IPs. This includes list of participants, meeting minutes and other documentation (e.g. photos, video, etc.);
- Additional measures, including project design modification, alternative locations, and where applicable compensations to address adverse effects on affected IPs and to provide them with culturally and socially appropriate benefits;
- Action plan and recommendations for FPICs during project implementation, monitoring, and evaluation, and
- Any formal agreements reached with affected IPs and/or their representative organizations.

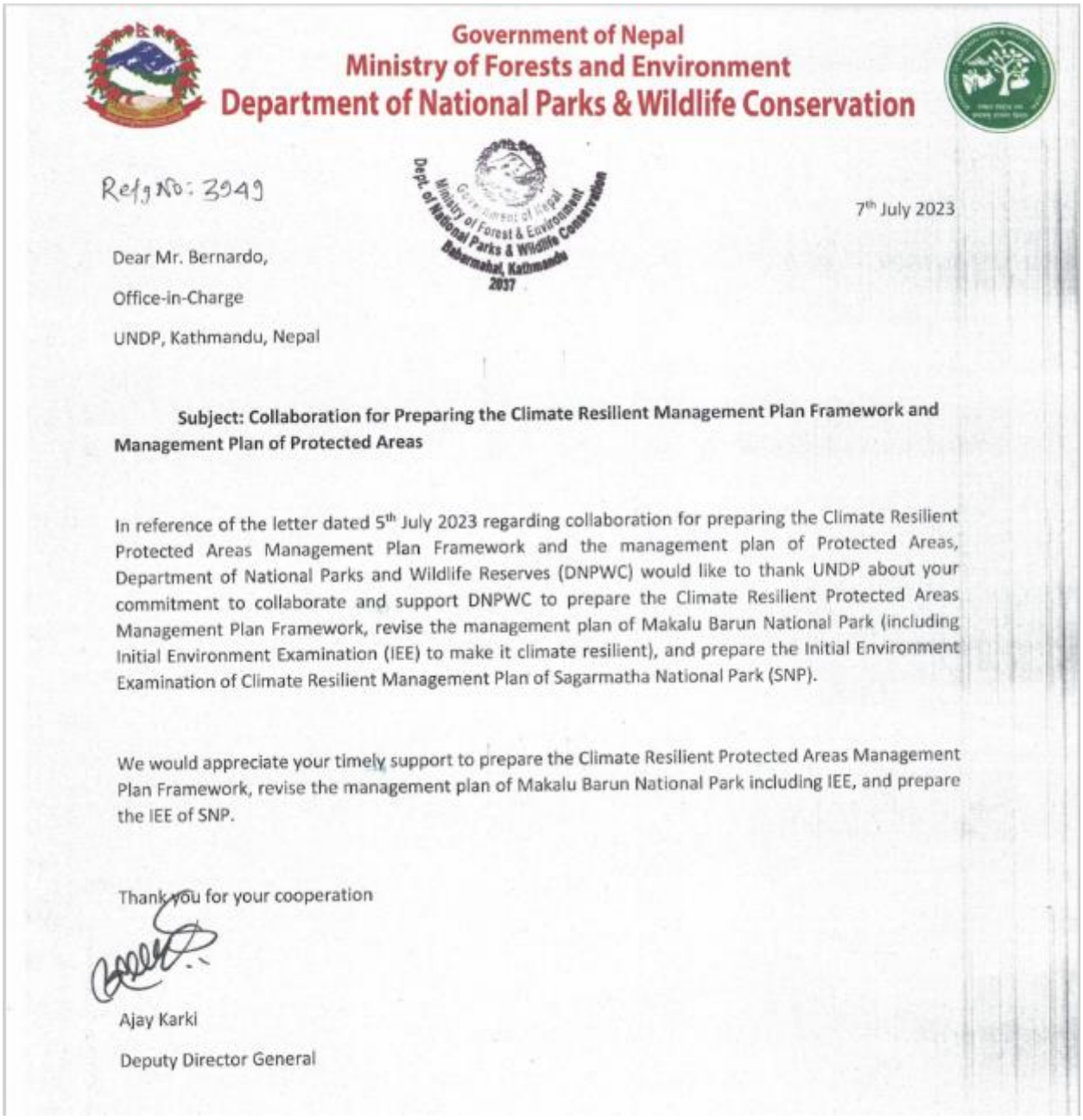
Requirements.

To ensure that FPICs can be ascertained, the following requirements are needed to determine whether:

- The level of engagement in a way that enables informed participation of affected IPs is acceptable;
- The level of support and dissent among affected IPs for the project is taken into account into decision making and development of mitigation measures.

Consideration	Requirements
Project's strategy and principles on engagement	• Community Participation Framework to mainstream FPIC; • Project Operational Manuals on FPICs; • Budget and personnel provisions; • Consultation schedules and other supporting documentation.
Stakeholder identification and analysis	Stakeholder analysis
Community Engagement	• Consultation plan, public consultation and disclosure plan, and stakeholder engagement plan; • Schedule and record of community engagement including discussions and consultations with community members and their representatives.
Information disclosure	• Disclosure plan, including schedules • Materials prepared for disclosure and consultations; • Record/minutes of discussions/consultations with community members and their representatives
Free, Prior, and Informed Consultations	• Record/minutes of discussions/consultations with community members and their representatives; • Documentation of measures taken to avoid/minimize risks to and adverse impacts on affected IPs based on community feedback; • Draft of Action Plan;
Consultations with vulnerable groups	• Engagement and public consultation plan • Record/minutes of discussions/consultations with members and representatives of vulnerable groups • Documentation of measures taken to avoid/minimize risks to and adverse impacts on vulnerable groups based on community feedback • Draft of Action Plan
Grievance redress mechanism	• Organizational structure and responsibilities and procedures to manage grievances; • Record of grievances received, including expressions of support or dissent; • Record/minutes of discussions with community members or representatives with regards to grievance redress.
Feedback to affected IPs (to demonstrate that concerns and recommendations have been accommodated in the project and rationale why recommendations have not been accommodated)	• Documentation of risk mitigation measures • Record/minutes of discussions with community members and their representatives; • On-going reporting on implementation of Action plan; • Revisions in project/sub-project activities and Action Plan; • Surveys/interview records of affected IPs.
Formal expressions of support or dissent	• Record/minutes of meetings/public consultations with community members and their representatives; • Formal letters/written petitions of support/objection submitted by the community and/or their representatives;
Informal expressions of support or objection	• Photographs, media reports, personal letters or third-party accounts (NGOs, CBOs, etc.)
Evidence of good faith consultations	• Face-to-face interviews with community members/representatives in the consultations; • Agreements reached with affected IPs (e.g. MoU, Letters of Intent, Joint Statements, etc.) • Action plan, e.g. benefit sharing, development plan, etc.

Appendix Four: DNPWS Letters Requesting Support in Updating National Parks Management Plans



Government of Nepal
Ministry of Forests and Environment
Department of National Parks & Wildlife Conservation

Ref.No: 3949

7th July 2023

Dear Mr. Bernardo,

Office-in-Charge

UNDP, Kathmandu, Nepal

Subject: Collaboration for Preparing the Climate Resilient Management Plan Framework and Management Plan of Protected Areas

In reference of the letter dated 5th July 2023 regarding collaboration for preparing the Climate Resilient Protected Areas Management Plan Framework and the management plan of Protected Areas, Department of National Parks and Wildlife Reserves (DNPWC) would like to thank UNDP about your commitment to collaborate and support DNPWC to prepare the Climate Resilient Protected Areas Management Plan Framework, revise the management plan of Makalu Barun National Park (including Initial Environment Examination (IEE) to make it climate resilient), and prepare the Initial Environment Examination of Climate Resilient Management Plan of Sagarmatha National Park (SNP).

We would appreciate your timely support to prepare the Climate Resilient Protected Areas Management Plan Framework, revise the management plan of Makalu Barun National Park including IEE, and prepare the IEE of SNP.

Thank you for your cooperation

Ajay Karki

Deputy Director General

Government of Nepal
Ministry of Forest and Environment
Department of National Parks & Wildlife Conservation

Ref: 740/078/79

19 November 2021

To
Bernardo Cocco
Deputy Resident Representative
United Nations Development Programme, Lalitpur, Nepal.

Sub: **Commitment for integrating GLOF reduction measures in the Management Plan of Makalu Barun National Park.**

In reference of the letter dated 28 October, 2021 regarding integrating GLOF risks reduction measures in the management plan of Makalu Barun National Park (MBNP), Nepal, Department of National Parks and Wildlife Reserves would like to thank UNDP about raising the important issues on the impacts of climate change in the park habitat and human settlements residing inside the bufferzone of the MBNP. The department is fully aware of the climate change induced disasters and understands that two lakes Hongu 2 and Lower Barun of MBNP are in potential danger of GLOF. Hence, as per your request, the management plan of MBNP, will be duly revised to integrate GLOF reduction measures, that will include the provisions of structural and non-structural GLOF reduction measures, and establishment of hydro-met stations and Early Warning System in the two lakes; Hongu 2 and Lower Barun, and the downstream areas as priority actions.

We would appreciate your timely support to revise and upgrade the existing management plan of MBNP.

Thank you for your cooperation.

Kandel

Dr. Ram Chandra Kandel
Director General
Department of National Parks and Wildlife Reserves

Appendix Five: Draft Terms of Reference for ESIAs

Services/Work Description: Preparation of impact assessments and management plans upon project inception

Project/Programme Title: Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal

Background

Nepal is a landlocked country located between India to the east, south, and west and Tibet to the north. It extends roughly 800 km from east to west and 200km north to south. Nepal's topography varies dramatically, from the Himalayan heights (Everest 8,850m) to the Gangetic Plains of the Terai, however roughly 75% of the country is covered by mountains.

ncreasing atmospheric temperature is causing glaciers to melt worldwide. Glacier melting leads to the formation of glacial lakes. Glacial lakes are formed when a glacier erodes the underlying terrain and subsequently melts, filling the depression with fresh water2. The resulting lakes are either dammed on the downstream end by moraines3 or ice. Many of these lakes are considered extremely dangerous as their dams are unstable and have the potential to burst resulting in devastating Glacial Lake Outburst Floods (GLOFs). In Nepal, there are ~3,800 glaciers and ~2,000 glacial lakes, of these, 47 are considered potentially dangerous4.

Historically, GLOFs have had catastrophic consequences in Nepal through the direct impacts of flooding and secondary impacts such as landslides, erosion, and sedimentation in river valleys. Since 1970s, 26 GLOF events have been recorded across 47 potentially dangerous glacial lakes, resulting in catastrophic consequences that have ranked Nepal, alongside Bhutan, as the most economically impacted country by glacial flood impacts. GLOFs cause severe flooding, landslides, and mudflows that damage infrastructure and private assets, and disrupt transportation networks, agricultural production, power supply from hydropower plants and tourism activities. In addition, floods often have substantial health impacts, with water- and vector-borne diseases spreading widely after flood events. Damages from GLOFs are often irreparable for decades, with considerable economic costs, particularly to downstream populations.

In addition to GLOFs, Nepal is susceptible to floods resulting from extreme rainfall events, which have similar but less intense impacts on the population in comparison to GLOFs. During heavy monsoon cloudbursts, flash floods occur in the mountains, while in the southern plains, water breaches riverbanks and inundates large areas of land. Furthermore, given the steepness of slopes and the swift flow of water bodies, heavy rains and flash floods often trigger landslides5 that cause extensive loss of life and damage to infrastructure and the environment6.

To address the risk of GLOFs and the associated impacts on downstream communities, there is an urgent need in Nepal to shift away from reactive and uncoordinated response to GLOFs towards a proactive, sustainable, and integrated approach to GLOF risk reduction that combines implementing tangible upstream and downstream risk reduction measures with improved technical and institutional capacity at the national and local levels to respond to an impending GLOF event.

The Government of Nepal with support from UNDP, is formulating a project on adaptation to climate change impacts "Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal" for submission to the GCF. The project will seek to improve the resilience of vulnerable communities to climate change impacts.

Specifically, direct investments from the GCF combined with co-financing will be used to: i) reduce the impacts of a GLOF and its residual impacts on vulnerable communities; ii) promote the adoption of GLOF EWS measures among national- and local-level decision-makers to enhance rapid response to an impending GLOF; and iii) strengthen the technical and institutional capacity of the Government of Nepal and local communities to implement GLOF risk reduction measures through targeted training and awareness raising. The combined effect of project interventions will result in the adoption and implementation of a climate-resilient, integrated approach to GLOF risk reduction and flood management.

Four glacial lakes in Nepal have been prioritised for urgent adaptation action: Thulagi Glacial Lake in the Manang district; Lower Barun Glacial Lake in the Sankhuwasabha; Lumding Tsho Glacial Lake and Hongu 2 Glacial Lake in Solukhumbu district.

The project will have the following activities:

Output 1. Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development.

- Activity 1.1. Strengthen the knowledge base and technical capacities for improved climate research and risk reduction strategies.
- Activity 1.2. Develop public-private partnerships for sustainable investment in GLOF and flood risk information services.

Output 2. Improved hazard monitoring and the generation of early warnings, including the dissemination of early warnings to local communities and important economic sectors leading to reduced economic loss and loss of human lives from GLOF events.

- Activity 2.1. Improve observation network density in GLOF watersheds to strengthen the technical capacity of DHM for the monitoring of climate hazard and risk.
- Activity 2.2. Develop and implement early warning systems to strengthen adaptive capacity and response to GLOFs and other climate hazards in vulnerable sectors and communities.

Output 3. Reduced probability of GLOF events and flash floods, through disaster risk reduction measures implemented in priority glacial lake watersheds

- Activity 3.1. Lower the levels of four of the highest risk glacial lakes.
- Activity 3.2. Construction of structural and non-structural measures (Civil and NbS/ Bioengineering) for the risk reduction of GLOF and flash flood.
- Activity 3.3. Implement Eco-disaster Risk Reduction and nature-based solutions (NbS) to reduce the impact of GLOFs and flash floods.

UNDP Social and Environmental Safeguard Procedure

Formulation process for project proposals for submission to the Green Climate Fund (GCF) also need to meet the UNDP's Social and Environmental Standards (SES) requirements. UNDP's SES underpin UNDP's commitment to mainstream social and environmental sustainability in its Programmes and Projects to support sustainable development. The objectives of the standards are to:

- Strengthen the social and environmental outcomes of Programmes and Projects
- Avoid adverse impacts to people and the environment
- Minimize, mitigate, and manage adverse impacts where avoidance is not possible
- Strengthen UNDP and partner capacities for managing social and environmental risks
- Ensure full and effective stakeholder engagement, including through a mechanism to respond to complaints from project-affected people

As part of the project development and Funding Proposal, an initial environmental and social risk screening (SESP) was undertaken. The SESP identified the project risk category as Substantial. An ESMF was also developed, which highlights procedures and possible ways forward.

Based on the UNDP SESP and the ESMF prepared as part of the project development, scoped ESIAs have been identified as being required. Three ESIAs are proposed, one for each watershed, to address the risks identified in the ESMF, specifically the moderate to substantial risks associated with Activities 2.1, 2.2, 3.1, 3.2 and 3.3.

Within this overall background, UNDP is seeking a Social and Environmental Impact Assessment Specialist to prepare the ESIAs and ESMPs.

The Consultant shall ensure that the Environmental and Social assessment (ESIA) outputs of this assignment comply with and meet the legal and technical requirements of the Government of Nepal and the UNDP. These, include GoN requirements under Environment Protection Act, 1997 and Environment Protection Rules, 1997 (with amendment), Forest Act and regulations, National Park and Wildlife Conservation Act and regulations, environmental standards, work procedures, guidelines and manuals etc; and the UNDPs requirements under the SES. The Consultant shall ensure that all beneficial and adverse impacts associated with construction and operation of the project, including all associated/ancillary works and linked activities if any, are assessed and taken into account. Outputs include the preparation of the Nepal EIA as appropriate, and the ESIA packages, including an Environmental and Social Management Plan (ESMP).

1. Scope of work, responsibilities and description of the proposed work

The assignment will be carried out in a synchronized manner with the Detail Engineering Design (DED) for the lake lowerings, hazard warning, early warning systems and eco-DRR and nature-based flood reduction works, which will be contracted separately. The PMU will facilitate the interaction between the ESIA Consultant and the design

consultatnts, including the sharing relevant information etc. It is expected that the outputs of both consultants are informed and influenced by the work of the other.
The Consultant shall document processes, methodologies, interim outputs etc in suitable forms and formats so that they can be further discussed and agreed upon with the PMU throughout the process.
The scope of consulting services for ESIA includes, but not necessarily limited to, the following:

Task 1: Environmental and Social Screening and Scoping

An initial screening and risk assessment has been undertaken as part of the project development. The UNDP SESP was followed and an ESMF prepared.
The Consultant, through initial consultations, site visits, and review available environmental and social information relevant to the sub-activities and their surrounding Project Influence Areas, shall, shall identify the proposed activities salient environmental and social setting and potential risks/ concerns / impacts that require to be addressed by the ESIAs. This screening will help define the scope and work plan of the the ESIA.
The consultant will also , the
The following steps are key to the screening.

- Confirm presence of environmentally sensitive areas from secondary information and site observations
- Identify potential negative and positive direct or indirect impacts and provide clarity on issue, which needs to be investigated Category B EA type (for higher impact category requires ESIA, for medium impact category requires abbreviated EMP and for lower impact category require Best Environmental Practices-BEP).
- Incorporate feedback of public consultation and answer to published notice
- Additionally, GoN specific Environmental Impact Assessment (EIA)/Initial Environmental Examination (IEE)/Brief Environment Studies (BES) requirements to be complied with EPA/EPR 2020
- Determine applicable of regulatory and policy and requirement of clearances and permissions
- Identify of key environmental and social concerns and vulnerable groups
- Scope environmental and social impact assessment and mitigations.

The Scoping activities will include:

- Review all available existing information on environmental and social baseline conditions and potential impacts related to the proposed lake lowerings, hazard monitoring, early warning systems and eco-DRR/NbS interventions planned in each watershed.
- Develop description of the works that will be the subject of the ESIA based on descriptions developed by the PMU and/or DED Consultant, including alternatives considered or to be considered, by synthesizing and providing an integrated overview of all key aspects of the projects that will be relevant to the proposed ESIA studies.
- Carry out initial site visits, including formal and informal discussions/meetings with local communities, government entities and other key stakeholders, in each project affected area/ influence area (Municipality level and district level). Consultations shall be held in Nepali and/or relevant local language (or with translation). Consultations will enable both verification of the information reviewed from existing sources about the project's social and environmental context, updating the initial screening of likely environmental and social impacts and sensitivities (SESP), and for all relevant stakeholders to be informed about the potential projects.
- Inform potentially affected people and relevant stakeholders about the environmental and social scoping in advance, through appropriate means. In accordance with the requirements of the EPR, the Consultant shall publish a Scoping notice in a national daily newspaper mentioning the ongoing ESIA of the project with a brief description of the project and activities, a list of areas likely to be affected by the project, the potential area of influence, request for comments and suggestions along with address for communication. The copy of notice shall be made available in both English and Nepali and displayed in municipalities and other public places.
- Provide input relevant to the ESIA to enable the update of the Stakeholder Engagement Plan (SEP).
- Area of Influence and Impact Zones. Through the desk reviews and field screening and verification, define and describe the Project's Area of Influence, based upon the area likely to be affected either directly or indirectly by the proposed activities subject to the ESIA; as well as induced developments. Identify and describe environmental and social impact zones within the Area of Influence (e.g. direct, indirect, induced, etc).
- Update the initial assessment of the potential issues/impacts/risks identified in the ESMF.

Detail the scope and work plan for the further studies, assessment, plans and instruments required for the overall ESIA work.

The consultant will prepare specific Screening and Scoping Reports and ToRs for the ESIA to meet GoN environmental requirements. The Scoping Reports will consist of, but not limited to, the following;

- Project description and definition of overall project Area of Influence (including impact zones)
- Summary of findings on the key potential environmental and social issues/ risks/ impacts, and baseline features/aspects, which should be included for further study in the environmental and social assessment and planning studies.
- Applicable regulatory requirements of GoN, as well as UNDP and GCF
- Draft TORs/outlines of each of the further environmental and social assessments and instruments required, including a ToR(s) and Scoping Document(s) for ESIA(s) as required by the GoN environmental legislations including EPA/ EPR.
- The scoping report will describe the methodologies to be used for carrying out ESIA and other assessments and preparing various plans; and contain a detailed work plan to conduct the studies, prepare the plans etc.

The consultant, facilitated by PMU, will organize meetings to present and discuss the screening stage and scoping stage findings with the PMU, DED Consultant and key stakeholders.

The draft scoping report and ToR (s) will be reviewed by the PMU and UNDP. The Reports and ToRs will be revised based on the feedbacks received.

Task 2: Environmental and Social Impact Assessment

The consultant shall develop the Environmental and Social Impact Assessment (ESIA) report based on both primary and secondary data collection and analysis. The process shall ensure compliance and consistency with Government of Nepal legal requirements including EPA/EPR requirements and the UNDP requirements for Environmental and Social Assessment as per the xxxxx.

Any contact or interviews for preparation of baselines or social assessment should be planned and carried out in a culturally appropriate manner, in a language acceptable and used by the communities and in coordination with any other preparation work being carried out about Indigenous Peoples.

The full and specific scope of this Task will be defined by the outputs of Task 1; nonetheless, it is presumed that the following will be include:

Environmental and social baseline

The Baseline of the area of influence, based on Task 1 and should include the following:

- Physical environment, including:
  - Geology, watershed, landslides and erosion: Include topography/ terrain, geology and geomorphology and slope stability & landslide/ soil erosion risk zones (noting the geological conditions, slope steepness, vegetation type, etc. Describe current status and trend).
  - Water, Rivers and Hydrology: rivers, their natures, floods & disasters, etc GLOFs, Landslide Dam-break Failure Floods (LDFFs), very high river flows, etc
  - Physical cultural resources: identify and characterize any sites, structures, or natural features and landscapes above ground, underground, or underwater that are of archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Indicate whether any identified cultural resources are subject to special treatment under national law.
- Biological environment, including:
  - Forests and protected area: areas, types. characterization of terrestrial flora, fauna and natural habitats; migratory and endemic species (including any applicable conservation or protection status, and IUCN Red List status), economically or culturally important species, and others which play important ecological functions as food sources or sustainers of the habitat of identified key species. Migratory/ movement routes of birds and animals.
  - Aquatic species and natural habitats. including migratory and endemic species (including any applicable conservation or protection status, and IUCN Red List status), economically or culturally important species, and others which play important ecological functions as food sources or sustainers of the habitat of identified key species
  - Identification of Bio-diversity hot-spots (based on the above).
- Socioeconomic environment, including:

- Demography and ethnicity: Develop a demographic and ethnic profile of the population in the project area. For communities specifically affected by the project, describe in detail their history, physical spread, social clustering, cultural and traditional characteristics, interactions and relations among various groups. Also discuss formal and informal institutions, social networks and social support systems, and their capacity and functioning; development needs and challenges.
- Religion and culture: Provide relevant information on community festivals, rituals and religious and cultural monuments, practices, knowledge, skills, instruments, and other key resources to be affected by the subproject.
- Socioeconomic development status: Map out the socioeconomic development status of the project area, including resource conditions, economic activities, employment sources and trends, infrastructure and service provision (education, transport, extension services etc.), as well as local development needs, priorities, challenges, and planned or ongoing development interventions.
- Livelihood activities: Characterize economic and subsistence-oriented livelihood activities, both for communities residing within the project Area of Influence as well as for individuals or industries which depend on resources in the Area of Influence, including activities related to fisheries, forestry or forest products, or other natural resources, as well as agriculture and industry (tourism). Access to natural resources and their significance to local communities and livelihoods. Discuss gender related work load sharing and family economy; dependency and use of local and external resources; and production and marketing systems and patterns.
- Community health: Provide an overview of key health issues, focusing on the presence of any disease which may become more prevalent in the area due to the project, as well as the coverage and quality of health services available in the project area.

- Land management- usage, ownership patterns
  - Land use: characterize current land uses and indicate major trends in land use change which are taking place irrespective of the project. Identify Rural and urban areas including identification of areas with urbanization potential.
  - Land tenure: Characterize types of land tenure (e.g., titles, customary), formal and informal institutions related to land tenure, and modes of land transactions in the project area.
- Vulnerable and Indigenous peoples:
  - Community Structures and Practices: Identification of any specific socio-cultural structure and practices that may influence the impacts of the project on the specific communities.
  - Patterns of inclusion and Exclusion: Presence of people based on vulnerability and compile information on their demographics, socio-cultural features, livelihood and employment patterns, use of natural resources, formal and information institutions, and interactions with other ethnic groups. Provide gender-specific information as possible.
- Gender
  - Review of the legal and policy framework in Nepal relevant to gender;
  - Review of formal and informal institutional structures and processes that affect gender outcomes in the project and under the project setup;
  - Review of setup, capacity and constraints within relevant institutions to address gender concerns and considerations;
  - Analysis of local culture, particularly among different indigenous groups, regarding gender and women, focusing particularly on the informal institutions, cultural norms, behavior, and customs;
  - Review of traditional roles and current status of women in the social, economic, cultural, political and institutional contexts of the communities in the project areas.

Analysis of Alternatives

As part of the ESIA process, the consultant compares feasible alternatives to the project, including the "do nothing option". This should build on the alternatives considered by the feasibility studies, alternatives considered by the DED Consultants, and ideal the alternative analysis would be done in collaboration with these consultants.

The alternative analysis, inter alia, will examine potential application of mitigation hierarchy of avoidance, minimization, mitigation, and offsetting/ compensation of the adverse impacts. The Consultant will compare alternatives in terms of potential environmental impacts; capital and operating costs; suitability under local

conditions; and institutional, training and monitoring requirements etc. To the extent possible, costs and benefits of each alternative.

Findings of the alternative analysis, from early stage, will be shared with DED Consultant (PMU will facilitate the coordination and sharing) as an input to the decision-making in the process of final selection of the sites for the harzard warning/EWS equipment and eco-DRR/flood reduction interventions.

Impact Assessment and Analysis

Assess direct, indirect and induced impacts and risks in the short- term and the long-term resulting from construction and operation activities of the project and propose mitigation measures for identified impacts. While the full scope of the coverage of impact assessment/ analysis will be confirmed during Task 1 (screening and scoping), the following issues are likely considered to be relevant:

- Degradation or loss of forests, natural habitat including critical natural habitat from direct construction and/ or operation. This should include, in particular, impacts to the conservation area; natural habitats including migratory / movement routes of species, and impacts on the biodiversity hot-spots in the influence area.
- Landslide and soil erosion impact and slope instabilities (including due to changes to hydrology, quarrying, borrowing, site management, and spoil disposal);
- Noise Generation, air pollution and traffic impacts during construction phase.
- Impacts on health and safety (workers, as well as public/ community health and safety)
- Potential deterioration in water quality due to disposal of solid and liquid waste from labor camps and construction activities;
- Induced impacts from project-related influx including increased stress on natural resources, pollution and waste management issues, strain on local services and infrastructure, safety issues for the local community etc and potential GBV issues.
- Impact and risk of discrimination, child labor and forced labor including the workers to be brought to the project by the contractors or labor brokers
- Impacts to public health via wastes and sanitation, waste and hazardous waste storage and disposal sites; etc
- Impacts of permanent and temporary land acquisition on land use patterns,
- Impacts to agricultural land, income, livelihood, and public and private asset/property.
- Impacts on archeological, historical and cultural heritage.
- Impacts from auxiliary facilities and associated facilities
- Both beneficial and adverse impacts related to lake lowering, hazard monitoring/EWS stations, and flood reduction interventions;
- Analysis of potential project impacts, both positive and negative, on women, including gender specific impacts on household activities, employment at project site, illegal trafficking etc.;
- Analysis of barriers, challenges, constraints to women's participation, including an assessment of women's capacity to participate;
- Combined/ Cumulative environmental impacts of the proposed lake lowerings and flood reduction interventions.

Stakeholder Analysis and Engagement

The consultant will conduct stakeholder engagement during ESIA preparation as per the Project Stakeholder Engagement Plan (SEP). The consultant is to contribute to updating the SEP to include ESIA specific consultation and to ensure that all the project affected parties and different interest groups are identified and included in any ongoing engagement plans. The consultant will specifically identify those project-affected parties (individuals or groups) who, because of their circumstances, may be disadvantaged or vulnerable.

Stakeholder feedback received shall be analyzed, and the consultations shall determine how it can be addressed in the ESIA and project designs.

Stakeholder engagement should not be treated as a project information dissemination session but should be used to take into account the main interest of the stakeholders and improve the plan and design of the project and shall continue throughout the project life. The ESIA should reflect the comments and responses to various consultations. Project information shall be disclosed as early as possible and, in a way, and timeframe that allows the stakeholders to understand the risks and impacts of the project, and potential opportunities and have meaningful consultations with the stakeholders on project design. Information will be disclosed in relevant local languages and in a manner that is accessible and culturally appropriate.

The ESIAs are to summarize and link to project Stakeholder Engagement Plan or ESMP that includes plan for consultations. Includes summary of consultations undertaken for development of ESIA
Environmental and Social Management Plan (ESMP)
Develop an ESMP encompassing the following, based on the findings of the assessment process and details on all recommended measures to be taken during construction and operation of the project to avoid, minimize, mitigate, compensate and/or offset the identified adverse environmental and social impacts, as well as the recommended specific actions, indicators for monitoring and evaluation, institutional responsibilities, reporting arrangements, and budget needed to implement these measures.

ESIA Executive Summary

The ESIA Executive Summary, including Plan summaries, should be translated into both Nepali and the local Indigenous Languages for public consultation and dissemination.
Disclosure and Consultations on draft studies
The consultant will support the PMU conduct public hearings at least in three locations within the project influence area, as well as dissemination and consultation workshops at local, State and central level, once the draft environmental and social assessment and planning materials are available.
The Consultant shall produce full draft ESIA (in English), as well as an Executive Summary and summary plans in English, Nepali and relevant local indigenous languages. Additional materials can for consultations should be produced as required but the specific context.
Based on the SEP, Consultations should follow international good practices on stakeholder engagement consistent with or exceeding the GoN and UNDP requirements, with detailed records kept including locations and dates of all consultation events, participants' names and affiliations, a summary of topics discussed, a summary of comments received; and how those comments will be taken into account by the project. All the consultations should be conducted in the relevant local language and safeguards instruments (e.g. ESMP etc.) prepared will be made available to the concerned communities, local level NGOs and the others concerned in the subproject sites for the feedback.
Following consultations as well as review of the draft studies by PMU and the UNDP, the Consultant shall make necessary revisions and finalize the ESIA report and sub-plans. The Consultant shall submit the revised reports to PMU for the approval of UNDP and GoN.
The consultant will be responsible for the following activities:

- Become fully familiar with the UNDP's SES and those of relevant funding bodies
- Review and update the SESP and the ESMF
- Produce the three ESIAs/ESMPs
- As necessary, recommend issues for further discussion during stakeholder consultations undertaken during project implementation

Appendix Six: Outline for Land Acquisition Plan

The Land Acquisition Plan (LAP) will describe process for identification of tenure and process for obtaining legal use of land. Public land will be used for access tracks and structures and the majority of EWS stations. The LAP will provide the mechanism for ensuring that it is confirmed that land is publicly owned, or in the few cases where private land provides a better location for infrastructure such as EWS, that legal permission has been obtained to use it (eg via leases). Any land acquisition will be based on willing buyer/willing seller and the following conditions will be followed: (i) land markets or other opportunities for the productive investment of the sales income exist; (ii) the transaction took place with the seller's informed consent; and (iii) the seller was provided with fair compensation based on prevailing market values**.** No compulsory land acquisition will be undertaken by the project.

The application of the LAP and IPP will ensure that land is unencumbered and that land tenure at all project sites is confirmed as part of detailed site survey during implementation stage.

The following table of contents is proposed for the Land Acquisition Plan:

1. Introduction
1.1 Overview of the project.
1.2 Project Activity Requiring Land Acquisition
1.3 Justification for Land Acquisition.
1.4 Measures to minimize land acquisition and associated adverse impacts.
2. Legal Framework.
2.1 General Description of Land in Nepal
2.2 Applicable Nepalese laws and policies
2.3 UNDP's SES Standard 5 on Displacement and Resettlement
2.4 Abbreviated Plan
3. The Land Acquisition Process
3.1 Participation and Consultations
4. Institutional Arrangements and Implementation Schedule.
4.1 Institutional Arrangements
4.2 Implementation Schedule
5. Project Level Grievance Redress Mechanism
6. Monitoring and Evaluation

Appendix Seven: Elements of Biodiversity Action Plan

Where biodiversity values of importance to conservation are associated with a project or its area of influence, the preparation of a Biodiversity Action Plan (BAP) provides a useful means to focus a project's mitigation and management strategy. For project activities that may affect natural habitats, critical habitats and protected areas, Standard 1 notes that a BAP needs to be in place. For projects solely designed to strengthen biodiversity and maintain or restore ecosystems in areas of critical habitat, the project document itself would constitute such a plan. Biodiversity plans are highly encouraged when also operating in modified habitats with biodiversity values of importance to conservation.

Targeted biodiversity-related mitigation and management measures may be integrated into more general Environmental and Social Management Plans (ESMPs) or related plans. However, a BAP provides focused attention to actions in ecologically critical areas. A BAP may be included as part of a broader ESMP.

National Biodiversity Strategies and Action Plans (NBSAP) are the primary instruments for implementing the Convention on Biological Diversity at the national level. A BAP is a more targeted instrument for enhancing and conserving biodiversity and ecosystem services in particular habitats, demonstrated on an appropriate geographic scale. A BAP should seek to achieve net gains to the biodiversity values for which the critical habitat was designated. A BAP is highly context specific.

There is no one widely recognized, cross-sectoral framework for the development of a BAP. Typically a BAP will be undertaken to address significant gaps in information for undertaking biodiversity-related actions (such as insufficient baseline data or understanding of key biodiversity values) and would articulate a management plan where/when adequate information is available for developing appropriate actions.

General elements of a BAP include the following:

(1) Description of biodiversity context: Identifies national and/or regional biodiversity context; location of projects site/s; relevant physiography; general description of relevant ecosystems, habitats, flora, fauna; priority biodiversity features and components of elevated significance.
(2) Objectives and targets biodiversity actions and mitigation: Identifies measures and actions to enhance and conserve biodiversity and/or in accordance with the mitigation hierarchy avoid, minimize, mitigate, potentially significant adverse social and environmental impacts to acceptable levels. Describes with technical details each biodiversity-related action/mitigation measure, including the type of issue/impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, implementation descriptions and operating procedures, as appropriate; takes into account, and is consistent with, other relevant mitigation plans (e.g. indigenous peoples, economic displacement).
(3) Implementation action plan (schedule, cost estimates and source of financing): Outlines an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and the capital and recurrent cost estimates and sources of funds for implementing the BAP (i.e. budget). Describes institutional arrangements, identifying which party is responsible for carrying out the actions/mitigation and monitoring measures.
(4) Stakeholder Engagement: Outlines context-specific plan to engage in meaningful, effective and informed consultations with relevant stakeholders, including locally affected groups. Includes information on (a) means used to inform and involve affected people and description of effective processes for receiving and addressing stakeholder concerns and grievances regarding the project's social and environmental performance.
(5) Monitoring and reporting: Identifies monitoring objectives and specifies the type of monitoring, with linkages to the biodiversity actions and mitigation measures. Describes parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions. Establishes reporting schedule and format.

Appendix Eight: Labour Management Procedures and Requirements for Labour Management Plan

Labour Management Procedures Template

The Labour Management Procedures (LMP) facilitates planning and assists responsible parties to ensure that project implementation adheres to the requirements of SES Standard 7 on Labour and Working Conditions. The LMP (a) sets out the written labour procedures for the project, (b) identifies the main labour requirements and risks associated with the project, and (c) helps the project developer to determine the resources necessary to address project labour issues and risks and sets out an action plan.

The LMP summarizes key labour-related risks and issues and may be supplemented by more targeted analyses and plans (e.g. such as an occupational safety and health action plan, WBG EHS sector specific guidelines, ISO standards, contractor management matrices, etc.). The LMP (as with supporting analyses) should be undertaken by experts with relevant expertise.

The LMP may be prepared as a stand-alone document, or form part of other environmental and social management documents. The LMP is a living document, which is initiated early in project preparation, and is reviewed and updated throughout development and implementation of the project.

In preparing and updating the LMP, project developers should refer to the requirements of national law and S7 and its Guidance Note. The content of the LMP is indicative: some issues may not be relevant to the project while some projects may have other issues that need to be captured from a planning perspective. Where national law addresses requirements of S7 this should be noted in the LMP.

Where project workers under a single project may be engaged under significantly different circumstances (e.g. different regions of a country, different employment arrangements), it may be necessary to ensure that these differences are appropriately addressed in the LMP, or separate LMPs may need to be developed.

For projects utilizing an ESMF given that specific activities and/or subprojects have yet to be defined, the development of the LMP may need to be deferred. The ESMF should address as many potential issues outlined in the LMP as is feasible during project development, and the ESMF should include procedures for undertaking a specific LMP once locations and activities are defined.

A concise and up to date LMP will enable different project-related parties, for example, staff of the project implementing unit, contractors and sub-contractors and project workers, to have a clear understanding of what is required on a specific labour issue. The level of detail contained in the LMP will depend on the type of project and information available. Where relevant information is not available, this should be noted and the LMP should be updated as soon as possible.

Below is an indicative outline of the LMP.

1. **Overview of Labour Use in the Project:** This section describes the following, based on available information:
    a. *Number of Project Workers*: The total number of workers to be employed on the project, and the different types of workers: direct workers, contracted workers, temporary or seasonal workers and community workers. Where numbers are not yet firm, an estimate should be provided.
    b. *Characteristics of Project Workers*: To the extent possible, a broad description and an indication of the likely characteristics of the project workers e.g. local workers, national or international migrants, female workers, workers between the minimum age and 18.
    c. *Timing of Labour Requirements*: The timing and sequencing of the project's labour requirements in terms of numbers, locations, types of jobs and skills required.
    d. *Contracted Workers*: The anticipated or known contracting structure for the project, with numbers and types of contractors/subcontractors and the likely number of project workers to be

employed or engaged by each contractor/subcontractor. If it is likely that project workers will be engaged through brokers, intermediaries or agents, this should be noted together with an estimate of the number of workers that are expected to be recruited in this way.

e. *Migrant Workers*: If it is likely that migrant workers (either domestic or international) are expected to work on the project, this should be noted and details provided.

2. **Assessment of Key Potential Labour Risks*:*** This section describes the following, based on available information:
    a. *Project activities*: The type and location of the project, and the different activities the project workers will carry out, including primary supplier(s)
    b. *Key Labour Risks:* The key labour risks that may be associated with the project (see, for example, those identified in S7 and the GN). These could include, for example:
        - the conduct of hazardous work, such as working at heights or in confined spaces, use of heavy machinery, or use of hazardous materials
        - likely incidents of child labour or forced labour, with reference to the sector or locality
        - discriminatory policies or practices that deny equal opportunity
        - restrictions on freedom of association and collective bargaining
        - likely presence of migrants or seasonal workers
        - risks of labour influx or gender based violence
        - possible accidents or emergencies, with reference to the sector or locality
        - general understanding and implementation of occupational health and safety requirements

3. Brief overview of labour legislation, agreements and potential gaps with Standard 7:

- **Core Labour Standards:** This section sets out the key aspects of national legislation implementing the ILO fundamental rights at work, i.e. prohibition of child labour/minimum working age; prohibition of forced labour, non-discrimination/equal opportunity; and freedom of association and collective bargaining. The overview should highlight any material gaps between national law and S7.9-19.
- **Terms and Conditions:** This section sets out the *key aspects* of national labour legislation with regards to term and conditions of work, and how national legislation applies to different categories of workers identified in Section 1. The overview focuses on legislation which relates to the items set out in S7, paras.5-8 (i.e. wages, deductions and benefits) and any material gaps with S7. The section should also identify the terms of any existing collective agreements that stipulate workplace terms and conditions.
- **Occupational Safety and Health (OSH):** This section sets out the *key aspects* of the national labour legislation with regards to occupational health and safety, and how national legislation applies to the different categories of workers identified in Section 1. The overview focuses on legislation that relates to the items set out in S7, paras. 20-25 and any material gaps with S7.

4. **Responsible Staff:** This section identifies the functions and/or individuals within the project responsible for (as relevant):
    - engagement and management of project workers
    - engagement and management of contractors/subcontractors
    - occupational safety and health (OSH)
    - training of workers
    - addressing worker grievances

In some cases, this section will identify functions and/or individuals from contractors or subcontractors, particularly in projects where project workers are employed by third parties.

5. **Policies and Procedures:** This section sets out :
    - **Management systems:** Relevant management systems ***in place*** to implement S7, e.g. human resources policy, anti-harassment policy, staff handbook, grievance procedure, OSH management system, etc. These can be referenced or annexed to the LMP, together with any other supporting documentation. Where relevant, it identifies applicable national legislation.
    - **Age of Employment:** Details regarding (see S7 paras. 16-19 and GN):

- the minimum age for employment on the project
- the process that will be followed to verify the age of project workers
- the procedure that will be followed if underage workers are found working on the project
- the procedure for conducting risk assessments for workers aged between the minimum age and 18
- Where incidences of **child labour** are identified, describe how these will be remediated

- **Forced Labour:** Where the risk of forced labour has been identified, this section outlines how this risk will be mitigated, and how any instances of forced labour will be addressed (see S7 para. 14 and GN).
- **Occupational safety and health:** Where significant health and safety risks have been identified, summarize how these will be addressed in a manner consistent with national labour and employment regulations and the requirements of S7. (Note that a specific OSH plan may be necessary.)
- **Terms and Conditions:** This section sets out details regarding (see S7 paras. 5-8):
  - specific wages, hours and other provisions that apply to the project
  - maximum number of hours that can be worked on the project
  - any collective agreements that apply to the project. When relevant, provide a list of agreements and describe key features and provisions
  - other specific terms and conditions (e.g. benefits)
  - "Beyond compliance" initiatives e.g. to promote local employment or the hiring of traditionally underrepresented groups
- **Grievance Mechanism:** This section sets out details of the grievance mechanism that will be provided for direct and contracted workers and describes the way in which these workers will be made aware of the mechanism (S7, paras. 26-28).
- **Contractor Management:** This section sets out details regarding (see S7, paras. 29-31 and GN):
  - the selection process for contractors/third parties
  - the contractual provisions that will be put in place relating to contractors for the management of labour issues, including OSH
  - the procedure for managing and monitoring the performance of contractors
- **Community Workers:** Where community workers will be involved in the project, this section sets out details of the terms and conditions of work and identifies measures to check that community labour is provided on a voluntary basis. It also provides details of the type of agreements that are required and how they will be documented. This section sets out details of the grievance mechanism for community workers and the roles and responsibilities for monitoring such workers.
- **Primary Supply Workers:** Where a significant risk of violations of core labour standards[165] or serious safety issues in relation to primary suppliers has been identified, this section sets out the procedure for monitoring and reporting on primary supply workers (S7 paras. 32-34)

7. Action Plan This section sets out details of actions required to achieve and maintain compliance with national law and S7, including responsibilities, timelines and cost/resource estimates. The Plan will also include monitoring and reporting requirements appropriate to the nature of the project and associated labour risks and impacts. The Action Plan includes the following elements:

- Summary of required measures identified in above sections of the LMP.
- Describe schedule, institutional arrangements, and responsibilities and mechanisms for carrying out the identified measures, indicating who is responsible and when actions will be undertaken.
- Describe the monitoring framework for the project and key indicators for measuring progress in implementing the identified measures.
- Budget and Financing: Include an appropriately costed plan, with itemized budget sufficient to satisfactorily undertake the identified measures.

[165] Child labour, forced labour, non-discrimination and equal opportunity, freedom of association and collective bargaining.

Appendix Nine: Indicative Outline of an ESMP

An ESMP may be prepared as part of the Environmental and Social Impact Assessment (ESIA) report or as a stand-alone document.[166] The content of the ESMP should address the following sections:

(1) Mitigation: Identifies measures and actions in accordance with the mitigation hierarchy that avoid, or if avoidance not possible, reduce potentially significant adverse social and environmental impacts to acceptable levels.
Specifically, the ESMP: (a) identifies and summarizes all anticipated significant adverse social and environmental impacts; (b) describes with technical details each mitigation measure, including the type of impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; (c) estimates any potential social and environmental impacts of these measures and any residual impacts following mitigation; and (d) takes into account, and is consistent with, other required mitigation plans (e.g. for displacement, indigenous peoples).
(2) Monitoring: Identifies monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed in the environmental and social assessment and the mitigation measures described in the ESMP.
Specifically, the monitoring section of the ESMP provides (a) a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and (b) monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.
(3) Capacity development and training: To support timely and effective implementation of social and environmental project components and mitigation measures, the ESMP draws on the environmental and social assessment of the existence, role, and capability of responsible parties on site or at the agency and ministry level.
Specifically, the ESMP provides a description of institutional arrangements, identifying which party is responsible for carrying out the mitigation and monitoring measures (e.g. for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training).
Where support for strengthening social and environmental management capability is identified, ESMP recommends the establishment or expansion of the parties responsible, the training of staff and any additional measures that may be necessary to support implementation of mitigation measures and any other recommendations of the environmental and social assessment.
(4) Stakeholder Engagement: Summarizes and links to project Stakeholder Engagement Plan or outlines plan to engage in meaningful, effective and informed consultations with affected stakeholders. Includes information on (a) means used to inform and involve affected people in the assessment process; and (b) summary of stakeholder engagement plan for meaningful, effective consultations during project implementation, including identification of milestones for consultations, information disclosure, and periodic reporting on progress on project implementation. Require documentation of consultations (summaries including presentations, key points raised and responses provided, participation lists). Include information on project grievance mechanism (below) and on UNDP Accountability Mechanisms (SRM,SECU).
(5) Grievance redress mechanism: Describes effective processes for receiving and addressing stakeholder concerns and grievances regarding the project's social and environmental performance.
Describe mechanisms to provide stakeholders and potential affected communities avenues to provide feedback or grievances, and receive responses, with regard to the implementation of specific activities, policies, or regulations.
(6) Implementation action plan (schedule and cost estimates): For all four above aspects (mitigation, monitoring, capacity development, and stakeholder engagement), ESMP provides (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and (b) the capital and recurrent cost estimates and sources of funds for implementing the ESMP. These figures are also integrated into the total project cost tables. Each of the measures and actions to be implemented will be clearly specified and the costs of so doing will be integrated into the project's overall planning, design, budget, and implementation.

[166] This may be particularly relevant where contractors are being engaged to carry out the project, or parts thereof, and the ESMP sets out the requirements to be followed by contractors. In this case the ESMP should be incorporated as part of the contract with the contractor, together with appropriate monitoring and enforcement provisions.

Annex J: Stakeholder Engagement Plan

Overview of stakeholder consultation and engagement on project formulation

Stakeholder consultation is the foundation to shape this project proposal. Stakeholder consultation and engagement is crucial for the sustainability of the project as well as smooth and timely implementation. Stakeholder consultation was started when UNDP Nepal has received a request letter from the ministry of finance, national designated agency for Nepal to develop a project proposal for GCF.

Stakeholders are defined as actors within the following groups of actors: government (all 3 tiers), local communities, community-based organizations, civil society organizations / NGOs, private sector, international development cooperation and international organizations, academic institutions. Key project stakeholders were initially identified through discussions with the NDA, DHM, MoFE, DoFSC, and DNPWC. UNDP has been involving in several climate resilience projects in Nepal as well as other development works. These projects have also established linkages with multi-sector stakeholder engagement. Implementing partners are also engaging in DRR and climate resilience projects where there are already well established linkages among the stakeholders.

Stakeholder identification is a key part before making any kind the consultation. Stakeholder identification was started from concept design phase. Extensive Stakeholder consultations from field level to central level have provided valuable feedback and shaped the project into its current form.

To ensure effective engagement with indigenous peoples, Nepal Federation of Indigenous Nationalities (NEFIN) provided contacts to local representatives and community leaders in the project area. Community organizations e.g. FECOFUN were also intensively consulted when making different thematic studies to prepare this proposal: Baseline Survey, Gender and Social Inclusion and Action Plan, Disaster Management at the Downstream Communities, Early Warning Systems and Hydromet Networks Strengthening, Socio-economic Study, Project Governance Framework, Environment and Social Management Framework. All of these studies were completed from local level to central level consultations during the period 2017-2021.

During the consultation, stakeholders were pre-informed through various means: written request, email, telephone, communication through respective community networks channels, mass meeting, government networks, and so on. The consultation agenda were pre circulated or informed. The evidence of the consultation were well documented, attendance sheet prepared, photographs taken, minutes of meeting prepared.

Stakeholder engagement strategy should be dynamic. At the specific point of time of project implementation, new stakeholder or beneficiaries may emerge. This project has been adopting a robust plan to address the stakeholder's concern and engage them in project planning and execution. During the inception phase of the project, stakeholders from a specific project intervention site will be identified and their interest will be addressed in the project planning.

Chapter 2 and 4 of the report is summarized the stakeholder's work nature, interest, consultation agenda, number of people met, institutions represented, and recommendation. Date, time and venue of the stakeholder consultation, participant's contact numbers, email with attendee signature are shown in the Annexes. Table 4.9 of Chapter 4, summarizes the recent consultation with the wider stakeholders. Their concern, interest and willingness to engagement are also captured during the consultation. This fresh consultation was also needed because it was already long gaps when Concept Note was approved by the GCF.

Stakeholder consultation and engagement is a continuous process. During the project implementation period, newly emerged stakeholders will be identified, and engage them in the project implementation.

Stakeholder consultations for the formulation of project governance and institutional arrangement

Since the submission of the Concept Note to GCF in 2018, several changes have happened in the country. Particularly, according to the federal constitution of Nepal 2015, a restructuring of the government system is carried out. Some of the powers exercised by the central government are devolved to provincial and local government. Federal ministries are merged to limit the number of minister in federal government. Some Departments supposed to be under some ministry are also tied

up with another ministry. Some of the implementation partners originally proposed in this project is also changed in their structure as well as their scope of areas. Some new institutions have been formed. For example, National Disaster Risk Reduction and Management Authority (NDRRMA) is established in 2018. Department of Soil Conservation and Watershed Management (DoSCWM) is merged with Department of Forest (DoF) and named as Department of Forest and Soil conservation (DoFSC). Department of Hydrology and Meteorology (DHM), previously under the Ministry of Population Environment, is now under the Ministry of Energy, Water Resources and Irrigation (MoEWRI). Portfolios of Forest and Environment were belonged to different ministries, now they are together under the Ministry of Forest and Environment. Seven provincial governments are formed and now the first tenure of the governments is running. Seven hundred and fifty three local governments (municipality and rural municipality) are also formed and the first tenure of the local government is ongoing.

Constitution of Nepal 2015 has also devolved the power from central to the provincial and local government. Some power remains on the central government. Some powers are concurrent power. That means all three governments are responsible to address the theme. Disaster Risk Reduction is one of them where all three tiers of government have responsibility to manage the risk. During the mean time (from 2018 to 2021), several policies acts, regulations are drafted, and operationalized according to the changing government structure. The restructuring of the government system also impacted the institutional mandate and responsibility.

In the changing context, another round of stakeholder consultations is also carried out to make the final shape of the proposal. Some consultations were in-person meeting and some were virtuals. The consultations are completed from May to October 2021 to develop the project governance and institutional arrangement, co-financing support from the implementing partners and stakeholder engagement plan.

Federal Government Level:

- Ministry of Forests and Environment (MOFE)
- Ministry of Energy, Water Resources and irrigation (MoEWRI)
- Department of Forest and Soil conservation (DoFSC)
- National Disaster Risk Reduction and Management Authority (NDRRMA)
- Department of Hydrology and Meteorology (DHM)
- Department of Water Resources and Irrigation (DWRI)
- Water and Energy Commissions Secretariat (WECS)
- Ministry of Federal Affairs and General Administration(MoFAGA)
- Department of National Parks and Wildlife Conservation (DNPWC)
- Ministry of Agriculture and Livestock Development (MoALD)
- Joint consultation meeting among MoEWRI, NDRRMA, DHM, UNDP
- Department of Mines and Geology (DMG)
- Ministry of Finance (MoF)
- National Planning Commission (NPC)

Provincial Government level:

- Office of the Chief Minister and Council of Minister (OCMCM), Gandaki Province:
- Ministry of Forest, Environment and Soil Conservation, (MoFESC), Gandaki Province
- Office of the Chief Minister and Council of Ministry, Province 1, Biratnagar
- Ministry of Internal Affair and Law (MoIAL), Province 1
- Ministry of Industry, Tourism, Forest and Environment, Province 1
- Provincial Planning Commission (PPC), Province 1

NGO/CSO Organizations:

- Nepal Federation of Indigenous Nationalities (NEFIN)
- National Indigenous Women's Federation (NIWF)
- Center for Indigenous Peoples Research and Development (CIPRED)
- NGO Federation of Nepalese Indigenous Nationalities, Society For People In Needs (SPIN)
- Federation of community Forestry Users Nepal (FECOFUN)

Development Partners/INGO/Projects

- International Union for Conservation of Nature *(*IUCN*)*. (GCF-IUCN Project: Improving Climate Resilience of Vulnerable Communities and Ecosystems in the Gandaki River Basin *(*GRB*)* Nepal)
- UNDP project formulation team
- International Centre for Integrated Mountain Development (ICIMOD)
- Building Resilient Churia Region of Nepal (GCF-FAO) Project

Academic Institutions

- Kathmandu University (KU)
- Tribhuvan University (TU)
- Central Department of Hydrology and meteorology (CDHM), TU
- Institute of Forestry (IOF), TU
- Institute of Engineering (IOE), TU
- Central Department of Environmental Sciences (CDES)
- Purbanchal University (PU)

Research Institutions

- Nepal Academy of Science and Technology (NAST)
- Nepal Agriculture Research Council (NARC)

Local level government:

- Pasang Lhamu Rural Municipality, Solukhumbu District, Province 1 (Mr. Minma Sherpa, ward chairperson)
- Chamlang North Rural municipality, Sankhuwasabha, Province 1 (Mr. Sagar Kirati, Chairperson-Chamlang North Lake Makalu Barun)
- Sotang Rural Municipality, Solukhumbu district, Province 1
- Nashong Rural Municipality (Mr. Chandra Ghale, Chair person, Manang District, Gandaki province)
- Silichong Rural Municipality, Sankhuwasabha District: Lower Barun Lake
- Khandbari Municipality, Sankhuwasabha District: Lower Barun Lake
- Makalu Rural Municipality, Sankhuwasabha District: Lower Barun Lake
- Shadananda Rural Municipality , Sankhuwasabha District: Lower Barun Lake
- Bhotkhola Rural Municipality, Sankhuwasabha District: Lower Barun Lake
- Chichila Rural Municipality, Sankhuwasabha District: Lower Barun Lake
- Solududhakunda Municipality, Solukhumbu District
- Thulung Dudhkoshi Rural Municipality, Solukhumbu District
- Khumbu pasang Lahmu Rural Municipality, Solukhumbu District
- Mapya Dudhkoshi Rural Municipality, Solukhumbu District
- Nechasalyan Rural Municipality, Solukhumbu District
- Mahakulung Rural Municipality, Solukhumbu District
- Sotang Rural Municipality, Solukhumbu District

The consultation has also provided the up-to-date status of the proposal formulation to the project partners and other stakeholders. In addition, onboard of the new implementation partner is also introduced with the stakeholders. Stakeholder concerns and issues are well noted and reflected in the project proposal. The key role of the stakeholders during project implementation is identified. Mandate of the institutions in the changing context are analyzed.

This project is mainly focused in Koshi Basin of Province 1 and Gandaki basin of Gandaki province. Therefore, the project also seeks provincial government's support and coordination to implement the project. In the province level, Provincial Disaster Management Committee (PDMC) will be set up to support the project activities and necessary coordination among the provincial government, local governments, civil society organizations, non-governmental organization actively engaging in the province related to the thematic area of the project, international organization, indigenous people organization, private institutions, community organizations. There will be a wider representation of the stakeholders working in the thematic areas

in the PDMC. The wider representation will be ensured either member of the committee or invitee in the committee meeting. The committee will be chaired by a provincial secretary related the disaster.

In the changing context, project has to get synergy by linking horizontally (different ministries and departments at federal or provincial) to vertically (from community level, ward level, local government level, district level, provincial level to federal level). In the local government level too, similar arrangement will be formed. The Local Disaster Management Committee (LDMC) will be formed in all the project areas. NDRRMA will be actively involved in coordination role horizontally and vertically and setting up the PDMC, LDMC and Emergency Operation Centres (EOCs) in the project areas. The following stakeholders have the key role (direct or indirect support) to execute and implement the project.

Ministry of Energy, Water Resources and Irrigation (MoEWRI):

MoEWRI will lead the project and acts as executing entity from government side. Bulk of the GCF grant will be managed by this ministry. This ministry will be responsible for fund distribution among the implementing partners: DHM, NDRRMA, DoFSC and DNPWC according to the project proposal through PSC meeting. The ministry will set up a Project Coordination Unit (PCU) under the direct supervision of the secretary of MoEWRI who is also the chair of the PSC. MoEWRI will nominate a National Project Director (NPD), a key position to coordinate the project who leads the PCU. NPC serves as member secretary of the Project Steering Committee (PSC). PSC approves annual plan and budget before submitting to MoF through LMBIS. All implementing partners will make an annual plan and budget according to the project proposal. The main role of the PCU will be to coordinate the implementing partners to finalize consolidated project work plans, budgets and progress reports (technical and financial) and provide guidance to project implementing partners to ensure timely and effective implementation. The PCU will organize quarterly review meetings and joint monitoring plan with implementing partners.

MoEWRI will ensure the sustainability of the project activities and as well as program and budget for operation and management of those activities implemented by DHM in the post-project period. MoEWRI will also support the project through the co-financing. MoEWRI is also responsible for submitting periodic reports required for GCF to UNDP through Ministry of Finance.

Department of Hydrology and Meteorology (DHM):

DHM is the implementing partner (IP) of the project. Installation of monitoring networks (hydromet stations), early warning system establishment in collaboration with NDRRMA and lake lowering activities will be implemented by DHM. The DHM will set up a dedicated team responsible for project implementation. The team will be led by a senior official of DHM (Joint Secretary/DDG level), called Project Executives (PE), supported by other professional and support staff assigned by the government for the project.

The cost of the salary and other benefits of the staff assigned by the government for the project as mentioned above will be fully borne by the government. The cost of office set up for the PIU and operation cost of the project will also be borne by DHM as co-finance. Some of logistic cost for the project running will also be covered by the GCF funding. Although, PIU head will lead the project implementation, the director general will have ultimate responsibility of the project running, monitoring and supervision. All of the project's periodic reports (financial and physical) will be reported to the Ministry through the DG of DHM. DHM is also responsible to monitor the project activities and ensures the quality of the work. Auditing, according to the government norms, will also be carried out by DHM. DHM will also maintain the transparency and facilitate all kinds of support for timely completion of the project. DHM will also own the monitoring stations and their operation and maintenance after the installation during and after the project period. DHM is also responsible for the smooth operation of the drawdown channel of the glacial lakes. DHM regularly monitor the glacial and glacial lakes of Nepal and provide the knowledge base using the state of art.

Co-finance of the DHM covers salary of full time working staffs in PIU, part of PIU operation cost, existing facility, office space for PIU, installation of high altitude hydromet stations at Karnali basin, construction of trail access road to glacial lakes, ensure regular data communication at the central server, operation and maintenance cost of the project intervention activities till 15th year, at least 8 years after the closing of the project.

DHM also mobilizes its two local offices from Dharan and Pokhara to work as the field offices. The staffs from the offices will work for the project. The project will provide necessary support to run the field offices. The field offices will execute the annual program activities as assigned by the DHM PIU. Or other PIUs wherever required.

National Disaster Risk Reduction and Management Authority (NDRRMA)

NDRRMA is one of the Responsible Partners. It will also set up a Project Team led by Joint secretary. NDRRMA will take the responsibility of ensuring horizontal and vertical coordination with federal, provincial and local governments, development partners, (I)NGO, community organizations, and private institutions engaged in disaster management. It will also support in establishing Common Alert Protocol (CAP) in the project areas that will generate emergency alerts and public warnings for all kinds of disasters through a network of early warning system. NDRRMA will ensure the establishment of LEOC, and DEOC, at the project areas and its link to PEOC and NEOC to disseminate the EWS messages. NDRRMA will lead to form a Provincial Disaster Management Committee (PDMC) where members will be government representative, representative of active stakeholders working in the project area including community organization, Indigenous People organization, NGO, private institutions, and local government representatives of Gandaki and province 1. NDRRMA will also support DHM to link early warning system with provincial and municipal emergency operation centers. It also support in risk mapping, knowledge generation, community awareness and capacity building of the community to help cope with climate change impacts and building community resilience to risks. NDRRMA will also ensure the horizontal and vertical linkages in DRR. Setting up LDMC and their capacity building with the help of field offices will also be the responsibility of NDRRMA. NDRRMA also co-finance for this project.

Ministry of Forest and Environment (MoFE)

MoFE has the key role in implementation of output 3 of the project. Since DoFSC and DNPWC will directly involve in implementing the project, the MoFE will coordinate the project during implementation. It also provides necessary permission to implement the project activities which may be required to follow the existing rule and regulation. MoFE will also provide directive to its departments and provide staffs to implement the project as and when necessary. Two separate Project Implementation Units (PIUs) will be set up by MoFE, one for DoFSC and another for DNPWC.

MOFE will facilitate and communicate with the provincial Ministry of Industry, Tourism, Forest and Environment (MoITFE) to support the project activities in the provincial level. MoFE will monitor and supervise the project activities for quality assurance and timely completion. MoFE will also ensure the sustainability of the project activities implemented by its two Departments DoFSC and DNPWC. MoFE also ensures maintenance and operation cost after the project period till year 15 as a part of governance co-finance.

Department of Forest and Soil Conservation (DoFSC)

DoFSC leads much of the activities of output 3 from the Koshi basin and it is the Responsible Partner of the project. It will mobilize Basin Management Centre of Koshi, Udayapur as one of the field office in Koshi basin to implement and coordinate the project activities. Since the basin office is a permanent structure in the government system, this office will carry out the operation maintenance, after the project period. DoFSC will ensure the needed resources to the basin office and its O&M cost for the sustainability. Besides, DoFSC has also watershed conservation and wetland management budget heading. Certain fraction of the budget will be allocated to run the O&M cost for the project activities. DoFSC has also another project, supported by UNDP, and funding support from GEF, Developing Climate Resilient Livelihoods (DCRL) in the Vulnerable Watershed in Nepal. One of the project areas of this project is Dudhkoshi sub-watershed, which coincides with the project area. Therefore, the project will consider the activities carried out by the project, which can be considered as co-financing. Although the DCRL project is already in operation, there will only 3 years project overlapping period. DOFSC will ensure the quality of the work and set up a monitoring mechanism during the project implementation.

It also coordinates with the district level forest offices under the provincial MoITFE. Activities such as bio-engineering, nature based solution, plantation, agro-foresrty activities, ecosystem services will be its jurisdiction. DoFSC will also co-finance in the project.

Department of National Parks and Wildlife Conservation (DNPWC)

DNPWC will closely implement some of the activities from output 1, 2, and 3 with DOFSC abd DHM which sites are under the national parks and protected areas. It also updates the protected area management plan to streamline the project activities to make protected areas more climate-resilience. DNPWC will also implement the project activities directly related to the life and assets of the people in the buffer zone and ensuring safer movement of wildlife in the protected areas. It will also involve providing capacity building, awareness programs at the community level of buffer zones or conservation areas. Any other activities envisaged during the inception phase of the project will also be implemented by DNPWC. The department also co-finances the project. It will also set up separate PIU to implement the project.

UNDP

UNDP has a key role in project implementation. It ensures the compliance monitoring, fiduciary risk management, social and environment safeguards, gender and social inclusion. UNDP will provide the Technical Assistance for the project with CO Support to NIM modality.

Supporting Institutions

Besides the main partner, other institutions have also significant role in project implementation.

- Office of the Chief Minister and Council of Ministers (OCMCM)
    - In Gandaki province OCMCM is the focal agency for Disaster Risk Reduction. Secretary OCMCM will coordinate the Provincial Disaster Management Committee (PDMC). NDRRMA will closely work with OCMCM to implement the project activities. OCMCM will provide necessary support for the project.
- Ministry of Internal Affair and Law (MoIAL)
    - In province 1, MoIAL is the focal ministry for disaster risk reduction and management. In province 1, MoIAL will be the lead institution in forming PDMC. NDRRMA will closely work with MoIAL.
- Ministry of Industry, Tourism, Forest and Environment (MoITFE) and MoFESC
    - **MoITFE** of province 1 and MoFESC of Gandaki province will provide nessary support for the project activities of output 3 where DoFSC is the main implementing agency. MoITFE/MoFESC will also monitor the project activities launched in the province.
- Local Government (Municipality or Rural-municipality)
    - **Municipality or Rural-municipality** has key role to implement project activities at local level. Constitution of Nepal, 2015, has explicitly given some solo power to local government. Some powers are jointly exercised by all three level of government and some power jointly exercised by local and provincial level government. Disaster Risk Reduction is the joint jurisdiction of all the governments. Therefore, DRR and DRM demands coordination and cooperation among the three tiers of Government. In the project, it is proposed to have field offices, three in Koshi basin and one in Gandaki basin. Local government closely monitors the field offices. Local government also co-finance for the project. Field offices are specifically established to implement the project activities at the local level. Each of the municipality or rural municipality will formed Local Disaster Management Committee (LDMC). There will be an inter-LDMC to cover the project's municipality or rural municipality. NDRRMA will closely work with the LDMCs.
    - Inter-LDMC approves annual plan to be implemented by field offices. Sustaining the project activities is also the responsibility of the local government. Local government also assures the fund for the DRR activities after the project completion. Operation and maintenance support will also provide by Local government. Local government also provides co-financing to implement the project activities.
- District Coordination Committee (DCC)
    - There are 77 districts in Nepal. The main role of **District Coordination Committee (DCC)** is to coordinate with the local government, and the local communities. It can also support the project by monitoring and supervising. It can works as a bridge between the local government and provincial government. DCC also supports the DEOC operation.
- Ministry of Finance (MoF)
    - **MOF** is the National Designated Authority (NDA) for the GCF in Nepal. In line with government regulations and procedures, MoF will channel project finance from UNDP (as Accredited Entity) to implementing entities (MoEWRI, DHM, NDRRMA, MOFE/DoFSC/DNPWC) for project execution, and will contribute to reviewing

financial reporting. As part of the PSC, MoF will also contribute to oversight project management in its capacity as the NDA. The Ministry as long-standing experience managing project finance from international development projects.

- Ministry of Agriculture and Livestock Development (MoALD)
  - **MoALDC** will play an important role supporting and guiding interventions in delivering output 3 with DoFSC.
- Ministry of Federal Affairs and General Administration (MoFAGA)
  - MoFAGA will contribute to improving coordination between national ministries and local and provincial governments, especially ensuring alignment with the project and provincial level policies and decision-making.
- Ministry of Home Affairs (MoHA)
  - **MoHA** is responsible for disaster risk reduction planning and will therefore provide a source of advice and support for DRR-related activities. MoHA housed the NDRRMA and provide necessary manpower and budget for NDRRMA.
- Academic Institutions
  - Academic institution will provide directly or indirectly in project implementation. They may participate project implementation or provide technical input in Technical Advisory Group (TAG) or other project guiding committees.
- Private Institutions
  - In this project, Independent Power Producers Association of Nepal (IPPAN) and Nepal Tourism Board (NTB) will directly involve in the project implementation. IPPAN is very much interested to collaborate particularly to smooth operation of Hydrolocal and meteorological station networks as well as EWS. Since much of the hydropowers are located in the high and middle mountain range, the information generated by this project will be crucial for IPPAN. They have shown keen interest to co-finance the project. Similarly, NTB also get much benefit from this project. EWS is crucial for them. NTB also supports the project by providing co-finance,
- IP Networks
  - The project area is basically the high mointain area of Nepal where major inhabitants are Indegenous People. Therefore, in this project IP networks will be fully involved from national level project steering committee to local level project execution. National procurement guidelines also ensure that field activities can be implemented directly by the local community or users group. In the PSC, IP network representative will be one of the members of the committee. MoF has also one technical committee where IP representative is also a member. Therefore, IP interest and concern will be addressed in the project.
- Civil Society Organization (CSO)
  - FECOFUN will be engaed in the project implementation particularly in output 3 .
- Other NGO or CSO
  - During the project inception phase, active and NGO or CSO can participate in project implementation at local level. This will be identified at the inception phase. Table 6.1 provides the summary of stakeholder engagement plan. The plan can be updated as and when required.

Stakeholder Engagement Plan

Outputs	Activities	Responsible Stakeholders				How (Stakeholder engagement)
		Lead	Activities	Supportive	Activities	
1. Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development.	1.1. Strengthen the knowledge base and technical capacities for improved climate research and risk reduction strategies.	DHM	Prepare SOP; Conduct training on Remote Sensing & GIS; Conduct detailed geophysical investigation; Establishment of real-time data acquisition system; Data analysis and Information dissemination.	NDRRMA; DOFSC; UNDP-PSCU; Local Government; Local NGOs; Community Organizations;	Participate in the training; Coordination and Collaboration, Knowledge base generation at local level.	Training Programs; Workshops; Regular community meetings and consultations; Promotions of project information and communication materials; Newsletters; Pamphlet; TV and radio news and program Distributions of Information, Education and Communication (IEC) materials;
	1.2. Develop public-private partnerships for sustainable investment in GLOF and flood risk information services.	DHM	Data acquisition and communication system development; Data analysis and risk knowledge generation and sharing;	DNPWC; Private Institutions; Tourism Board; UNDP-PSCU; Local government; Community Organizations;	Facilitate the activities; Coordination and Collaboration; Information sharing; Implementation of co-financing activities;	Workshops; MOU between the potential beneficiaries for GLOF and Flood risk services; Training (data collection and management) Information platform;
2. Improved hazard monitoring and the generation and dissemination of early warnings to local communities and important economic sectors.	2.1. Improve observation network density in GLOF watersheds to strengthen the technical capacity of DHM for the monitoring of climate hazard and risk.	DHM	Various types of station installations; Training; Research and Development; Field data integration in DHM existing system;	DNPWC; NDRRMA; Local Gov.; Provincial Gov.; UNDP-PSCU;	Facilitate the activities; Coordination and Collaboration; Fund allocation for DRR; Information sharing; Partnership;	Training and capacity building program Site selection for monitoring networks Own the stations for operation and security
	2.2. Improve early warning systems to strengthen	DHM	Real-time data acquisition; Data analysis and Risk Assessment;	NDRRMA; UNDP-PSCU;	System Linkages between DHM and NDRRMA;	Training; Publications;

	adaptive capacity and response to GLOFs and other climate hazards.		Information communication and Dissemination;			Brochures/pamplets; Workshops;
		NDRRMA	Awareness creation to the community people; Capacity Building at various levels;; EWS communication and dissemination; Coordination with Local Gov.; Establishment of EOCs;	DHM; Provincial Gov.; Local Gov.; Community People; Private Institutions; IP networks; UNDP-PSCU;	Coordination and Collaboration; Fund Allocation from Government; Investment from Private Institutions; Community ownership;	Community consultation for local knowledge on hazard mapping and monitoring; Emergency Drills; Radio program; Pamphlet; Safety route identification in the field. Billboards &/or public notices
3. GLOF and flash flood risk and impact reduction measures implemented in priority glacial lake watersheds.	3.1. Lower the levels of four of the highest risk glacial lakes.	DHM	Detailed Engineering Design; Bidding preparation; Selection of Bidders; Monitoring and Supervision; Contract closing; Operation and Maintenance;	DNPWC; Local Gov.; UNDP-PSCU; Local Community; IP Networks;	Facilitate and provide permission of the lake lowering activities if the sites are in National Parks and Conservation Areas; Update Management Plan addressing the Climate Risks; Provide support from Local Gov.;	Sharing the detailed plan of lake lowering, safety measure; Regular consultative meeting and workshops on the sharing work progress of lake lowering; Disclosure of safeguard documents; Field Monitoring and Supervision; Training of operation personnel; Management Plans available to public Press releases/news updates to keep public abreast of progress
	3.2. Install check dams and other infrastructure for the diversion of GLOF and flash flood flow.	DoFSC	Detailed Survey and Cost Estimation; Community Consultation; Use of local materials;	MoFE; DNPWC; Local Gov.; Local Communities; Provincial Gov.; IP; Local NGOs;	Monitoring and quality assurance; Facilitate if the site is at National Parks and and Conservation areas;	Priority categorization with Community Consultation; Wider consultation including local government; Engagement with the construction works Field monitoring

				Koshi Basin Management Centre; UNDP-PSCU;	Selection of best approach of construction modality , Field Monitoring;	O&M training
	3.3. Implement eco-disaster risk reduction and EbA interventions to reduce the impact of GLOFs and flash floods.	DOFSC	Detailed Survey and Cost Estimation; Community Consultation; Use of local materials; Construction works; Monitoring;	MoFE; DNPWC; Local Gov.; Local Communities; Provincial Gov.; IP; Local NGOs; Koshi Basin Management Centre; UNDP-PSCU;	Monitoring and quality assurance; Facilitate if the site is at National Parks and and Conservation areas; Supervision of the construction works, Field Monitoring;	Stakeholder consultation and meetings for activities selection; Engagement with suppliers of materials and labour force Engagement with the construction workers, Field Monitoring O&M training

Annex K: Gender Analysis and Action Plan

Acronyms

ADS	Agriculture Development Strategy
AEPC	Alternative Energy Promotion Centre
ARC	Agriculture Research Center, Pakhribas
CAPA	Community Adaptation Plan of Action
CBOs	Community Based Organizations
CEAPRED	Center for Environmental and Agricultural Policy Research, Extension and Development
CFUG	Community Forest User Group
CRT	Center for Rural Technology
CSO	Civil Society Organization
DADO	District Agriculture Development Office
DEOC	District Emergency Operating Centre
DHM	Department of Hydrology and Meteorology
DNF	Dalit NGO Federation
DNPWC	Department of National Parks and Wildlife Conservation
DoFSC	Department of Forests and Soil Conservation
DoI	Department of Irrigation
DRR	Disaster Risk Reduction
DSCWM	Department of Soil Conservation and Watershed Management
DWSSO	District Water Supply and Sanitation Office
EWS	Early Warning System
FECOFUN	Federation of Community Forestry User Groups
FGD	Focused Group Discussion
GCF	Green Climate Fund
GEF	Global Environment Facility
GEDSI	Gender Equality, Disability and Social Inclusion
GESI	Gender Equality and Social Inclusion
GLOF	Glacial Lake Outbursts Floods
GoN	Government of Nepal
HDI	Human Development Index
HIMAWANTI	The Himalayan Grassroots Women's Natural Resource Management Association
I/NGO	International/Non-governmental Organization
ICIMOD	International Center for Integrated Mountain Development
iDE	International Development Enterprise
IP	Indigenous People
IUCN	International Union for Conservation of Nature
KCAP	Kanchanjunga Conservation Area Project
KII	Key Informant Interview
LAPA	Local Adaptation Plans for Action
LDRMP	Local Disaster Risk Management Plan
LIBIRD	Local Initiative for Biodiversity, Research, and Development
LRP	Local Resource Person
MEDPA	Micro-enterprise Development for Poverty Alleviation
MoEWRI	Ministry of Energy, Water Resources and Irrigation
MoFE	Ministry of Forest and Environment
NARC	Nepal Agriculture Research Council
NEFIN	Nepal Federation of Indigenous Nationalities
NIWF	National Indigenous Women's Federation
PDGL	Potentially Dangerous Glacial Lakes
PDNA	Post Disaster Needs Assessment
PEEDA	People Energy and Environment Development Association
PWD	Persons with Disability
RRN	Rural Reconstruction Nepal
SDG	Sustainable Development Goal
SFDRR	Sendai Framework for Disaster Risk Reduction
SGP	Small Grants Programme
UNDP	United National Development Programme
UNFCC	United Nations Framework Convention on Climate Change
VDC	Village Development Committee

WWF	World Wide Fund For Nature
YAF	Youth Alliance Forum

Executive Summary

On the request of the Government of Nepal (GoN) a five-year project proposal on 'Protecting Livelihoods and Assets at Risk from Climate Change Induced Flooding in Glacial River Basins of Nepal' is being formulated by UNDP Nepal in collaboration with Ministry of Finance with support from several other related ministries such as DHM/MoEWRI, MoFE/DoFSC, and DNPWC for submission to the Green Climate Fund (GCF).

In this regard, a GCF proposal on glacial lake outburst flood (GLOF) and flood risk management on protecting livelihoods and assets at risk from climate change induced flooding in glacial river basins of Nepal is being prepared by bringing on board a technical team, organising consultations with concerned ministries, CSO, NGOs, Private Sectors, local government, indigenous peoples (IPs), local communities and networks, women groups, youth groups, people with disabilities and highly marginalized groups directly affected by glacier/snow related events, flooding and climate induced disasters in the glaciated basins. An inventory[167] of Glacial Lakes in the Koshi, Gandaki and Karnali River basins of Nepal and Tibet Autonomous Region (TAR), China has been prepared with technical support from ICIMOD outlining 47 potentially dangerous glacial lakes (PDGL). As part of the proposal preparation, two consultation reports have been prepared: "Indigenous Peoples consultation to understand potential glacial lake outburst floods risks for safeguarding lives and livelihoods (February 2018)" and "NGOs, CSOs, Private Sectors and Government consultation to understand potential glacial lake outburst floods risks for safeguarding lives and livelihoods (March 2018)."

The detailed scope of the project being formulated will vary in each watershed, district, municipality, or ward in the three basins (Koshi, Gandaki, and Karnali). Tentative interventions envisioned are: Lake Lowering (selected lakes); Monitoring Stations for Hydro-met/climate data/information; Early Warning System; and Community Based Climate Risk-Management Initiatives including flood mitigation/risk reduction activities. As per the requirement of the GCF, a Gender Equality, Disability and Social Inclusion (GEDSI) Assessment and Action Plan were to be prepared to have a well-articulated gender and inclusion components that build the gender-responsive adaptation measures, incorporate gender related concerns in the context of changing climate into a gender action plan, outlines a detailed gender-responsive results-based management and plan to communicate the gender goals and results adequately. In this regard the GESI assessments were carried out of: overall differential impact of climate change and disaster risks and existing coping mechanisms and adaptive capacity on men and women in general, children, elderly, persons with disabilities, the vulnerable and marginalized groups; impact of the climate resilient development interventions and community-based adaptation measures on the lives and livelihood of men and women, with particular emphasis on most vulnerable and marginalized groups; role of women and marginalized groups in contributing towards gender and inclusion responsive planning and building resilience at the community level; policy gaps that need to be addressed to strengthen and foster mainstreaming gender and inclusion into climate and disaster risk management interventions; and the traditional/indigenous knowledge, if any, that makes them resilient to the climate change.

The analytical framework for the assessment took into consideration the critical GESI related barriers and opportunities in climate change induced disaster risks such as GLOF identified from literature reviews of various studies in Nepal and elsewhere such as in Pakistan168 and Bhutan.169 A two-pronged approach was adopted to collect and analyze the data at the: i) Institutional level (supply side), and ii) Community level (demand side) and from two dimensions: a) Historical discrimination/exclusion and b) Situational vulnerability dimensions.

This framework guided the data collection, analysis, report writing, and development of the GEDSI Action Plan. The Kosi River Basin was selected for the field level primary data collection. In total 30 key informant interviews (KIIs) and 9 focus group discussions (FGDs) participated by 148 people were conducted. In addition, two multi-stakeholder national level workshops: a) sharing the findings of the literature review and the field works was organised soliciting comments on the GESI assessment report and generate inputs for the action plan; and b) validation workshop to finalize the GESI assessment report **and the action plan.**

[167] Terms of Reference

[168] UNDP, June 2017.Gender assessment FP018: Scaling-up of Glacial Lake Outburst Flood (GLOF) risk reduction in Northern Pakistan. Pakistan | UNDP | B.14/07

[169] Choden, Tshering, 28 September 2017. Gender Assessment, FP050: Bhutan for life, Bhutan, WWF, B.18/04. Green Climate Fund.

Key findings

The findings from desk reviews reveal that though there has been a trend observed in managing GEDSI data post the 2015 Earthquake in Nepal, there is a lack of GEDSI disaggregated data not only in terms of GLOF but in general climate change induced disasters.

Floods and landslides that occur every year cause highest loss of human lives and properties in Nepal after fire. According to official data available in 2017-2018 disaster and loss of human lives related to GLOF indicate that after fire, floods and landslides cause the highest loss of lives in Nepal.[170] Assessments and studies carried out in terms of earthquakes and floods in Nepal indicate that women were among the most vulnerable of those affected by Nepal's earthquake, lack of gender sensitivity in post-disaster relief, improved understanding of the existing flood early warning systems in Nepal, and needs to make early warning systems more effective and responsive to the needs of vulnerable groups, and poor and highly marginalized women in particular. In the case of differential impacts of floods or landslides socially, though there is a lack of disaggregated data, after women and children, studies have indicated and as National Federation of Disabled - Nepal (NFDN) also claims that people with disabilities are the most vulnerable in disasters including CC induced disasters like GLOF.

Findings from field studies

Community level findings

Who are the most vulnerable to Climate Change Induced Disasters? Findings from the field studies in the Kosin basin areas which can be genenralised as applicable to other basins of the project indicated that poor Tarai and Hill Dalits who are both historically excluded and situationally vulnerable are considered to be the most excluded and vulnerable people followed by the poor and highly marginalized indigenous people (*Adivasi Janajatis*), particularly living along the river beds such as *Majhi, Kumal, Botes*, etc. The poor from the indigenous peoples such as the Rais, Bhotes living in drought and disaster prone and remote areas were also found to be extremely vulnerable and excluded from the disaster and development resources and services. Within these different marginalized groups, their women, single women, elderly, persons with disabilities (PWD), pregnant and lactating mothers and children were considered to be even more vulnerable from climate and natural disasters. The other climate and natural disaster related vulnerable groups are the poor women, elderly people, people living with disabilities across all caste and ethnic groups particularly living in geographically remote, disaster and drought prone areas.

Women's "Time Poverty" has been since long identified, as an issue but is still not recognized as a critical area for intervention in the context of development and climate change. The changing climate and increases in the magnitude and frequency of natural disasters have caused problems in water availability, agriculture, forest resources and increased male outmigration. This has substantially increased poor and marginalized women's already high household workload and drudgery, food insecurity and loss of income. The progress made by women in terms of their material conditions (well-being) and social positions or status (leadership and decision-making) in society also seemed to be declining, as women do not have the time to invest in their personal growth and development. Due to the shortage of labour force, situation of single women is even more critical.

Poor and historically excluded women and men particularly living in geographically remote and disaster prone areas, mainly between 25 to 50 meters from the glacial lakes have limited access, and benefits the least from development and climate change related resources and opportunities. The poor outreach mechanisms, exclusive and centralized planning systems, the near absence of functional platforms or forums to organise and empower poor women and marginalized groups, together with the domination by local politics and power have made accessing and benefiting from these resources challenging. For example even if the local groups are strong, ultimately the politics and power decides and authorises on who should be selected or represented or whose skills are recognized etc.

The participation of women and men in local development planning, disaster risk management and climate change related activities and decision-making are highly exclusive and gendered. Their gender, political affiliation, geographic location, caste ethnicity, age, economic status, literacy and ability plays a major role on, who participates, where or which level they participate and how they participate.

Though the local planning process is required to include participation of and consultation with the various stakeholders including the women, Dalit and indigenous peoples , knowledge, experiences and roles of poor and marginalized women,

[170] Ministry of Home Affairs, Government of Nepal, June 2019. Nepal Disaster Report 2019.

particularly indigenous and Dalit women are not recognized and taken into account by the local political representatives and planning and decision-making authorities. Their roles and contributions thus remain largely invisible.

Disaster response mechanisms often fail to address the specific needs of women, children, marginalized caste groups, indigenous peoples, persons with disabilities, and sexual minorities, leaving them more vulnerable to violence and further marginalization. The capacity of disaster-related government and frontline workers to effectively incorporate gender equality, disability and social inclusion (GEDSI) concerns into their recovery, response and rehabilitation efforts is either absent or severely limited. Displacement, disruption of family structures, and the breakdown of community protections create conditions where these vulnerable groups are at an increased risk of sexual violence, exploitation, trafficking, and harassment. Inadequate shelter, sanitation, and security in disaster settings further expose these groups to abuse, while social stigma and discrimination hinder survivors, particularly poor women and highly marginalized groups , from accessing critical support services.

Institutional level findings

The planning and decision-making processes seem to be largely controlled by the local politics and power, side lining the participatory and inclusive processes and structures established and promoted by the government and development agencies.

The impact of changing climate together with the transition from the past governance system to the new federal system has brought both opportunities and challenges in women's leadership and empowerment processes. A large number of women have come into leadership positions. However, women's leadership and ability to voice and influence decisions has been affected due to reasons such as decrease in dedicated human resources and sectors/units, one-door policy for development interventions, and near absence of active and organized platforms in the provinces and wards to mobilize and support women.

There seem to be awareness among the national and local level institutions about the need to address GESI. However, knowledge and skills on social methods and approaches, dedicated resources and investments on how to integrate GESI in the design and planning cycle is limited.

The stakeholders and beneficiaries, particularly in disaster risk related planning, committees and activities are largely considered as a monolithic group, with the notion that disasters and hazards do not discriminate people. The historical exclusion and situational vulnerabilities of the poor women and marginalized groups are not specifically considered, which has made it difficult for them to compete for resources with the advantaged groups.

Recommendations

Establish a working definition of the primary stakeholders (women, marginalized and highly groups, and vulnerable groups) for the project area, by contextualizing and categorising according to their different and overlapping exclusions, vulnerabilities, roles/contributions and intersectionality.[171] For example: Historically Excluded + Situationally Vulnerable + Climate Vulnerable = Most/Highly Vulnerable Group.

Identify and promote tested women-friendly and climate smart technologies and practices both at household and farm levels, by developing partnership with specialized government and non-governmental institutions/local resource persons, cooperatives, preferably women-led cooperatives to reduce poor and marginalized women's time poverty.

Strengthen existing or form new women and marginalized people's groups (e.g. women, IPs and highly marginalized IPs, Dalits, PWDs), and networks at local/community levels, and organize them to participate, practice leadership, market forest/agricultural/eco-tourism products, influence planning and decision-making processes, mobilize both project and local development resources. Ensure systematic and formal linkages of these groups with the local wards and municipalities and DRR/CC related committees' planning structures.

Increase poor and marginalized women and men's[172] income and employability by tapping and linking with those institutions with experience, and with Value Chains (VCs), local cooperatives, particularly women run cooperatives and

[171] Means the interconnected nature of social categorizations such as race, class, and gender as they apply to a given individual or group, regarded as creating overlapping and interdependent systems of discrimination or disadvantage. Through an awareness of intersectionality and differences or discriminations can be acknowledged and addressed.

[172] Poor and Marginalized people/ groups should particularly include: historically marginalized groups e.g. Kumals, Majhi, Bote, hill Dalits etc.); situationally vulnerable such as PWD, elderly, pregnant women, economically poor families etc.

Micro-enterprises (MEs) that are already tested, established and successful in the Koshi Basin areas (e.g. link with MEDPA[173] and Agriculture Research Centre (ARC)-Pakhribas and their groups and networks.

Ensure timely, transparent/complete, and easy to understand communication and information to the poor women and highly marginalized groups on the project's and local government's financial and technical resources related to development, disasters and climate change.

Support the Monitoring Information System (MIS) of the project to capture gender and inclusion outcomes and pilot the same in selected ward(s) to upscale it. GEDSI related challenges and learning should feed back into the project's annual planning and budgeting process, and disseminated through publications and other knowledge-sharing events at international, national, provincial and community levels.

Develop a simple working GEDSI in Climate Change strategy or a guideline for the project to ensure systematic integration of GESI in the project cycle and pilot the same in selected ward(s) to upscale it. The working strategy could be based on the findings and recommendations of the three different studies conducted by UNDP for the preparation of the proposal, such as the GESI assessment (2019), Indigenous People's consultation report, baseline study (2020) and the GoN's Gender Equality and Social Inclusion (GESI) Strategy for different sectors (Forestry, Agriculture, Ministry of Local Development).

Develop a comprehensive capacity building package with adequate financial and human resources/expertise, for the project's staffs and its key and direct partners, both government and CSOs at all three levels (federal, provincial, municipality/ward levels) to enhance GESI integration in the regular planning, implementation and monitoring.

1. Background

A five-year project proposal on 'Protecting Livelihoods and Assets at Risk from Climate Change Induced Flooding in Glacial River Basins of Nepal' is being formulated by UNDP Nepal in collaboration with Ministry of Finance - the National Designated Authority (NDA) for Green Climate Fund (GCF), Department of Hydrology and Meteorology (DHM)/Ministry of Water Resources, Energy and Irrigation. UNDP as an Accredited Entity (AE) and the NDA was officially requested by the Government of Nepal to assist in preparing the project proposal. Department of Forests and Soil Conservation (DoFSC)/Ministry of Forests and Environment (MoFE), Department of National Park and Wildlife Conservation (DNPWC) and other relevant ministries and departments are to also provide support in preparing and implementing the project.

In this regard, a project proposal has been submitted to GCF on glacial lake outburst flood (GLOF) and flood risk management on protecting livelihoods and assets at risk from climate change induced flooding in glacial river basins of Nepal. A technical team is working under the guidance of UNDP and GCF Project Formulation Guiding Committee, led by Department of Hydrology and Meteorology. Consultations have been carried out with sectoral ministries, CSO, NGOs, Private Sectors, local government, indigenous peoples (IPs), local communities, women groups, youth groups, persons with disabilities and other groups directly affected by glacier/snow related events, flooding and climate induced disasters in the glaciated basins. The detail dam breach modelling of 47 glacial lakes (from Nepal, China and India) have been also carried out. In addition, two consultations have been conducted on "Indigenous Peoples consultation to understand potential glacial lake outburst floods risks for safeguarding lives and livelihoods (February 2018)" and "NGOs, CSOs, Private Sectors and Government consultation to understand potential glacial lake outburst floods risks for safeguarding lives and livelihoods (March 2018)."

Similarly, Inventory of Glacial Lakes in the Koshi, Gandaki and Karnali River basins of Nepal and Tibet Autonomous Region (TAR), China has been prepared by UNDP with technical support from ICIMOD. The report outlines, out of 47 potentially dangerous glacial lakes (PDGL), 42 lakes are in the Koshi basin, 3 are in the Gandaki basin and 2 are in the Karnali basin. Twenty-five PDGLs are in the territory of the TAR, China and 21 lakes in Nepal; and 1 PDGL is in Indian Territory. In addition, UNDP has undertaken dam breach modelling of the selected PDGLs in Nepal and developed flood inundation hazards maps showing the likely impacted areas. The project formulation has also developed a risk model, which calculates the socio-economic impact of the glacial flooding for all selected PDGLs.

The detailed scope of the project will vary in each watershed/district/municipality/ward in three basins of Koshi, Gandaki and Karnali. Tentative interventions envisioned are: GLOF Risk Reduction such as Lake Lowering (selected lakes);

[173] MEDPA (Micro-enterprise Development Programme for Poverty Alleviation) : MEDPA is the government programme under the ministry of Industry, Commerce and Supplies with the objective of poverty alleviation in Nepal through the micro enterprise development and employment generation. MEDPA mobilizes Micro Enterprise Development Service Providers (MEDSPs) through the outsourcing from private sectors. The enterprise development facilitators (EDF) are the pillar of this programme who provide MED services in the beneficiary's level.

Monitoring Stations for Hydro-met/climate data/information; Early Warning System; and Community Based Climate Risk-Management Initiatives including flood mitigation/risk reduction and climate resilient livelihood promotion activities.

The GCF recognizes the importance of gender considerations in terms of project impacts and access to climate funding, taking a gender-sensitive approach and encouraging involvement of relevant stakeholders, including vulnerable groups and addressing gender aspects. In this regard, further to the project formulation process UNDP sought inputs of a GESI Expert to ensure that the project has well-articulated gender and inclusion components which build the gender-responsive adaptation measures, outlines a detailed gender-responsive results-based management and plan to communicate the gender goals and results adequately.

In order to input to the preparation of the gender and inclusion components, assessments were carried out of:

- Overall differential impact of climate change and disaster risks and existing coping mechanisms and adaptive capacity on men and women in general, children, elderly, persons with disabilities, the vulnerable and marginalized groups;
- Impact of the climate resilient development interventions and community-based adaptation measures on the lives and livelihood of men and women and with particular emphasis of most vulnerable and marginalized groups;
- Role of women and marginalized groups in contributing towards gender and inclusion responsive planning and building resilience at the community level; d) policy gaps that need to be addressed to strengthen and foster mainstreaming gender and inclusion into climate and disaster risk management interventions; and
- Of the traditional/indigenous knowledge if any that makes them resilient to the climate change.

2. Approaches and methodology

2.1 Analytical framework

The analytical framework for the assessment took into consideration some of the critical GESI related barriers and opportunities in GLOF and Climate Change identified from literature reviews of various studies in Nepal[174] and elsewhere, such as in India[175] and Bhutan[176]. Within this context, the following parameters of the analytical frameworks guided the data collection, analysis, report writing, and development of the GESI Action Plan.

A two-pronged approach was adopted to collect and analyze the data.

A. Institutional level (supply side): At the institutional level, the focus was on understanding the capacities (GEDSI-GLOF/CC induced disaster related knowledge, skills), commitments and accountability (budget/plans, policies/strategies, human resources, attitudes etc.) of various CC induced disaster and GLOF risk reduction and management -related institutions viz. government and non-government institutions at federal, district and local levels and local private service providers and local committees.

B. Community level (demand side): At the community level, the focus was on assessing the engagement/participation, access to, and control over resources and decision-making of women and men of diverse socio-economic groups. Their engagement (or non-engagement) and access were assessed in five livelihoods dimensions viz. social capital, financial capital, human capital, physical capital, and natural capital. The analysis also included an assessment of the material conditions[177] and social positions[178] of different groups of women and men to generate their GESI/CC induced disaster such as GLOF related needs, priorities and as well as their capacities to deal with the impacts of climate change, hazards and disasters. The community level assessment included categorization and disaggregation of the community based on their gender, including considerations of intersecting categories of identity such as their social status, caste, ethnicity, marital status, age, disability, geographical locations etc.). These categorisation and disaggregation of the community were analysed from two dimensions, viz, a) historical discrimination/exclusion; and b) situational vulnerability. Women and men who are impacted from both these dimensions were considered the most vulnerable. See Table 1 below.

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[174] Gurung DD, Bisht S (2014). *Women's empowerment at the frontline of adaptation: Emerging issues, adaptive practices, and priorities in Nepal.* ICIMOD Working paper 2014/3. Kathmandu: ICIMOD.

[175] UNDP India, January 2019. *Gender Action Plan, Funding Proposal, FP084: Enhancing climate resilience of India's coastal communities, B.21/15.*

[176] Choden, Tshering, September 2017. *Gender Assessment, FP050: Bhutan for life, Bhutan, WWF, B.18/*04. Green Climate Fund.

[177] **Material Conditions** are the conditions and needs related to the roles women and men play in society. Examples of activities that address the material conditions include reducing household workload of women; increasing income from forest products; improving technical knowledge and skills in forest management; etc. Material conditions do not address the subordinate position of women in the society.

[178] **Social Positions** are the needs that question the traditional roles that women and men play in society. It is a response to the inequalities in decision-making position and long-term benefits (Moser, C: 1989). Activities that address and enhance the social positions include improving access to productive/valuable forest resources; taking up leadership roles by women and vulnerable groups, acquiring equal opportunities in forest employment, gaining rights to participate in decisions about forest management etc.

Table 27: Analytical Framework - Two Pronged Approach

A. Institutional Level	B. Community Level
Capacity e.g. GEDSI integration in climate change induced disaster such as GLOF risk reduction and management related knowledge and skills. Institutional Commitments for GEDSI e.g. GEDSI related provisions in - policies, strategies, guidelines, human resources/expertise, budget. Accountability for GEDSI e.g. GEDSI in planning and M&E with specific change related indicators etc.	[179]Historically excluded + Situational vulnerability + Climate Vulnerable = Most/Highly Vulnerable group Engagement/Participation or non-participation/engagement: Which level (federal, district and local levels/household levels particularly roles and responsibilities in decision-making, leadership, planning, household work/decisions etc.). Which areas/types (e.g. valuable, non-valuable/or voluntary livelihoods activities; technical). Needs and priorities. Access to and control over resources/ decision-making: Who have or do not have access and control (particularly focusing on vulnerable and marginalized women and men across different socio-economic groups): Networks, groups, representations etc. (Social Capital). Access to finance/financial institutions, groups, grants/seed money etc. (Financial Capital). Trainings (technical and social), information etc. (Human Capital). Communication, equipment, infrastructure etc. (Physical Capital). Agriculture, community based forestry mgt. resources etc. (Natural Capital). Needs and priorities. CC and DRR-related Local knowledge and Capacities: Indigenous/traditional knowledge of women and men to be resilient to CC induced hazards/ disaster.

2.2 Data collection and analysis methods

Consultative and participatory approaches were used to engage a wide and inclusive [180] range of cross-sectoral constituencies and stakeholders at federal, district and local levels. The assessments combined several participatory methods, such as activity profile, access and control profile, and elements of the 9-box framework for institutional analysis etc. to capture the community and institutional level GESI/ GEDSI-related gaps and opportunities.

9 Box - Organizational framework

TECHNICAL DIMENSION	*Policies and Actions* The guiding policy/ Acts and its operationalization in action plans, strategies/approaches, and M&E systems for gender and climate change induced disaster risk reduction and management.	*Tasks and Responsibilities* The way people are positioned and the way tasks and responsibilities are allocated and related to each other through procedures, information and coordinating systems for gender and climate change induced disaster risk reduction and management	*Expertise* The number of staff and the requirements and conditions to allow them to work, such as job description, appraisal, facilities, training etc. gender and climate change induced disaster risk reduction and management
POLITICAL DIMENSION	*Policy Influence* The way and extent management, people from within the organization and people from outside the organization influence policy and the running of the	*Decision Making* The patterns of formal and informal decision making processes. The way diversity and conflicts are dealt with.	*Room for Innovation* The space and incentives provided to staff to give shape to their work, such as rewards, career possibilities, variety in working styles

[179] Historical excluded – based on gender, caste, ethnicity, LGBT language or location that is transmitted from generations; Situational Vulnerability – these groups can be vulnerable but not necessarily excluded – based on age (elderly), PWD, HIV, Children, earthquake affected etc.

[180] Inclusive: Attention was given in selecting interviewees from: a) different socio-economic groups of women and men at the community level (project area) and different geographical locations; b) at the institutional level, women and men from concerned govt., non-governmental sectors and agencies at federal, district and local levels and local private service providers and local committees will be interviewed.

	organization		
CULTURAL DIMENSION	*Norms/Values* The symbols, rituals and traditions. The norms and values underlying the running of the organization and the behaviour of the staff. The social and economic standards set	*Cooperation* The way the work relations between staff and with outsiders are organized, such as working in teams, networking. The norms and values underlying these arrangements	*Attitudes* The way staff feels and thinks about their work, the working environment and about other (categories of) employees. The extent to which staff stereotype other staff. The extent to which staff identifies him/herself with the culture of the organization

The field site for data collection was in the Koshi river basin area. The main reasons for selecting and proposing the Koshi river basin was because as per the ICIMOD study out of 47 PDGLs, 42 lakes were in the Koshi glacial lakes; the project's all the three key interventions (Livelihoods, Early Warning System and Monitoring Stations) were concentrated in the Koshi basin; and other GCF accredited entities such as the IUCN were not located in Koshi basin but in the Gandaki river basin and UNDP project can avoid duplication. The specific sites for data collection within the Koshi basin were selected in consultation with UNDP and its government partners. The two main criteria for selecting the sites within the Koshi river basin were: 1) Up to 100 kilometres downstream from the critical glacial lakes and other critical areas down-steam; and 2) Highly vulnerable (critical) areas with high population density where it is possible to capture information from diverse groups of people that are critically affected.

2.3 Desk reviews

Desk reviews of various documents were carried out, which broadly included the following.

- Concept Note (submitted to GCF);
- GESI strategies of various related ministries;
- Government of Nepal's Climate Change Policy 2019;
- Approved GCF-Gender Assessment and Action Plans of other countries such as India, Bhutan, Pakistan, Bangladesh, Tajikstan, Cambodia, Kenya, Gautemala and Zimbabwe.
- Updated Gender Policy and Action Plan (2020 - 2023);
- Gender Policy for Green Climate Fund (Annex XIII);
- GCF/UN-Women's practical manual to support the integration of gender equality in climate change interventions and climate finance;
- Nepal Disaster Report 2019
- Other GESI-related assessment and mainstreaming reports, studies to identify good practices and lessons learned as well as to identify organizations, partners and stakeholders (government, CSOs, NGOs, and private sector organizations) that have supported socially inclusive and gender-responsive national policy processes, consultations and engagement efforts.

For details see the References section.

2.4 Field Data Collection

Following steps were followed to conduct the field data collection.

- Preparatory/consultative meetings were held with UNDP CO-Nepal, their government partners, UNDP Asia Regional Office and with the proposal development team members (through Skype and face-to face meetings). This resulted in agreement on the analytical framework, methods, key activities and timelines for the fieldwork, and to identify fieldwork sites and stakeholders for federal, district and local level institutions and community level interviews.
- Data collection was done through key informant interviews (KIIs), Focus Group Discussions (FGDs), and observations with key GLOF/CC/DRR-related personnel/members, partners and community people (government, NGOs, federations/networks/groups, diverse community people) at federal, district and local community levels. See Annex 1 for the checklist used.

A total of 30 KIIs/ IDIs were conducted. Gender equality and social inclusion disaggregated data of the KIIs/ IDIs were: 19 (63%) male; 11 (37%) female; 11 (37%) Brhaman/ Chettri; 3 (50%) Dalits, 15 (50%) Janajati; and 1 (3%) Others. And in the FGDs and sharing workshops the participants were 208. Of the total male wa 97 (46%) and female 111 (54%). Social inclusion wise Brahman/Chettri were 44 (21%); Dalit 31 (15%); Janajati 100 (48%); and Others 6 (3%). See Annex 2A for the number of KIIs/DDIs and Annex 2B1 for aggregated and disaggregated data on FGDs and Annex 2B2 for the complete

list of people consulted. Women organisations and organisations representing women included in the data collection at the national, district and local levels were:

- HIMAWANTI national and district level
- Simale FUG local municipality level
- Khandbar District Forest Office local level
- Makalu Rural Municiplaity local ward level
- Arund Rural Municipality local ward level
- Pakhribash Agriculture Research Center - district level
- ICIMOD, RUPANTARAN, Practical Action, IUCN, FECOFUN, Forest Action national level
- DNPWC, DHM, DoFSC, MoFE, MoFAGA national level (these are government organization and as per the constitution GESI is a key component).

See Annex 2A, Annex 2B1 and 2B2 for details.

- Federal level: Interviews and workshops with GLOF/CC/DRR-related key members/personnel from GoN, viz. GCF Project Formulation Technical-Advisory Committee"members from DHM, MoFE, DNPWC, DoFSC, UNDP and UNDP Projects with their respective gender focal points; IPs, Women and Dalit-related networks and federations; concerned I/NGOs. See Annex 2A and 2B2.
- District level: Interviews/workshops with GLOF/CC/DRR-related key members/personnel from government and non-government agencies from the districts, including local government officials from concerned line agencies/sectors local representatives (women and men), federations and networks of women, Dalits, youth, IP/Adivasi-Janajati; Sectoral networks (e.g. Forestry, Agriculture; Water; energy etc.). See Annex 2B1 and 2B2.
- Community level: Field level consultations were carried out with women and men from diverse groups (caste/ethnicity, marital status, disability, geographical location etc.). Efforts were made to interview women and men who are either non-members of the local groups or do not participate in any of the committee meetings and initiatives. See Annex 2B1 and 2B2.

Methods of data collection were as follows. See Annex 2A, 2B1 and 2B2.

- National/Federal level: National level interviews and two participatory workshops were conducted after the fieldwork, after sharing highlights from the field analysis, to generate additional information and recommendations for the GESI Action Plan.
- KIIs and DDIs were conducted with selected individuals that represented various interest groups (based on gender, caste-ethnicity, marital status, disability, geographic locations, different positions/levels in the committees/groups etc.). The purpose of these interviews was to conduct "deep-dives" that would focus on generating clearer understanding of the specific gaps and opportunities of the different groups of women and men which otherwise may not be revealed in a group setting.
- FGDs were conducted with different stakeholder interest groups based on gender, caste/ethnicity, marital status, disability, geographic location (within the village). Women's groups, community forestry group, youth groups, mixed groups (men and women of all age groups, castes/ethnicity) were also consulted. Different participatory tools, such as the Situation Analysis, which includes an Activity Profile, Access and Control Profile, and Influencing Factors were used to facilitate the discussions.
- Participatory observations were conducted by the consultant by either staying in the respective villages or by spending substantial amount of time in the villages during the fieldwork.

2.5 Data analysis, drafting and report finalization

The consultant developed the final GESI assessment report based on the analysis of the information and knowledge stemming from the desk reviews, field data collections, workshops and other consultations. The finalization of the report was based on the following deliverables.

- First Draft Report: A detailed draft report was drafted for reviews by the consultant.
- Participatory GESI-Action Plan development workshop: One-day workshop was conducted with the concerned UNDP staffs, government, and non-governmental partners (30 participants. See Annex 2B2 Page 37. The main purpose of the workshop was to develop a draft GESI Action Plan based on the key problems and opportunities generated from the field assessments and other consultations.
- Second Draft Report: A second draft report incorporated and addressed comments received from the UNDP Nepal, UNDP Regional Office, and government partners.
- Validation Workshop: A validation workshop will be organized with UNDP and key government partners and other organizations and stakeholders working on GESI/Climate Change Induced Disasters. The purpose of the workshop will be to share the draft GESI assessment report and the action plan and obtain comments and inputs to finalize these reports.
- Finalization of the Report and GESI Action Plan: After the validation workshop the second draft report was revised based on the feedback received.

3. Findings from desk reviews

3.1. Status of women in Nepal

With the Human Development Index (HDI) ranking of 147, Nepal falls in middle human development group, with the Gender Development Index value of 0.897. The HDI of women is 0.549. Life expectancy of women at birth is 71.9 years. Estimated gross national income per capita of women is US$ 2113.[181]

According to the Central Bureau of Statistics, Government of Nepal[182], of the total national population of 26,494,504 women's population was 51.5% in the national census 2011.

Socio-economic wise, the female literacy rate in 2011 was 57.4 % and it increased to 62% in 2014. Of the economically active population 45.5% were women in 2011. In total in formal and informal sectors 78.5% of women were employed. In agriculture and non-agriculture sectors respectively 84.3% and 15.7% women were employed. Health wise, according to the demographic health survey 2016[183], percentage of women who were pregnant when they were 18 years old was 5.8%. Contraceptive prevalence rate and unmet need for family planning were respectively 52.6% and 23.7% respectively. Access to antenatal care (more than four visits) increased from 59.5% in 2014 to 69.4% in 2016. There has been only slight increase in institutional delivery from 55.2% in 2014 to 57.4 in 2016. Gender violence cases reported in 15-sample service centres indicated increase from 1308 in 2012 to 6,230 in 2015. Similarly, of the 280 cases of reported human trafficking 87.1% were women.[184]

As far as socio-political empowerment of Nepal women is concerned women headed 27.4% households in 2011. However, households by women ownership on fixed assets such as house and land was only 10.8%.[185] In other words, percentage of women without ownership of house and land was 80.1%. In 2015 percentage of women in National Planning commission was 12.5%; in Public Service Commission was 14,3%; in National Election Commission was 33.3%; and in the Commission for Investigation of Abuse of Authority it was 14.3%. Overall women participation in civil service was 11.8% and in gazetted positions only 9%.[186]

According to UN Women as of February 2019, in Nepal 32.7% of parliament seats are held by women. However, work still needs to be done in Nepal to achieve gender equality. The proportion of women aged 20-24 years old who were married or in union before age 18 is 39.5%. The adolescent birth rate is 88.2 per 1000 population as of 2015, up from 71 per 1000 population in 2013. In 2016, 11% of women aged 15-49 years reported that they had been subject to physical and/or sexual violence by a current or former intimate partner in the previous 12 months. Moreover, women of reproductive age (aged 15-49 years) often face barriers with respect to their sexual and reproductive health and rights: despite progress, the proportion of women who have their need for family planning satisfied with modern methods in 2014 year stood at 56%. In Nepal, only 31.5% of indicators needed to monitor the SDGs from a gender perspective are available, with gaps in key areas such as Unpaid Care and Domestic Work, Key Labor Market indicators such as Gender Pay Gap and Skills in Information and Communication Technology (ICT). In addition, many areas such as gender and poverty, women's access to assets including land, physical and sexual harassment, and gender and the environment currently lack comparable methodologies for comprehensive and periodic monitoring. Addressing these gender data gaps is a prerequisite for understanding the situation of women and girls in Nepal and for achieving the gender-related SDGs commitments.[187]

3.2 Gender and inclusion disaggregated data on climate change induced disaster

There is a dearth of quantitative data on vulnerabilities to climate change and its impacts on climate change induced disasters. However, qualitative studies like the National Climate Change Impact Survey 2016[188] has reported that households are observing different climate induced disasters including flooding, landslides, drought, hailstorm, and disease/insects in last 25 years. About 99% of the survey respondents observed the ascending incidences of drought in the last 25 years, followed by disease/insects (97.69%), landslide (78.12%), and inundation (51.47%). The survey further

[181] UNDP Human Development Reports, 2019, Gender Development Index Data (http://hdr.undp.org/en/content/gender-development-index-gdi)
[182] Women in Nepal, Statistical Highlights 2018, Central Bureau of Statistics, Government of Nepal, 2018 (https://cbs.gov.np/gender-statistics-booklet-2018/)
[183] Nepal Demographic and Health Survey 2016, Ministry of Health and Population, GoN (https://www.dropbox.com/s/27q3i7c5221o47j/2016%20Nepal%20DHS%20Key%20Findings_Nepali.pdf?dl=0)
[184] Women in Nepal, Statistical Highlights 2018, Central Bureau of Statistics, Government of Nepal, 2018 (https://cbs.gov.np/gender-statistics-booklet-2018/)
[185] Ibid
[186] Ibid
[187] https://data.unwomen.org/country/nepal
[188] The National Climate Change Impact Survey 2016, A Statistical Report, Central Bureau of Statistics, Government of Nepal, April 2017 (http://old.cbs.gov.np/image/data/2017/National%20Climate%20Change%20Impact%20Survey%202016%20Report_final.pdf)

showed that households were observing impacts of different types of disasters in last 25 years. The results depicted that 38.3% households were impacted by dry wind wave followed by landslides (35.2%), fire (in settlements) (31.8%), and flood (31.7%).[189]

To understand and assess the differential gender and social group impacts of the Climate Change Induced Disasters such as GLOF, with the dearth of direct data on the impact of climate change induced disasters, it can be best discussed in terms of the data available from other disasters, such as the recent 2015 Earthquake in Nepal. Further, the impact of climate change in Nepal or vulnerabilities to climate change can be most coherently discussed in terms of the data available on disasters like floods and landslides, that are related to and caused by climate change induced disasters like GLOF.[190]

Floods and landslides that occur every year cause highest loss of human lives and properties in Nepal after fire. According to official data available in 2017-2018 disaster and loss of human lives related to GLOF indicate that after fire, floods and landslides cause the highest loss of lives in Nepal.[191] See the figures below. Assessments and studies carried out in terms of earthquakes and floods in Nepal indicate that women were among the most vulnerable of those affected by Nepal's earthquake, lack of gender sensitivity in post-disaster relief, improved understanding of the existing flood early warning systems in Nepal, and needs to make early warning systems more effective and responsive to the needs of vulnerable groups, and poor and highly marginalized women in particular. In the case of differential impacts of floods or landslides socially, though there is a lack of disaggregated data, after women and children, studies have indicated and as National Federation of Disabled - Nepal (NFDN) also claims that people with disabilities are the most vulnerable in disasters including CC induced disasters like GLOF.

Damage and losses of disaster incidents

S.No.	Incident	No. of Incidents	Dead *			Injured	Affected Family	Houses Destroyed		Estimated Losses (NPR)
			Male	Female	Total			Partial	Complete	
1	Flood	418	128	55	183	61	16196	14424	286	60,944,400
2	Landslide	483	96	65	161	182	1083	149	328	191,662,000
3	Lightning	432	87	72	160	551	618	23	14	14,687,000
4	Fire	3973	74	76	150	557	6027	549	3234	6,422,638,013
5	Cold Wave	48	26	22	48	0	48	0	0	-
6	High Altitude	45	37	4	41	6	46	0	0	-
7	Heavy Rainfall	342	8	22	30	84	538	193	252	89,415,160
8	Animal Terror	141	14	8	22	69	280	136	8	4,390,150
9	Wind storm	254	7	12	19	84	1527	763	301	51,447,998
10	Boat Capsize	10	9	7	16	9	27	0	0	-
11	Epidemic	22	11	4	15	1881	420	0	0	-
12	Snake Bite	18	7	7	14	5	18	0	0	-
13	Snow Storm	2	10	0	10	0	10	0	0	-
14	Avalanche	1	1	0	1	0	1	0	0	-
15	Hailstone	3	0	0	0	0	127	2	0	457,000
16	Other	189	54	45	99	150	289	69	10	3,181,599
		6381	**569**	**399**	**968**	**3639**	**27255**	**16308**	**4433**	**6,838,823,320**

Source: NEOC, MoHA 2017 and 2018

Source: Nepal Disaster Report 2019, Ministry of Home Affairs, Government of Nepal, June 2019

[189] The National Climate Change Impact Survey 2016, A Statistical Report, Central Bureau of Statistics, Government of Nepal, April 2017 (http://old.cbs.gov.np/image/data/2017/National%20Climate%20Change%20Impact%20Survey%202016%20Report_final.pdf)

[190] It is however to be noted that climate change is not always the cause of GLOF. In a recent paper published by Alton Byers et al in 2019, a GLOF in Barun Valley in Nepal in 2017 was induced by a rockfall. For details see https://link.springer.com/article/10.1007/s10346-018-1079-9

[191] Ministry of Home Affairs, Government of Nepal, June 2019. Nepal Disaster Report 2019.

It is only after the Nepal Earthquake 2015 trends in disaggregating disaster loss data gender and inclusion wise is observed. Post 2015 Earthquake the Government of Nepal reported that of the 8,891 people who died 55% were women (0.01%, 2011 national population). UN Women estimated in the 14 most affected districts it included approximately 2,710,239 women (50.5% of population) 327,000 female-headed households (26.5% of households), 40,000 women with disabilities, 163,000 women over the age of 65 years (6% of female population), 764,000 girls aged 14 or under (28% of female population), and 795,000 women and girls who were illiterate (29% of female population). The Post Disaster Needs Assessment (PDNA) also recognized that women are among the most vulnerable of those affected by Nepal's earthquake.

Besides the post earthquake GESI disaggregated data provided by Common Feedback Project and UN agencies like UNFPA and UN Women, there are hardly any qualitative or quantitative study that can provide data or evidences with regard to GLOF and its differential impacts on gender and social group wise in Nepal.

One of the three studies in preparation of the GCF project commissioned to ICIMOD by UNDP has produced an inventory of the PDGL with estimates based on the population census of 2011 which estimates that the number of people likely to be affected by a potential GLOF varies between 10,000 in Sun Koshi and 19,000 in Dudh Koshi. The remaining population could suffer a loss of environmental resources and service infrastructure. The maximum number who could be indirectly affected through infrastructural damage and loss of goods and services ranges from 51,000 for Tama Koshi to 62,500 for Sun Koshi. Gender wise household and population downstream the Koshi river valley (basins include Tamor, Arun, Dudh Koshi, Tama Koshi, and Sun Koshi) that could be affected includes a total of 14,744 households; of 62,493 population, which 29,968 are male (48%) and 32,524 are female (52%).[192]

3.3 Disaster, gender and inclusion

According to a joint study by London School of Economics and Political Science, University of Essex and Max-Planck Institute of Economics on disasters and gender, disasters lower women's life expectancy more than men's according to data from 141 countries affected by disaster between 1981 and 2002. Women, boys and girls are 14 times more likely than men to die during a disaster.[193] It is to be noted in the context of Nepal also, during the 2008 Koshi floods in Eastern Nepal, 18% of the affected populations were Dalits and the community focus group discussions found that children, women, elderly and the ultra poor were most affected by the flood and in immediate need of assistance.[194]

Following a disaster, it is more likely that women will be victims of domestic and sexual violence; many even avoid using shelters for fear of being sexually assaulted. There is enough evidence that in any disasters, disproportionately large numbers of women particularly from poor and socially excluded groups are affected more severely relative to men. Worldwide, it has generally been established that when gender issues are not addressed fully and sufficiently in both development and disaster contexts, they perpetuate and in many cases augment existing gender-based inequities. Women are particularly exposed to disaster risks they are likely to suffer higher rates of mortality, morbidity and post-disaster ruin to their livelihoods. Several underlying factors exacerbate women's vulnerability to the impacts of disasters, including limited livelihood options, restricted access to education and basic services and discriminatory social, cultural and legal practices. However, women are also key agents of change. Their unique knowledge is essential to ensure the effectiveness and sustainability of disaster adaptation. Hence, their full and effective participation is essential.[195]

Besides women/girls, persons with disabilities (PWDs) are also more vulnerable in CC Induced disasters (such as GLOF) due to their impairment, existing barriers and their socio-economic situation. On the other hand, disasters create impairments, disability. PWDs tend to be invisible in disasters. Aid often focuses on people that became impaired through the disaster, neglecting people already impaired previous to it. Not including PWDs in DRR means putting new barriers for them and not letting them participate in development processes.[196] Disaster risk reduction needs to address the underlying factors causing gender-based vulnerability and exposure to disasters, such as economic or poverty, social, cultural and political exclusion (intersectionality). Women must be empowered to meaningfully participate in decision-making processes related to disaster risk reduction across scales and sectors.[197]

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[192] Report, Inventory of Glacial Lakes in the Koshi, Gandaki, and Karnali River Basins of Nepal; Tibet Autonomous Region (TAR), China and India, Submitted to UNDP - Nepal by ICIMOD, May 2018.

[193] London School of Economics and Political Science, University of Essex and Max-Planck Institute of Economics - The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981–2002. (http://eprints.lse.ac.uk/3040/1/Gendered_nature_of_natural_disasters_%28LSERO%29.pdf)

[194] The Multi-Agency Flood Impact Assessment Koshi River Flood – Nepal IASC Emergency Preparedness and Response Cluster System, September 2008, Preliminary Results (http://neksap.org.np/uploaded/resources/Publications-and-Research/Reports/Multi%20Agency%20Flood%20Impact%20Assessmenet,%20Koshi%20River%20Flood%20Nepal.pdf)

[195] Ibid

[196] Mainstreaming Disability into Disaster Risk Reduction, A Training Manual, Nepal 2009, Handicap International and European Commission Humanitarian Aid (ECHO)

[197] UNDP, Gender and Climate Change, Capacity Development Series, Disaster risk reduction, Training Module 3

An ICIMOD Working Paper[198] published in 2014 identifies there is a lack of gender sensitivity in post-disaster relief. In the study, Koshi Victim Society, Saptari district, Koshi basin area in Nepal, an organization working on disaster relief and rehabilitation, had drawn attention to the post-disaster risks for women. With the disruption of social support networks and displacement, women in post-disaster scenarios are vulnerable to rape and other forms of violence and can even be forced into sex work. They can also suffer from nutritional deficiencies. In post-disaster relief work, the practical and medical needs of women including pregnant and lactating women, such as for safe toilets, a clean environment, access to health services, and accessible food distribution systems, are often ignored.

In another Flood Early Warning Systems in Nepal study from gendered perspective by ICIMOD,[199] it found that it had improved understanding of the existing flood early warning systems in Nepal. It suggested ways to make early warning systems more effective and responsive to the needs of vulnerable groups, and women in particular. In view of the diversity of development issues and livelihood challenges that communities face on a day-to-day basis, the study suggested it is important to tune early warning systems according to the local context. Early warning system infrastructure at the local level should be developed with the active involvement of local men and women as part of the development process. Early warning systems should be seen as a social and development activity rather than an exclusive domain of engineers and technicians.

This simplification and democratization of early warning systems requires bridging the gap between technical departments and communities, building local capacity, recognizing the stake of the local community in contributing to and benefiting from early warning systems processes, and most importantly creating multiple uses of early warning systems technology and not just for a 'one time disaster'. The early warning systems should be used with advanced applications to disseminate key messages that will also be useful for local livelihood needs, such as daily weather trends to support crop related decisions, market related decisions, and storage and transport related decisions.

Further, it is important to recognize that women play an active role in family livelihood security and efforts must be made to involve women and men equally in creating and receiving early warnings and alerts. Women should be involved in local early warning system infrastructure management teams and be provided with mobile phones or portable radios to receive early warning messages.[200]

In this regard GESI should be ensured in all the people-centered four pillars of the early warning system processes, viz, (i) Risk Knowledge; (ii) Monitoring and Warning Service; (iii) Dissemination and Communication; and (iv) Response Capability.[201]

3.4 Importance of gender and inclusion in disaster

The importance of integrating GESI in climate change induced disaster is recognized nationally and internationally. International agreements/ treaty/ commitments, such as Sendai Framework for DRR 2015 -2030 (SFDRR), Paris Agreement and Agenda 2030 Sustainable Development Goals all uphold the imporatnce of GESI in CC and DRR. The UN SFDRR under Priority 4: Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction, specifically mentions "Empowering women and persons with disabilities to publicly lead and promote gender equitable and universally accessible response, recovery, rehabilitation and reconstruction approaches is key."[202]

Aligned to the international context, nationally in Nepal importance of GESI is mentioned in disaster, climate change related national plans and policies in Nepal, such as National Climate Change Policy 2019, National Adaptation Programme of Action (NAPA) to Climate Change Policy 2019 and Local Government Operational Act 2017. Most of the directly disaster related plans and polices in Nepal such as the National Strategy for Disaster Risk Management (NSDRM) 2008, Guidelines: Disaster Preparedness and Response Plan (DPRP) 2011, Local Disaster Risk Management Planning Guidelines 2012, District Disaster Management Planning Guidelines 2012 and National Disaster Response Framework 2013 (updated 2019) also mentions the need for integration of GESI in disaster management. See Annex 3 for list of samples of international and national policies from GESI perspectives related to climate change and disasters.

However, there is limited understanding and analysis of what the linkages are between GESI and climate change induced disaster and how to integrate GESI in disaster and climate risk management (DRM).

[198] ICIMOD Working Paper 2014/3, Women's Empowerment at the Frontline of Adaptation: Emerging issues, adaptive practices, and priorities in Nepal
[199] Flood Early Warning Systems in Nepal, A Gendered Perspective, ICIMOD Working Paper, 2014/4
[200] Ibid
[201] https://www.preventionweb.net/publications/view/42369
[202] SFDRR 2015-2030 (https://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf)

3.5 National gender and inclusion policies/plans/DRM reports

Regarding national gender and inclusion policies and practices in general for Nepal, the Constitution of Nepal, 2015, guarantees a right-based approach regarding gender equality and inclusion. The constitution stipulates a non-discrimination principle that reinforces the equality of all citizens before the law. Special provisions are made for the protection, empowerment or advancement of economically poor, socially or culturally backward social groups. Women are guaranteed the right to participate in all state mechanisms. Dalits have specific rights for participation in all bodies of the state on the basis of proportional inclusion; there is free education with scholarships from primary to higher education with special provisions for health and social security.

In ensuring the constitutional rights, the *Civil Service Act 2007* has legalized the principle of positive discrimination by ensuring reservation for certain sections of the community in the civil service. In the 14th Three Year Plan (2016/17-2018/19), the GoN emphasized the meaningful participation of all citizens for Nepal's inclusive development and aims to improve the human development and empowerment index of those who have been economically and socially left behind. The Budget for 2018/19 incorporates issues regarding gender, poverty and marginalization under objectives and priorities. The federal government had allocated Rs. 135.51 billion (about US$ 1.18 billion) as an equalization grant to the province and local levels to spend on human development indicators. Provisions for capital, skill and entrepreneurship trainings have been ensured for small businesses and self-employment activities in proprietorship of women. The 15th Three Year Plan (2019/20-2023/24), recently released, acknowledges that though progress has been made since the last plan, inequality and exclusion have not been eradicated. Not much progress has happened in terms of female participation, and women managed cooperatives. The strategy for long-term vision mentions that criteria for socially progressive economic arrangements will be made to ensure women, Dalits, and other marginalized groups have all the required protection and rights.

Numerous GoN policies and guidelines recognize the need to address GESI issues programmatically and institutionally in order to achieve sector objectives. All these sectoral GESI strategies and guidelines emphasize participation of women, Dalits, Adivasi/Janajatis, Madhesis, Muslims, PWDs and excluded communities in the formulation, implementation, monitoring and evaluation of sectoral policies, plans and programs. They recognize the need to identify the specific barriers faced by women, the poor, the vulnerable and the excluded in the sector concerned. All these guidelines demand disaggregated data and evidence.

Regarding legislations or guidelines to promote GESI in local governance bodies the Ministry of Federal Affairs and General Administration (MoFAGA) governs local bodies, including the municipalities and has developed a GESI policy in 2010 that provides directives for incorporating GESI into the functions of local bodies. Social development units or community development sections of the municipalities are responsible for facilitating GESI mainstreaming in planning, budgeting, and monitoring. Similarly, the Disadvantaged Group (DAG) mapping at the ward level helps identify poverty pockets and settlements by using the set criteria.

The legal framework for local governance elaborated in the *Local Governance Operational Act 2017,* requires local bodies to prepare periodic plans prioritizing women, marginalized groups, poor and children through participatory planning processes and describe mandatory provisions for the participation of women, children and disadvantaged groups in the planning and budgeting process. The *local governance regulation* ensures 20% women and at least one Dalit member representation in ward level elected bodies. The *Minimum Conditions and Performance Measures (MCPM) 2009* require municipalities to adopt a participatory and inclusive planning including pro-poor budgets to ensure the flow of central grant. Gender Responsive Budgeting (GRB) (since 2007/08) requires all line ministries to follow the guideline and prepare gender responsive budgets. As a result, the percentage of the total government budget that was gender responsive was 21% in FY 2015/16.

Recently promulgated Government of Nepal's National Policy For Disaster Risk Reduction 2018[203] regarding gender equality and inclusion ensures access, representation and meaningful participation of women, children, senior citizen, people with disabilities and the people from economically and socially marginalized communities in all steps and structures of disaster risk reduction based on inclusive disaster management concept. Further, as per the concept of disaster sensitivity, public physical infrastructure (government offices, educational institutions, health institutions, community buildings and shelters etc.) will be made senior citizen, gender, persons with disability and children friendly. It further provisions an inclusive mechanism to establish at federal, provincial and local levels effective monitoring and evaluation of the activities related to disaster risk reduction and management.

[203] Available online at http://drrportal.gov.np/uploads/document/1476.pdf

3.6 GCF gender frameworks and policies

The GCF has a standard framework for developing a gender equality and inclusion component of a country project and action plan. The GCF project formulation is required to align to the Fund's gender frameworks, polices and action plans. In this regard the GCF's Gender Policy and Action Plan (March 2015) states that:

- Women, as well as men significantly contribute to combating climate change. Shifting the paradigm towards low-emission and climate-resilient development pathways, which is the Fund's mandate, requires a large number of individual and collective decisions by women and men. A gender-sensitive approach is therefore part of a paradigm shift;
- Climate change impacts women and men differently, to the detriment of women, and existing gender inequalities are likely to be exacerbated by climate change; and
- Gender inequality, exacerbated by climate change, is linked, as are other development areas, to vulnerability and risks. The greater vulnerability of women to climate change stems from gender norms and discrimination that result in the imbalanced division of labour, lower incomes, and lesser livelihood opportunities; less access and control over land and other productive assets; fewer legal rights; lesser mobility and lesser political and professional representation.

The GCF's commitment to gender equality centres on gender-responsive country programs and initiatives that benefit everyone, women and men. This requires gender analysis to understand the social, economic and political factors underlying climate change-exacerbated gender inequalities, and the potential contributions of women and men to mitigating and adapting to climate change, and building climate resilience. It further entails adopting methods and tools to promote gender equality and reduce gender disparities in climate funding by mainstreaming gender in the project cycle. Finally, it means measuring the outcomes and impacts of project activities on women and men's resilience to climate change through gender-responsive monitoring and evaluation (M&E). Gender mainstreaming should shape the entire project cycle, from project identification to M&E.[204]

3.7 Reports on consultations for project formulation

In line with the GCF environmental and social policy that elaborates the commitment of GCF to integrate environmental and social issues into its decision-making and outcomes, and as part of engagement of various stakeholders during project formulation, Nepal Federation of Indigenous Nationalities (NEFIN) undertook a detail Indigenous Peoples' engagement study. The study identified that the underlying impact of climate change and the issues and concerns of indigenous people (IPs) s across the sectors includes impacts of climate change on agriculture, water resources, other natural resources . IPs in the project areas still practice subsistence farming. Agriculture is the lifeline for their livelihoods. Unfortunately, indigenous peoples are encountering challenges in continuing their traditional livelihoods and practices. Their ways of farming and cultivation is facing problems posed by the growing changes in climatic conditions.

In forest and biodiversity, indigenous peoples are nature worshippers. Indigenous peoples' livelihood and their cosmo-vision are intrinsically embedded with forests, flora and fauna, and with the whole ecosystem they live in. Their interrelationship with forests and biodiversity at large goes beyond sustenance of their lives and livelihood to a more emotional, cultural and essential unified accord with nature. The intensity of changing environment, including climate change, natural calamities are threatening indigenous peoples' lands and forests among other natural resources.

Regarding impact of climate change on water resources, for indigenous people water is sacred. It is vital to life, essential to agriculture and a valuable energy source. Indigenous peoples value water as an important element and property of life. Water is considered not only for its consumptive value and its use in general, but it means more than a natural resource. Indigenous people's relationship with water and its resources are crucial to cultural vitality and resilience. Indigenous peoples believe the calamities related to water, such as flood and GLOF are related with the God/Ancestors. Over the years, with changes in climatic condition, indigenous peoples are facing water scarcity in their villages; apart from their traditional sources such as stone spouts, springs, wells and ponds, their rivers and streams are also drying up. It is important to note that indigenous peoples have their own ways and practices of identifying natural hazards. It is important to respect and utilize the knowledge of indigenous peoples to enhance or least gain acceptance of any project intervention in IP's areas.[205]

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[204] https://www.greenclimate.fund/documents/20182/194568/Guidelines_-_GCF_Toolkit_Mainstreaming_Gender.pdf/860d1d03-877d-4c64-9a49-c0160c794ca7

[205] Indigenous Peoples consultation to understand potential glacial lake outbursts floods risks for safeguarding lives and livelihood, Final Report submitted to UNDP-Nepal, February 26, 2018, NEFIN

Consultation with the NGOs/CSOs, Private Sectors and Government informed that the stakeholders are aware of the issues on climate change induced disasters such as and GLOF, but have uneven potential risks from the GLOF; stakeholders have willingness to contribute, ensuring the sustainability of the interventions; stakeholders need capacity development program; and stakeholders need scientific knowledge, instrumentation and monitoring, structural design (e.g., EWS), and institutional arrangements for addressing the potential risks of GLOFs and safeguarding the lives and livelihoods.[206]

4. Findings from fieldwork

4.1 Community level findings

1. Who are the most vulnerable to Climate Change Induced Disasters and hazards?

Poor Tarai and Hill Dalits who are both historically excluded and situationally vulnerable are the most affected by climate change induced disasters and hazards and considered to be the most excluded and vulnerable people followed by the poor and highly marginalized indigenous groups, particularly living along the river beds and drought prone areas (Adivasi/Janajatis) such as Majhi, Kumal, Botes, etc.

- Terai and Hill Dalits: Majority of Hill and Terai Dalits residing in remote areas and degraded lands have been historically discriminated in terms of access to resources such as education, employment and other socio-economical opportunities and services, making them socially, economically, politically and culturally the most discriminated. As compared to the Hill Dalits, Tarai Dalits (e.g. Sardar-Bantar, Khang-Khatwe; Chamar, Dom, Musahar,) are considered to be the most discriminated and vulnerable. These multiple layers of discrimination have affected both their material conditions and social status in society hindering them from accessing resources, understanding the valuesof participating in community initiatives and networking. Due to their limited physical and social assets climate change and disaster risks have further exacerbated their conditions thus increasing their vulnerabilities.

"When the Koshi barrage was flooded, help came from the government and several organisations. Truckloads of soaps, mattresses and foods were provided. The agencies handed over these supplies to the village leaders for distribution, but these leaders distributed these supplies only after few days and rationed it. I have a large family and had asked for 5 mattresses but was given only 2. Similarly they budgeted and requested for 75 feet deep tube well for us but constructed only a 25 feet deep well." - A single woman, Sardar community, Kushaha, Ward No.4, Koshi Tappu (Downstream community)

- Poor and highly marginalized Adivasi Janajatis (Indigenous Peoples): Similar to the Hill and Tarai Dalits, poor and highly marginalized Adivasi Janajatis, such as Majhis, Kumals, Botes etc. living near and along the river banks, in landslide, flood and drought prone areas, seemed to be highly affected by the changing climate and disaster risks. These groups were found to be living in clusters usually in the outskirts or far from the main villages, making it difficult for them to participate and easily access disaster and development resources and opportunities.

"Water availability both for drinking and pottery is our biggest problem and it has become very severe since the past 8-9 years. Our village brought the water source from the neighboring village, but we could not get this water as we live far from the main village and it requires extra costs and labour." - A Kumal man, Hattuwagadi 6, Bhojpur

- Poor Adivasi Janajatis (Indigenous Peoples) from the hill and mountain areas, particularly living in disaster prone and remote areas such as the Rais, Bhotes etc. due to the geographical remoteness, these groups were found to be isolated from the development interventions, networks, and opportunities. Most of the interventions such as trainings, information, infrastructure development etc. were centered on the ward headquarters and they could not participate nor access it easily.
- Women: As compared to men, women across all social and economic groups seem to be more excluded from accessing climate change and development resources and opportunities. However, the degree of exclusion and vulnerability is highest among the poor single women, Tarai Dalit women (as described above) living in remote and disaster prone areas followed by Hill Dalit women (e.g. Gandarvas), poor and marginalized indigenous women (Rais), single women and poor women from advantaged caste groups (Chettri, Brahmins).
- Single women, elderly, persons with disability and pregnant and lactating women: These groups, particularly women have problems related to getting timely and complete information, participation and access to resources.

[206] NGOs/CSOs, Private Sectors and Government Consultation to Understand Potential Glacial Lake Outburst Floods Risks for Safeguarding Lives and Livelihoods, Final Report submitted to UNDP-Nepal, Youth Alliance for Environment, March 2018

Mechanisms or platforms to understand and discuss their special needs and contributions are almost non-existent. Hence, they usually tend to get excluded from participating in meetings, consultations, trainings, and group memberships, such as the ward level planning and budgeting meetings, trainings or exposure visits etc.

2. Women's"Time Poverty" is still not recognized as a critical issue and addressed in the context of development and climate change.

- The changing climate and increases in the magnitude and frequency of natural disasters has caused problems in water availability, agriculture, forest resources and increased male outmigration. This has substantially increased poor and marginalized women's already high household workload, food security and loss of income. The progress made by women in terms of their material conditions (well-being) and social positions or status (leadership, decision-making) in society also seemed to be declining. Due to the shortage of labour force, situation of single women is even more critical.
- Water scarcity has hit poor and marginalized women the hardest: The increasingly unpredictable rainfall patterns, which are more intense and shorter in duration, and the long periods of droughts have resulted in drying of wells and small springs. Water scarcity has become a serious problem. This has increased women's time needed for managing water for household use, irrigation and conserving water sources.

"Since the past 11-12 years, availability of water has been one of the most pressing issues for us women. The spring water in our ward has dried and the 'bulldozer roads' and earthquake has made it worse. Fourty-five households in our ward collected around 18.5 hundred thousand rupees (approximately USD 1700) and gave 100 days of labour from each household to buy and bring the piped water from the neighbouring village. We did not get any support from the ward office. This piped water is still not adequate to irrigate our farms and for household use. The Kumal (marginalized IPs) and some Dalit households living in the periphery of the main village could not be included in this scheme as it is takes additional resources to join the pipes to their houses. Besides they cannot afford to pay for the water." - Chandrakala Rai, Hattwagadi 6, Bhojpur

- Hardening of soil in farms has doubled women's farm work: In agriculture too the soil quality is becoming degraded and hardened, making it difficult to break and fertilise. The hardened soils have doubled the time for ploughing, requiring more labour, water and manure, making women work for longer hours in the hot sun.

"The long spells of hot weather make the soil very hard and requires additional breaking even after ploughing to make it suitable for sowing. In our village we have a system of compensating the ploughing services either by paying in cash or by providing double the number of days of labour to the plougher, which is usually done by women. This means our workload is further increased. These soils also need more water, manure and long hours of physical labour in the hot sun to break the soil and carry the manure to the field." - Ram Maya Rai, Hattuwagadi 6, Pipal Dada, Bhojpur

- Increase and emergence of aggressive pests and further increasing women's time poverty and food insecurity: Farming of vegetables, crops and horticulture has become very challenging due to the emergence of new and aggressive varieties of weeds and pests. It has affected farms and storage, increasing women's workload, as they are the ones responsible for these tasks. Since these new and aggressive varieties of pests and weeds (mainly large snails, soil larvae, white moths or butterflies etc.) are outside the realms of traditional knowledge, their local methods and approaches are not affective in addressing the problem. Women were found to be using their hands to sprinkle the strong chemical herbicides and did not have knowledge about the dangers of using it.
- The unpredictable weather patterns have caused huge loss in farming. In Hatuwagadi this year 85% of their maize got destroyed with untimely rainfall followed by drought after the plantations. This resulted in having maize with no seeds and increase in seeking loans to buy food.
- Decrease in forest products due to droughts, forest fires causing increased workloads of women: Long spells of dry weather and increase in invasive species have degraded the quality of forests causing frequent forest fires, and reduction in the yield of fodder, fuel wood and important non-timber forest products (NTFPs). This has also contributed in increasing women's time in collection of the forest products, as these are almost exclusively women's traditional work.
- Male outmigration: The trend of male outmigration seemed to have increased due to the decrease in agricultural production and food insecurity, also increasing women's workload, mental stress and risk of physical violence. Male outmigration has also caused young wives to leave the village to the nearby cities to educate their children leaving behind elderly parents and further increasing the workloads for the women who are left behind.
- Decrease in women's mobility and engagement in income generating, community activities and decision-making processes: Due to increased workload, women's mobility, participation in community initiatives, committees, decision-making processes, and accessing timely and complete information has decreased. Even if the opportunities

are in their doorsteps, they do not have the time and interests to grab these opportunities. As traditionally, the caring or household work has been exclusively women's work, even for women in position such as elected ward members, Community Forestry Executive members, Female Community Health Volunteers (FCHV) etc. are required to finish their household duties and only then can they participate.

3. **Poor and highly marginalized women and men particularly living in geographically remote and disaster prone areas[207], mainly between 25 to 50 kilometres from the glacial lakes have limited access, and benefits the least from development and climate change related resources and opportunities.**

- Near absence of platforms and invited spaces[208] for reaching, mobilizing and engaging women and marginalized groups: The poor outreach mechanisms, exclusive and centralized planning systems, the near absence of functional platforms or forums to organise and empower poor women and marginalized groups, together with the domination by local politics and power have made accessing and benefiting from these resources challenging. For example even if the local groups are strong, ultimately the politics and power decides and authorises on who should be selected or represented or whose skills are recognized etc. For example women's groups, farmers groups, ward citizen forum, CBOs, NGOs etc., particularly in the hilly areas (25 to 50 kilometres away from the glacial lakes) has made it difficult for these groups to organize and collectively voice their opinions, advices, and make demands. The absence of these dedicated gender related platforms and institutions such as the Women's Development Office, wards social mobilizers are felt by the women elected members and staffs of the wards and rural municipalities.

"Our women used to get a lot of support from the Women Development Office and social mobilizers to help organise, plan, make demands etc. However, due to their absence, women have not been able to organise themselves and hence we miss out on mobilizing resources and funds. In the first year women did not submit proposals to spend the small budget (NRs. 800,000) dedicated for gender issues and in the end the budget got shifted to other budget heads. Similarly, last year too we did not receive any proposal. I feel presence of a separate local level institutions and social mobilizers dedicated for gender and social issues is very important." - Women ward member, Num, Ward 5, Makalu Rural Municipality

- The poor roads, scattered nature of the settlements, and limited human resources and budgets have forced these local level development organisations to limit its outreach around the ward or municipality headquarters. This automatically excludes the poor and the marginalized people living in remote areas from receiving timely and complete information, participating in meetings and training opportunities, representing in local level decision making committees etc. Even if they participate, they are unable to fully reap the benefits.

For example, computer training for youths (2 months) and tailoring training (3 months) for Dalit women were organised by the ward office in Num, in its headquarters of Ward 5, Makalu Rural Municipality. The training opportunities were for all the wards, however due to the long duration of the training, the participants from outside the Num bazar (ward headquarters) could not participate. They could not afford the time and costs of leaving their village to stay in Num bazar. Further, most of the women and girls from the remote and distant wards had not received information about these trainings and neither were they consulted during the planning of the activities for them.

- Majority of the saving and credit groups, cooperatives and micro-finance institutions seem to be regularly meeting but these meetings are strictly limited to transacting money for saving and loans. However, in areas where the external agencies are active, cooperatives were found to be contributing to the local livelihoods and income generative activities. Further, the unclear steps and mechanisms of the local governments and institutions to engage women's and marginalized communities and address their needs, interests and priorities in designing and planning climate change and disaster risk reduction related plans and programs, have made inclusion even more challenging.

4. **The participation of women and men in local development planning, disaster risk management and climate change related activities and decision-making are highly exclusive and gendered.**

[207] Highly vulnerable villages and cluster areas:
[208] **Invited Spaces**: Forums/user groups/women groups/Dalits groups etc. for organising and mobilizing women and marginalized groups to engage participate and benefit from development resources and opportunities.

- The gender, political affiliation, geographic location, caste ethnicity, age, economic status, literacy and ability of the local women and men plays a major role on, who participates, where or which level they participate and how they participate. The types and quality of participation can be categorised as follows (also, see Table 3):
- Majority of poor and highly marginalized women, particularly from remote and disaster- prone locations are not members of local interest groups or decision-making bodies or committees and are isolated. This is mainly due to women's time poverty and their historical discrimination that makes them invisible when it comes to resource distribution and benefit sharing. They also do have the confidence and networks to mobilize these resources. These categories of women together with the poor and marginalized men (elderly, Dalits, marginalized indigenous men Kumals, Botes, Mahjis etc.) are mostly engaged in community activities that entails voluntary participation or consultations or labour contribution.
- Women in the leadership positions are members of key committees, but they are usually engaged and responsible for women-centred programmes, and committees e.g. health, agriculture (seeds distribution), conflict resolution violence against women etc. They do not have substantial roles in their ward's main planning processes. All these women-centred activities do not require large financial transactions. Further, in most cases strong women leaders were found to be excluded from key technical and local development related committees and from planning and decision-making process as they were perceived as a threat to the local power centres. A trend of selecting or nominating women with limited exposure and experience in leadership was observed, making their participation mere token with no influence in the planning processes and decisions.
- Mostly *Advantaged Men*[209] are engaged in the activities and committees related to large and small infrastructure development and technical activities. Only very few women leaders were found to be engaged in these domains. During the entire fieldwork, only one women ward vice-chair from Num, Makalu was actively engaged in the ward's planning processes.

"Women like us, who can speak, make demands and question the forums are not the preferred lot by the local governments and their technical committees (such as road, irrigation, electricity). We are side lined and obviously our issues and proposals receive least or no priority. If you assess, it's the same all over the region except in some exceptional cases." - A women leader, Khadbari, Sankhuwasabha

- Decision-making still remains men's domain. Advantaged men occupy almost all key leadership positions, and likewise decisions related to local level planning and disaster risk reduction are also made by them.

"It is really sad to say that most of the current elected or nominated women members[210] and women leaders at the local levels are mere rubber stamps to the decisions made and the need to turn this problem into an opportunity is crucial." - Member, HIMAWANTI,[211] Central Committee

*Table 28: Quality of Participation and Engagement (Who is engaged where and how?)**

Daily engagement at Household/ Farm levels: Example: Farm, forest, water, energy management etc.	Community Activities (Voluntary labour): Example: Clearing for water pipe construction; plantation; cleaning springs and water	Community Activities (Gender, Social related): Example: Representation in committees; meetings; consultations; training/orientations; exposure visits etc. (health, agriculture, conflict resolution, plantation etc.)	Community Activities: (Infrastructure; technical related): Example: Representation in committees; Meetings, consultations, training/orientation, visits etc. (Construction - road, hydro-electricity, irrigation, school/halls etc.	Decision- Making; Leadership: Example: Ward/municipality level planning, implementation; monitoring etc. Disaster Risk Reduction related Committees and decisions etc.

[209] Advantaged Men: in the context of Koshi Basin, they are mostly men in leadership position affiliated to political parties in power, who are usually literate, economically rich, from higher caste groups (Chettri Brahmins) or dominant indigenous peoples (such as Rais and Chaudharies).
[210] The results of Local Election 2017 show that women won as deputies instead of mayors and chairpersons. Only 2% of the mayor and chair positions out of the total 753 went to the women, while 91% of the deputy positions went to women. (https://www.recordnepal.com/wire/features/data-reveals-local-elections-a-disaster-for-gender-equality/)
[211] HIMAWANTI: Himalayan Grassroots Women's Natural Resource Management Association – active in 45 districts of Nepal.

	sources etc.			
Mostly poor and marginalized women living in remote location and usually not members of local committees or groups. (e.g. mostly poor Dalits, Kumals. Majhi's, Botes, Sardars, Rais, Bhotes, Chettri Brahmins etc.).	Women mostly who do not hold Leadership position;	Mostly Women in leadership position and residing close to the Ward or Municipality HQs and with more wealth and discretionary time (having alternative energy technologies such LPG gas stoves; pressure cookers etc.).	Advantaged Men [212] in leadership positions, in ward and technical committees and those mostly affiliated with political parties	Advantaged Men in leadership positions, in ward and technical committees and those mostly affiliated with political parties
Poor and marginalized men, mostly elderly men in high hills living in remote locations and who are usually not members of committees or groups.	Poor and marginalized women and men (Hill and Tarai Dalits, Botes, Kumals, Majhi's, elderly men particularly Rais in the high hills).	Women from remote areas in leadership positions, more wealthy, literate and mostly affiliated to political parties	Few Women in leadership position and residing close to the Ward or Municipality HQs;	Negligible women in leadership position and affiliated to political parties.

* Based on the field consultations and FGDs (September 2019)

Women from poor and marginalized groups fail to recognize the value of participating in community development activities, local committees and decision-making forums both due to their historical discrimination and situational vulnerabilities caused by the changing climate and disasters which have further alienated them. Thus, even if they are specifically included and invited to participate they do not understand the value of participation, cannot articulate their needs and demands, and thus cannot fully engage and benefit from the resources and opportunities provided to them. Development agencies find it challenging to plan and implement specific programs for these groups.

"Last fiscal year our ward had solar light distribution program for which we had allocated NRs.10,000 loan to be paid in instalments. We had specifically made provisions for the Dalits and went to their houses to invite them for the meeting and orientation program. Except for one, none of them came for the meeting. This is not the first time, they never participate in other meetings too. They are uncooperative, lazy, disinterested and need constant follow-up if we do any programs for them. They don't want to change." - Male Ward Member, Facksinda (Besi), Ward 5, Makalu Rural Municipality

[212] Advantaged Men: in the context of Koshi Basin, they are mostly men in leadership position affiliated to political parties in power, who are usually literate, economically rich, from higher caste groups (Chettris/Brahmins) or dominant indigenous peoples (such as Rais and Chaudharys)

5. **Knowledge, experiences and roles of poor and highly marginalized women, particularly indigenous and Tarai Dalit women are not recognized and their contributions remain largely invisible.**

- Poor and highly marginalized women, particularly the indigenous women from the mountain and high hills such as the Rais, Bhotes, Botes, Majhi's, Kumals and Dalit women from the Koshi Tappu areas such as the Sardars, Bantars, Khatwes, Musharas are highly dependent on the natural resources and have good knowledge and experience of managing it. However, their indigenous and traditional knowledge and experiences and their roles in climate change and natural disaster management are not recognized and their contributions largely remain invisible in local policy making, planning and financing. Their experiences are seldom used to draw knowledge of local situation and ecology. Hence, they are unable to fully engage in, benefit from, and contribute in more meaningful, recognized and paid activities and opportunities.

"During the devastating Koshi flood in 2008 we had to move our cattle and grains to a safer place. Our cultural group[213] got together and made boats out of banana trees and large water drums tied under the beds. This saved many lives and assets of our people. It took 2-3 days for the external agencies to get the boats from India and the cities and we were the last ones to receive it. Likewise, we have several traditional knowledge on the use of medicinal plants, homemade remedies, for diarrhoea, warding off snakes, headaches etc. which are very useful during monsoon and flooding. However, we are never consulted or asked for our support. They don't trust us and use other members of the community when it comes to collecting information for distribution of goods and services." - Sardar Women (Tari Dalit) from Koshi Tappu

4.2 Institutional level findings

6. **The planning and decision-making processes seem to be largely controlled by the local politics and power, side lining the participatory and inclusive processes and structures established and promoted by the government and development agencies.**

- Local politics and power structures[214] play a major role in deciding which groups or institutions, leaders or individuals should be given authority and recognition to decide on who or where to invest in, in what manner, inform, govern on how and who to select for resource distribution etc. This trend isolates the poor and highly marginalized women and men who are not part of these networks and their needs, interests and priorities do not get space and priority in the planning and decision-making, particularly during disasters where they tend to get excluded. In the majority of the cases in the Koshi basin areas, ward chairperson and secretary largely make the prioritization of issues, demand collection and decisions for the ward's annual planning. Among the 5 key members in the ward committee, the other two members who are elected and nominated from the women and Dalits quota do not have much say or power to influence decisions. The local government's seven step planning process, which provides spaces for the local people to participate, is also not systematically and effectively followed. See Table 4 for the trends in ward level budget allocation.

- *"We do inform the whole village to gather for the tole (cluster) level planning meetings but only few people participate, mostly elite men. It is very difficult to convince the poor women and Dalits to participate. They do not submit their demands and we end up planning for them. And later, they cannot develop proposals to implement their approved plans. Last year their budget got frozen, and we had to spend this budget on the Teej celebration." - Tole committee member, Kumal Goan, Tumlingtar.*
- *"The biggest challenge is implementing the resettlement and rehabilitation programs for the displaced from landslides. Although we knew the households that needed land for rehabilitation, in the last landslide in Pepuwa village, several people with houses in Num bazar and Tarai registered their names for resettling in the school dada near Num bazar. Since they have political affiliations and connections, we cannot easily remove them." - Village social worker, Num Bazar, Makalu.*

[213] Musahars, Sarder, Bantars, Khatwes (Tarai Dalits) community organises themselves in groups to collect funds from the village (usually from rich people) to use it for praying and during disasters. These groups seem to get together during disasters and to help each other and use their traditional knowledge to do so.

[214] Power Structures: power structures in the local context are mainly – politics and political networks (ruling party), caste/ethnicity (who is the dominant caste/ethnic group), gender (men and women from which groups) wealth, networks, education etc.

Table 29: Trends of Allocation and Use of Ward Level Annual Budget 2018-2019 fiscal year

Name of the Ward	Budget planned by ward (NRs)	Budget approved (for development) (NRs)	Budget for Infrastructure	Budget for Gender issues	Use of the Gender Budget
Num, Ward 5, Makalu	Around 39 million	Around 2 million	Around 70%	Around 1% (Separate budget from Municipality for empowerment/social issues)	Gender Budget used for Teej celebration; Social/empowerment budget used for computer and tailoring training.
Silicho, Tamku, Ward 3, Makalu	Around 32 Million	Around 1.8 million	Around 60%	Around 1%	Women could not submit the proposal as there are no active women's groups/platforms. Ultimately the budget got frozen and was used for Teej celebration
Jarayotar, Bhojpur	Around 30 Million	Around 1.5 million	Around 60%	Around 1.5%	
Kumal Goan, Tumlingtar, Khadbari Municipality	Around 33 Million	Around 1.5 million	Around 70%	Around 2% from ward budget and NRs. 25,00000. (Municipality budget).	Last fiscal year budget got frozen in both wards, as no demand was made for gender activities
Hattiwagadi, Bhojpur	Around 30 million	Around 2 million	Around 60%	Around 2%	

Source: Field interviews and assessments 2019

7. The impact of changing climate together with the transition from the past governance system to the new federal system has brought both opportunities and challenges in women's leadership and empowerment processes. A large number of women have come into leadership positions. But due to reasons such as decrease in dedicated human resources and sectors, one-door policy for development interventions, and near absence of active and organized platforms in the province and ward to mobilize and support women, it has affected women's leadership and ability to voice and influence decisions.

- In the previous governance system, at the village development committee levels (VDCs), there were about 45 members to run a VDC. However, in the new federal system, a ward is almost of the same size as VDC, which has only 5 key members, of which 2 are from the women and *Dalit*[215] quotas. These 2 members have very little role and say in the planning and decision processes. Hence, the chairperson and his two-team members control the whole planning cycle. Further, at the ward level, all the external interventions and interactions by the communities to the outside agencies or sectors have to be made through the ward members. This one-door policy has largely affected women and marginalized groups from practicing their leadership to mobilize and access resources and services. The merging of district level line agencies with the local government has also largely affected women leaders and groups from directly contacting and mobilizing the technical agencies for support and services.

[215] Dalits: Dalit is the term used to identify the group of people who are unlawfully being considered lower class or untouchable. They account for million or 12.82% of total population of Nepal.

"Nowadays its difficult to get even a packet of seeds and information on new pests directly from agriculture office. We have to go through ward members to get their support. Our ward members are usually busy handling large projects and do not find it important to deal with our small problems and demands. Before when there were line agencies at the DDC (District Development Committees) it was easy for us. Our farmers group could directly visit these offices (referring to DADO) to get services." - Women member, Farmers Group, Jarayotar, Bhojpur

8. **There seem to be awareness among the national and local level institutions about the need to address gender equality and inclusion of GESI. However, knowledge and skills or capacity on how to integrate in the design and planning cycle is limited.**

- Knowledge and skills on participatory methods and approaches, gender and social analysis, planning and gender integration of the national and provincial institutions such as the climate change and disaster risk reduction related sectoral ministries, provincial and local level authorities and disaster committees, field research centers (e.g. PARC[216]) and local CSOs are very limited. Investments in the form of dedicated human resources; budget and GESI capacity building seem to be a non-priority. This gap has contributed in promoting elite capture of the development and disaster related resources and opportunities.
- For example, the agricultural research centers in the field with heavy focus on extension services, do not have dedicated staffs with expertise on gender and social analysis to ensure that the agricultural technologies, extension services etc. are GESI responsive. In PARC, the criteria for selection of demonstration sites and caretaker-farmers to test and promote improved technologies, varietal seeds, fruit trees, livestock etc. are: based on interest of farmers (voluntary); farming experience; risk bearers; influential; willingness to participate in trainings and meetings; having land to test etc. Poor women and marginalized groups do not fall in these criteria and hence majority of the caretaker-farmers are advantaged men.
- The poor investments on developing appropriate and GESI responsive extension materials and approaches have also largely affected in making these services ineffective, particularly for poor indigenous people. The uses of technical and non-local language in delivering the extension services seem to be an issue for them.

"Three years ago there was a meeting on forest management and the participants were mostly women as most of the men in our village are abroad. Most of us could not understand what sir (resource person) was trying to tell us. From the posters he showed us, we assumed that the meeting was on forest management." - Rai woman (IP), Besi, Packsinda 5, Makalu

- Besides the issues related to capacities, the local level institutions do not have structures and mechanisms for integrating GESI in their planning cycle, making it difficult for them to find spaces to plan and implement. Before federal local level administrative structure there used to be a separate women development office (WDO) with dedicated staffs and planning system and budget at the local district level. The WDO is now merged with the municipality with only one staff and the separated planning process for gender related activities are not a priority.

9. **The stakeholders and beneficiaries, particularly in climate /disaster risk reduction/management related planning, committees and activities are largely considered as a monolithic group. The historical exclusion of the poor women and highly marginalized groups are not specifically considered, which has made it difficult for them to compete for resources with the advantaged groups.**

- The local level disaster risk management committees and district disaster management committees largely do not categorize its stakeholders from gender, age, ethnicity, socio-economic and geographical diversity perspectives during disasters. This has contributed in excluding the poor, socially and geographically marginalized women and men from disaster response, and rehabilitation support.

"Disaster do not discriminate between the rich and the poor and hence we do not have special provisions for the poor and marginalized during landslide rescue and response. The door is always open for all." - Member, District Disaster Management Committee, Khadbari, Sankhuwasabha

5. Key Recommendations

1. **Establish a working definition of the primary stakeholders (women, marginalized, highly marginalized and vulnerable groups) for the project area, by contextualizing and categorising according to their different and**

[216] PARC: Pakhribas Agriculture Research Center

overlapping exclusions, vulnerabilities, roles and contributions and intersectionality from the following perspectives:

- Historical/Structural Exclusion against certain groups based on gender, caste, ethnicity, language or location e.g. Dalits, particularly from remote rural areas, Tarai Dalits such as Sardars, Doms, Musahars etc.; marginalized ethnic/indigenous peoples such as the Botes, Majhi's, Kumals living along the river beds; Rai's Bhotes from remote and disaster and drought prone locations etc.
- Situational Vulnerabilities due to climate change and disaster risks particularly women and residing in disaster prone, remote and climate affected locations and who are disabled, elderly, children and single women.
- Economically poor households (ranging from food security for 3 months to 6 months/year).
- Women and men (Contributors) who are directly engaged in the day to day management of the farms, and natural resources, but whose contributions and knowledge largely remain invisible.

2. **Identify and promote tested women-friendly and climate smart technologies and practices both at household and farm levels by developing partnership with specialized government and non-governmental institutions/local resource persons to reduce poor and marginalized women's time poverty.**

- The focus of the technologies and practices could be on water recharge and management, for e.g. recharge spring water, micro-irrigation, multiple-use water system, solar pumps etc. promoted by agencies such as DoFSC, Helvetas, ICIMOD, iDE, WWF/KCAP etc.; appropriate cooking energy (e.g. GEF/SGP, CRT, Practical Action, PEEDA); women-friendly farming technologies; fodder improvement; pest and weeds/invasive species management, storage of agricultural products, mini power tillers, climate resilient vegetable and crop seeds and varieties for income generation; development of commercial pockets etc. (e.g. Rural Municipalities/Wards, ARC-Pakhribas/NARC, LIBIRD, CEAPRED, RRN, iDE etc.)

3. **Strengthen existing or form new women and marginalized people's groups (e.g. Women, IPs, Dalits) and networks at local level, and organize them to participate, practice leadership, market forest/ agricultural/ tourism products, influence planning and decision-making processes, mobilize both project and local development resources. Ensure systematic and formal linkages of these groups with the local wards and municipalities and DRR/CC related committees' planning structures.**

- Ensure that poor and marginalized women and men who are not included nor part of any committees are the main members of these groups. Identify local women leaders and champions, particularly from among the marginalized groups, and provide them with leadership and advocacy training and regular mentorship/coaching.
- Ensure that the GESI related groups and networks allow both women and men to learn about GESI and the importance of women and marginalized group's engagement in DRR and Climate Change related decision-making and access to financial and technical resources to improve their livelihoods.
- Develop technical knowledge and skills of women and marginalized groups to ensure their meaningful engagement and to be able to implement community based GLOF, EWS etc.
- Ensure that local government's budgets are also allocated for GESI related activities including GESI responsive infrastructures such as safe houses for shelter during disasters; meeting halls etc.

4. **Increase poor and marginalized women and men's income and employability by tapping and linking with those institutions with experience, and with Value Chains (VCs) and Micro-enterprises (MEs) that are already tested, established and successful in the Koshi Basin areas.**

- For example, poultry, livestock, horticulture, vegetable seeds, crops etc. promoted by ARC-Pakhribas could be supported by the project through the provision of seed money or facilitating to lease public/private farming land; support agro-tourism (organic), eco-friendly homestays; link them with micro-finance organisations and cooperatives, learn from MEDEPA, USAID's KISAN-II , Hariyo Ban Project etc.

5. **Ensure timely, transparent/complete, and easy to understand communication and information to the poor women and marginalized groups on the project's and local government's financial and technical resources.**

- For example, information related to opportunities such as training, planning meeting; technical information (subsidies, loans, business/entrepreneurial skills, CC induced DRR, EWS, agriculture related etc.).

6. **Support the Monitoring Information System (MIS) of the project to capture gendered outcomes and pilot the same in selected ward(s)/municipality to upscale it. Gender-related challenges and learning should feed back into the project's annual planning process, and disseminated through publications and other knowledge-sharing events at national and community levels.**

- For example, by developing a knowledge management strategic plan on GESI and Climate Change Induced Disasters and Hazards, which can be tied with the Project's knowledge management/communication efforts as well as to monitoring and evaluation processes.

7. **Develop a simple working GESI in Climate Change induced disaster risk reduction and management strategy or a guideline for the project to ensure systematic integration of GESI in the project cycle and pilot the same in selected wards/municipality to upscale it.**

- The working strategy could be based on the findings and recommendations of the various studies conducted by UNDP for the preparation of the proposal, such as GESI Assessment (2019), Indigenous People's consultation report, baseline study (2020) and the GoN's GESI Strategy for different sectors (Forestry, Agriculture, Ministry of Local Development). The Working GESI strategy/guideline could include the following:
    - Develop a working definition of the local community and primary stakeholders in the context of disasters and climate change (as explained in Recommendation 1 above). This definition should be used to identify and include representatives of the primary stakeholders/vulnerable groups in designing, planning, implementation and monitoring/reporting and benefit sharing for all project related programs and activities. Select interested/potential wards or municipality to pilot it.
    - Designate mandatory quota for women and the marginalized groups. For example, at least 50% women and 30% marginalized groups (marginalized Indigenous peoples; poor Dalits) for their inclusion across all project activities, for example in key decision-making, membership, consultation and awareness raising, technicians, local resource persons, recipients of resources- climate change induced DRR, agriculture, infrastructure development related equipment, training, materials, funds etc.)
    - Systematically integrate GESI in operations and project cycle. The Working GESI strategy/guideline should provide a clear direction and resources to systematically integrate GESI in all stages of the project cycle management (design, planning, implementation and M&E).
    - The project's and its partners' senior management and project supervisors should be held accountable. Terms of Reference (ToR) and appraisal systems should incorporate responsibilities for social and gender results in planning and delivery. Designation of GESI focal points, staffs etc.
    - Provision to ensure "Free, Prior and Informed Consent (FPIC" in decision-making. The FPIC is to establish bottom-up participation and consultation of indigenous population prior to the beginning of development on ancestral land or using resources within the indigenous population's territory. Indigenous people have a special connection to their land and resources, and they inhabit 20% of the earth's surface. These areas are environmentally rich in both renewable and non-renewable resources. The collective ownership style of most indigenous peoples conflicts with the modern global market and its continuous need for resources and land. To protect indigenous peoples rights, international human rights law has created processes and standards to safeguard their way of life and to encourage participation in the decision-making process.
    - Use of local languages in extension, communication, and information and respect of customary laws and practices.

8. **Develop a capacity building package with adequate resources, for the project's staffs and its key and direct partners to enhance GESI integration.**

- Strengthen knowledge and skills of local level resource persons, technicians and managers of both government and non-governmental institutions (e.g. Municipalities, Wards, civil society organizations, local resource persons, media) to develop, implement, and monitor GESI responsive local plans.
- The focus of the capacity development package should be on strengthening their: a) participatory skills and methods; GESI analysis; vulnerability assessment from GESI perspectives; planning and M&E; understanding the linkages between GESI and DRR/Climate Change; b) leadership, Organizational Assessment (including accountability, creating enabling environment and cooperation for GESI issues); etc.
- Develop and implement gender and social inclusion responsive materials, approaches and methods.

Annex- K 6. Gender Action plan

Gender Equality, Disability and Social Inclusion (GEDSI) Action Plan
Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal

A Seven-year project proposal prepared for submission to Green Climate Fund
September 2021

Acronyms

CBO	Community-Based Organization	IDE	International Development Enterprise
CC	Climate Change	IP	Indigenous People
CF	Community Forestry	KU	Kathmandu University
CFUG	Community Forestry User Group	LRPs	Local Resource Persons
DHM	Department of Hydrology and Meteorology	MEDPA	Micro-enterprise Development for Poverty Alleviation
DoFSC	Department of Forests and Soil Conservation	MoFE	Ministry of Forests and Environment
DRR	Disaster Risk Reduction	MoEWRI	Ministry of Energy, Water Resources and Irrigation
DSCWM	Department of Soil Conservation and Watershed Management	NGO	Non-Governmental Organization
DNPWC	Department of National Park and Wildlife Conservation	NTFP	Non-Timber Forest Products
EWS	Early Warning System	SOP	Standard Operating Procedure
GEDSI	Gender Equality and Social Inclusion	ToR	Terms of Reference
GLOF	Glacial Lake Outburst Floods	ToT	Training of Trainers

Project's expected results

- Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions.

GEDSI outcome statements of the project

a) Institutional level

- Climate Change induced disaster, watershed related government institutions at federal, provincial and municipality and ward levels[217] and local level non-governmental organisations in the project areas have integrated GEDSI in their working strategies, GLOF/DRR/CC tools and methods, and in provincial and municipality, ward level planning cycles, and monitored regularly.

b) Community level

- Poor and marginalized women and men are leading and managing at least 35% of the GLOF/DRR, Integrated Watershed Management and Eco-system based related committees in the project areas

- Poor and marginalized women and men have increased resilience to climate change through improvement of their capacities and accessed early warning system for climate smart agriculture, nature-based solutions, integrated watershed management, alternative energy technologies and agroforestry-based tourism.

Risks:

- Costs of adopting or learning new Climate/DRR knowledge and technologies for women and marginalized groups in terms of increased labor, time, language.
- Commitment issues from the project and partners (priority - budget, quality of training and inputs - GESI might not be high priority)

[217] Government Institutions: Mainly MoFE, MoEWRI , DHM, DoFSC, DNPWC, local governments.

Project's expected outputs (1): Institutional and technical capacity strengthened to develop and integrate climate risk and hazard information into planning and development.							
Project activities	**GEDSI activities**	**Baseline**	**Target[218]**	**GEDSI indicators**	**Timeline**	**Responsible**	**Estimated budget for GEDSI (USD)**
<u>Activity 1.1</u> Strengthen the knowledge base and technical capacities for improved climate research and risk reduction strategies.	i) Develop Practical GEDSI Working Strategy for the project (Arun & Dudhkoshi watersheds for 5 Selected Municipalities and 10 wards) with mandatory provisions for training, policies, monitoring mechanism to address gender-based violence (GBV); and establish grievance redress mechanisms developed in accordance with UNDP's Social and Environmental Standards - 2021(SES) Toolkit and Guidance Note.	• GEDSI working strategies in new rural municipalities and wards absent. No/ limited GEDSI budget and skilled staffs in • GEDSI related participatory tools and methods. Limited levels of participation of women and socially excluded groups in climate change decision making committees	i.a) GEDSI Working strategy, developed for: the Project and 5 rural municipalities and 10 wards; i.b) Orientation training on GEDSI strategy and integration, together with GBV and GRM training for project staff and 5 municipalities, 10 wards. In Project areas: • 40% women members in CC/DRR- related committees • 25% from socially excluded groups (i.e. highly marginalized IPs and Dalits); • Women hold 40% key decision-making positions/or vital posts in committees.	i.a) GEDSI integration, GBV, and GRM-related training conducted across 5 municipalities (10 wards); i.b) GEDSI working strategies and a Grievance Redress Mechanism (GRM) are in place and functioning in at least 50% of the targeted wards and municipalities, with a dedicated GRM Focal Point and grievance reporting/response mechanism established. i.c) Increased participation of women (40%) and socially excluded groups (25%) in climate change key decision making positions.	I ii. Year 1 - 2	Implementing Parnter (Executing entity) with support from GESI Expert and mandated ministries/ partners.	60,000
	ii) Review from GEDSI perspectives, at least 5 key climate risk reduction related	• Current Climate and DRR related assessment	ii.a) Review at least 5 key climate-Induced disaster-related documents (e.g. SOP; climate risk	ii.a) Indicator: GEDSI lens integrated into key climate induced disaster related guidelines,	ii) Year 1 - 2	ii) Implementing Partner (Executing entity) with support from GESI Expert	20,000

[218] In the first year, prior to project implementation, GEDSI baseline data will collected and reviewed in the 3rd and final year of the project (mid-term and final evaluation

	methods, tools, guidelines, documents etc.[219]	methods, approaches, guidelines, tools[220] are not GEDSI responsive. No or very limited dedicated budget line for GEDSI.	information products; climate-induced hazard recording and management database systems) from GEDSI perspectives. ii.b) ensure that at last 10% of poor and marginalized women's groups in 5 watershed areas lead and implement the project's and local government's multi-hazard risk reduction initiatives.	training/extension materials and documents ii.b) Indicator: at least 15% of poor and marginalized women's groups in watershed areas leading and implementing project's and local government's multi-hazard risk reduction initiatives.		and mandated ministries/ partners.	
	Iii.a)) Integrate GEDSI into climate change disaster/hazard training manuals and organize **participatory training for govt. CSOs** on incorporating GEDSI in CC, DRR, and GLOF risk management for key technical staff from 4 ministries, 5 partner organizations, and **20 male 'gender champions'** at provincial, municipal, or ward levels.[221]	• Technical and extension staffs; Local resource persons have very limited skills and knowledge social/participatory methods and approaches and on integrating GEDSI in CC/DRR. • Project's and government's key climate risk reduction methods, tools, guidelines are not GEDSI responsive.	iii.a) GEDSI integrated in project's and government's training manuals and trainings. Iii.b) 15 participatory GEDSI awareness trainings/orientations on integration in CC/ DRR and GLOF risk management and coaching for about 50 government and CSO partners in project areas; Iii.c) Training for 20 male gender champions;	iii.a) Project's key government partners at federal (4), and 5 municipality, have integrated GEDSI in annual work-plans with dedicated budgets, included GEDSI results/ achievements in annual reports. Project level senior GEDSI advisor hired.	iii) Year 1, 2, 3, 4, 5	iii) Implementing Partner (Executing entity) with support from GESI Expert and mandated ministries/ local government, local CSO/CBO/ LRPs partners.	5 x 35,000 = 175000

[219] Example: Review GLOF risk assessment and management approaches; watershed based multi-hazard methods and guidelines; risk and vulnerability assessment methods and tools; Climate-induced hazard recording and management database system in DHM and other agencies, SOP for implementing integrated GLOF risk reduction in vulnerable watersheds; climate risk information products etc.
[220] Above mentioned document.
[221] Male Gender Champions: invest in men to engage them in understating and promoting women's leadership. Example: DHM, DoFSC, DNPWC, KU, local DRR committees, municipalities/wards etc.).

			Iii.d) Senior GEDSI advisor for the project recruited (NPSA 9).[222]				
	iv.a))Conduct 3 ToT (5 days each) for 30 **Local Resource persons** (LRPs) /extension staff on GEDSI awareness and integration in CC, DRR and GLOF: Conduct 30 (I days each awareness trainings) for **local communities** in Koshi basin area.	• Limited social and technical skills and methods of extension staff and partners. • Limited awareness and understanding of the CC/DRR/GLOF issues and their roles in managing it.	iv.a) 3 ToTs, 5 days each for 30 potential federal, provincial and municipality level trainers/ LRPs iv.b) 30-one day each training for selected communities in Kosi Basin (vulnerable ward targeting vulnerable women, men in project area).	iv) A pool of trained GEDSI-DRR/CC resource persons (75% women, 25% men, including at least 50 marginalized IPs and Dalits) is developed and demonstrates skill application at local levels and within project/partner organizations.	iv) Year 1, 2, 3, 4, 5	Implementing Parnter (Executing entity) with support from GESI Expert and mandated ministries/ local government, local CSO/CBO/ LRPs partners.	50,000
	v) Establish a regular and systematic coaching/monitoring system on GEDSI within project through recruitment of senior level GEDSI advisor for the project; Provision for incentives, recognition for male leadership to promote women's leadership/ roles.	• No coaching and mentoring system in place to support GEDSI trainings, which limits their effectiveness and impact.	v).Training/coaching, recognition and incentives for male gender champions to promote women's leadership in GLOF, DRR, CC. Coaching and mentoring provided to the project, government staffs and LRPs (4 times a year)	v.a) a structured and budgeted coaching and mentoring system on GEDSI is established within the project. v.b) Number of events/actions supported by male GEDSI champions to promote women's leadership. v.c) Climate/ DRR/GLOF budget and resources mobilized by women leaders and marginalized groups.	Year 1, 2, 3, 4, 5	Executing entity with support from GESI Expert and mandated ministries/ local government, local CSO/CBO/ LRPs partners.	32,500
	iv) Organize Exposure visit for women and marginalized groups for learning and	iv) Women, poor, IPs, and marginalized group lack exposure and excluded from climte	iv. Organize a 3-day in-country exposure visit on Climate Risk Management annually for women, with	• % of highly marginalized women, IPs and Dalits who participate in the	Year 1,2,3,4,5.	Implementing Partner (Executing entity) with support from GESI Expert and mandated	5*25*1500 =187,500

[222] The GESI Expert will provide both strategic and implementation support to the project by reviewing, developing, and integrating GEDSI actions into the project's workplan. This role also includes periodic monitoring, coaching, and mentoring support to the project and government partners, as well as assisting with GEDSI data collection, management, and its integration into planning processes.

	sharing on Climate Risk Management	change and DRR-related incentives and initiatives.	at least 60% from marginalized, vulnerable groups, and Indigenous Peoples (IPs), engaging 25 participants/ year over a five-year period.	exposure visit each year. • % of women, IPs and Dalits who actively participate in climate risk management initiatives and influence decisions to benefit them.		ministries/ local government, local CSO/CBO/ LRPs partners.	
<u>Activity 1.2</u> Develop policy and financial mechanisms for sustainable GLOF and flood risk information services.	i)Integrate GEDSI in a) Sector-specific climate risk management plans; and ii) Development of long-term integrated watershed management strategy for managing CC induced disaster risks for proposed watersheds.	I) New baseline - GEDSI action plan for GLOF/climate change induced disasters absent.	I)) 4 of glacial watershed management plans have integrated GEDSI.	I)) number of glaciated watersheds (Arun and Dudhkosi) management strategies and plans have specific GEDSI actions and budgets.	i)) Year 2 - 6	i)) Implementing Partner (Executing entity) with support from GESI Expert and mandated ministries/ local government, local CSO/CBO/ LRPs partners.	4*20,000 =80,000
	vi) Review institutional arrangements and capacity for GLOF from GEDSI perspectives.	vi) New baseline institutional assessment from GEDSI perspectives absent.	vi) 5 institutional assessments carried out and results integrated in planning and budgeting, with dedicated GEDSI focal points at federal and provincial levels; System of collecting, recording, using disaggregated GEDSI data established within sector in selected wards and municipalities.	vi) Number of federal and provincial agencies with dedicated GEDSI focal points and gender responsiveness integrated into planning and budgeting processes.	vi) Year 1 - 3	vi) Implementing Partner (Executing entity) with support from GESI Expert and Mandated Ministries/ Local Government.	5*8000 =40,000
Sub- Total (Output 1)							**645,000**

Project's expected output 2: Improved hazard monitoring and the generation and dissemination of early warning to local communities and important economic sectors.

Project activities	GEDSI activities	Baseline	Target	GEDSI outcome indicators	Timeline	Responsible	Estimated budget exclusively for GEDSI (USD)
<u>Activity 2.1</u> **Improve observation network density in GLOF watersheds to strengthen the technical capacity of DHM for the monitoring of climate hazard and risk.**	**NOTE:** GEDSI working strategies/guidelines, capacity building activities etc. proposed for Output 1 will also address or cover Output 2 Activities 2.1						
<u>Activity 2.2</u> **Improve early warning systems to strengthen adaptive capacity and response to GLOFs and other climate hazards.**	i) Improve EWS to strengthen adaptive capacity and response to GLOF and other climate hazards, with focus on GEDSI integration.	i) Limited awareness among women, marginalized groups, persons with disabilities (PWD) regarding EWS and their roles in responding to climate hazards. **ii)** Little or no representation of women, marginalized groups IPs, PWDs in the design, implementation, or monitoring of EWS.	60% of women, marginalized groups, and PWDs in project areas demonstrate improved understanding of EWS At least 40 % representation of these groups from GLOF-vulnerable areas lead and manage community -based EWS committees, serve as Local Resource Persons (LRPs) training others, and mobilize CC/DRR-related resources and equipment from the project and local government.	% of of women, marginalized groups, Indigenous Peoples (IPs), and PWDs from GLOF-vulnerable areas take on leadership roles in community-based EWS committees, are LRPs; and have mobilized CC/DRR resources.	i) Year 1 - 2	i) Implementing Partner (Executing entity) with support from GESI Expert and Mandated Ministries/ Local Government, Local CSO/CBO/ LRPs partners.	5*6000 =30,000
	ii) Conduct site-specific risk and vulnerability assessments, focusing on historical discrimination + situational + climate	ii) Baseline to be established at project inception	ii) Risk and vulnerability consider both historical, situational and climate risks and vulnerabilities 10 selected municipalities in	ii) List of most vulnerable locations, families identified, shared within project and with respective DRR	ii) Year 1 - 3	ii) Implementing Partner (Executing entity) with support from GESI Expert and mandated ministries/ local	2*25,000 = 50,000

	vulnerabilities [223] to identify most critical locations and populations for targeted interventions and outreach.		the two glaciated basins (i. e. Arun & Dudhkoshi).	committees of wards and municipalities.		government, local CSO/CBO/ LRPs partners.	
	iii) Organise and strengthen local interest groups in 10 municipality of the project areas. Women's groups and poor and highly marginalized indigenous, people with disability and Dalit groups.	iii) New baseline no data and most of the existing interest groups, women's groups are non-functional.	iii) List of 31 women's groups and highly marginalized groups participating in project's and government's DRR/GLOF and CC related programmes.	iii) Identification and mapping of groups including: women's groups, highly marginalized, indigenous peoples, people with disabilities and Dalit groups.	iii) Year 2 - 6	iii) Implementing Partner (Executing entity) GESI focal points, LRPs	31*5000 =155,000
	iv) Strengthen and collaborate with partner agencies in GEDSI and climate resilient livelihood expertise such as local chapters of HIMAWANTI Nepal [224], women led cooperatives etc. in the project areas.	iv) Government's Pakhribas Agriculture Research Centre has agriculture, horticulture and livestock programmes with tested products which has established market; women led cooperatives and HIMAWANTI have expertise and networks on organising women and marginalized groups in livelihoods	iv) At least 16 women's groups and highly marginalized groups leading agro/nature-based tourism product developed and marketed. e.g. 15 homestays run by trained women and serving/ selling organic products[225]; 15 women lead farmers or 16 nos. of women's groups collaborated with expert agencies such as Pakhribas Agriculture Centre; MEDEP, HELVATAS, IDE etc. practicing, promoting/marketing	iv) Increase in municipalities and cooperatives, women's groups promoting women's local products, including with support and dedicated budget.	iv) Year 2 - 6	iv) Implementing Partner (Executing entity) - GESI Expert and technical staffs of project and DHM, DNPWC, DOF; LRPs.	16*5000 =80,000

[223] Historical discrimination and situational vulnerability mean communities who have been historically discriminated and disadvantaged due to religious, social, caste, laws and other reasons resulting their vulnerable situations.

[224] HIMAWANTI: Himalayan Grassroots Women's Natural Resource Management Association, with grassroots women's networks in more than 40 districts.

[225] Example: super-health foods; XX products branded as women's organic products.

		and natural resource management.	organic farming and NTFPs; 31 of poor women and marginalized groups that have mobilized wards and project's resources (e.g. equipment for irrigation ponds; drip irrigation, organic fertilizers; technologies for spring water conservation).				
	v) Invest in and collaborate with, women lead cooperatives, partner institutions with expertise to support GEDSI responsive and climate resilient agroforestry/nature-based tourism, alternative energy technologies, water management in 16 potential municipality (mountain, mid-hill and tarai areas). (Annex 1):[226]	v) Makalu municipality has a programme to promote agro-tourism with advisors.	v) 31 municipality and 8 marginalized led/owned/ operated agroforestry/nature-based tourism products. 10% women and 5% highly marginalized people received employment opportunity and income from agroforestry/ nature-based tourism.	v) Number of municipalities or cooperatives collaborating with the Project and allocated resources and provided training on women's leadership for agroforestry-based or tourism skills enterprises. Percentage of women and highly marginalized people receiving employment opportunity or income from agroforestry/nature-based tourism.	v) Year 2 - 6	v) Implementing Partner (Executing entity) with support from GESI Expert and mandated ministries/ local Government, LRPs.	v) Refer above.
	vi) Conduct outcomes mapping to measure changes a) leadership practices of women and discriminated groups b)	vi) Poor/absent outcome level indicators and monitoring system to capture immediate	vi) 60% women leaders from highly marginalized groups have action plans and mobilized project & other financial resources;	vi) Outcome oriented planning and monitoring and system established. % of women leaders with action plans, project &	vi) Year 3-6	vi) GESI Expert, project and sectoral ministry's dedicated staffs and local	6*25000 =150,000

[226] **Ideas for climate resilient technologies, practices, products and expert agencies for collaboration:** Promote tested climate resilient technologies and practices that reduce women's workload and save time e.g. high-head drip irrigation; light -weight hand tillers, drought and flood resistant veg./crop seeds; home gardens, etc. Identify local forest, wetland, agri-products and brand as local women's niche products: e.g. Akbare chillies; NTFPs such as mountain incense; pepper (Timur); bamboo straws; grass mats etc. Women owned and run Homestays serving healthy organic foods and products etc. Identify and promote stall-fed livestock, horticulture and vegetable farming (Tested and promoted by Pakhribas Agriculture Centre and other agencies). Collaborate with expert agencies to promote tested alternative energy and adaptation technologies and practices such as– solar cold stores, cook stoves; rain water harvesting; spring water conservation etc.

	application of GEDSI knowledge and skills by SMs, c) application of GEDSI skills and knowledge by municipality and its partners institutions, and capture intended and unintended GEDSI outcomes (mid term and final).[227]	and intermediate level outcomes.	SMs, Municipality and their Partner institutions have a robust GEDSI- responsive M&E system for their respective institutions.	other financial resources mobilized; Gender expert hired to support the project. SMs.		government; CSO partners.	
Sub-total (Output 2)							**465,000**

Project's Expected Output 3: GLOF and flash flood risk and impact reduction measures implemented in priority glacial lake watersheds.							
Project Activities	**GEDSI activities**	**Baseline**	**Target**	**GEDSI outcome indicators**	**Timeline**	**Responsible**	**Estimated budget exclusively for GEDSI (USD)**
Construction structural and non structural measures (Civil and Nbs/ Bioengineering) for the risk reduction of GLOF and flash flood.	h) Organize inclusive community consultations and participatory workshops to engage women, marginalized groups, IPs and PWDs to ensure their needs, vulnerabilities, and local knowledge are incorporated into the design and implementation of risk reduction measures.	Limited women, marginalized groups, IPs and PWDs currently participating in community consukltations and decision -making proceses related to climate risk reduction.	More than 40% women particularly from highly marginalized groups engaged and benefitted.	Percentage of women, including from highly marginalized groups actively participating in community consulktations and workshops on climate risk reduction. Number of activities based on the needs of women and marginalized groups integrated into the final design and implementation of risk reduction measures.	Year 2-6	Implementing Partner (DHM) and RPs- DOFSC and NDRRMA	12,000
	ii) Provide GEDSI-responsive technical	i) EWS related technical trainings and initiatives	i) six group of women and poor Dalits,	i) Relevant government agencies (e.g., DHM,	i) Year 2 - 5	i) Implementing Partner (Executing	12*8000 =96,000

[227] **Outcome mapping for** a) GEDSI knowledge and skills gained and applied by poor and marginalized women and men leaders on GLOF/EWS management, Climate Risk/DRR etc.; Leadership practiced in DRR/CFUG/agroforestry-based tourism; and Income earned by poor and marginalized women and men; b) confidence levels of, and application of GEDSI skills and knowledge by SMs; c) confidence level of, and application of GEDSI skills and knowledge of targeted municipalities and their partner organizations.

	training for women, marginalized grouos and PWDS to enhance their participation in the construction and maintenance of risk reduction measures.	do not consider women and marginalized groups as their primary stakeholder.	elderly, people with disability, marginalized and poor and highly marginalized IPs are trained in EWS. And Six GLOF risk management committees	DoFSC, DNPWC, Local Government) have established GEDSI-segregated recording systems to track and report data from gender, social, IPs, and PWD perspectives.		entity) with support from GESI Expert and mandated ministries/ local government, local CSO/CBO/ LRPs partners	
	iii) Conduct women leadership training for both advantaged, and poor and highly marginalized women and men	ii) Marginalized women and men do not have access to leadership training programs in the GLOF-affected areas.	ii) women and men from both advantaged and marginalized groups each in Arun and Dudhkosi basin receive leadership training and regular coaching . ii) In project areas: 40% members of CC induced disaster related committees are women; 25% from socially excluded groups (i.e. highly marginalized IPs and Dalits); and Women hold 40% key decision-making positions/or vital posts in committees. (Note: Complements activity 1.1.)	Number of opportunities for marginalized women and men to participate in climate change -related-decision making in Arun and Dudhkosi basin,	ii) Year 2 - 5	ii) GESI Expert and technical staffs of project and DHM, DSCWM, DoF, LRPs.	6*13,000 =78,000
	iv) Strengthen and collaborate with at least 40% of	iii) GEDSI desegregated data collection system of municipalities and CC	iii) GEDSI desegregated data collection system of	% of municipality and ward-level climate-induced disaster-related	iii) Year 2 - 6	iii) Implementing Partner (Executing entity) - GESI Expert	15*4000= 60,000

	municipality and ward-level CC-induced disaster-related committees across the project to establish GEDSI desegregated data collection system in the Bipad Portal, enhancing reporting and programming.	induced disaster related committees, CFUGs poor/ absent.	40% of the total project's municipalities and CC induced disaster related committees established. iii) 15 municipalities and 15 CFUGs have adopted GEDSI desegregation data collection and reporting system.	committees that have successfully established GEDSI-disaggregated data collection system within the Bipad Portal, improving reporting and programming.		and technical staffs of project and DHM, DNPWC, DOF.	
Sub-total (Output 3)							**246,000**
Total Budget (Outputs 1, 2 and 3)							**1,356,000**
Human Resource (Regular) and Consulting Firm/ Consultants							**417,462**
Grand Total							**1,773,462**

Annex 1. Examples of organisations with GEDSI sensitive climate resilient best practices

Name of organisation	Expertise and best practices
• AEPC (https://www.aepc.gov.np)	• Alternative energy technologies e.g. tested and highly subsidized alternative energy technologies e/g/ improved cook stoves, biogas, solar etc.
• HELVETAS-Nepal (https://www.helvetas.org/en/switzerland/what-we-do/where-we-work/partner-countries/nepal) and ICIMOD (www.icimod.org)	• Spring water conservation (recharge); Climate Smart Agriculture; agro-based enterprises etc.
• IDE (https://idenepal.org)	• Alternative Technologies water harvesting; climate smart agriculture etc.
• HVAP/IFAD; USAID (https://operations.ifad.org/documents/654016/064716fc-003d-42fa-b837-e3521573f53f) • ASHA/IFAD (Adaptation for Small Holders in Hilly Areas Project) https://asha.gov.np	• HVAP: Financial Literacy (package) for highly marginalized groups and women (livestock and agro-forestry). Pro-poor Value Chains (e.g. Goat, Vegetable Farming; Cash Crops etc.); Seed funds/loans for the very poor. • ASHA: Adaptive/participatory Planning; Climate Resilient Livelihoods; natural resource and risk management;
• LIBIRD (www.libird.org)	• Home Garden, seed banks, Climate Smart Agriculture
• MEDEP/MEDPA (https://medpa.moics.gov.np)	• Trainings with skilled human resources/networks at local level on small and micro-enterprises
• NTNC (https://ntnc.org.np); Hariyoban/WWF/USAID (https://www.wwfnepal.org//hariyobanprogram/)	• Nature-based, agro-tourism and alternative energy and agriculture technologies and practices.
• Pakhribas Agriculture Center, Dhankuta	• For tested agricultural, horticulture and livestock technologies, approaches and seeds.
• PANI Project/USAID (https://www.usaid.gov/nepal/fact-sheets/paani-program)	• Water Conservation technologies, practices

• People (Energy and Environment Development Association PEEDA) (https://peeda.net)	• Climate smart alternative energy technologies improved cook stoves; solar cold store.
• SAHAS (https://www.sahasnepal.org.np)	• Climate Change related social mobilization methods and tools.
• UNDP/CDRMP (Comprehensive Disaster Risk Management Programme)	• Community based risk management methods, approaches and tools; gender responsive emergency preparedness and response; early recovery.
• USAID Nepal funded Hariyo Ban Project, Nepal. (https://www.wwfnepal.org//hariyobanprogram/)	• Alternative energy technologies; landscape level community based adaptation etc.
• Women Organizing for Change in Agriculture and Natural Resource Management (WOCAN) www.wocan.org	• Participatory GEDSI integration training, leadership training, GEDSI assessments and W+ Standard to measure empowerment of women from climate adaptation programmes/projects.

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Appendices

Appendix 1: Checklist for data collection

Guiding Questions for Institutional Level Data Collection (for federal, district and local levels)
GESI related structures and analysis capacities: ▪ What are the existing gender capacities of the institution? (GESI/GLOF/CC analysis skills; knowledge and skills on participatory methods and approaches etc.) ▪ Is there a policy/strategy/guideline on GESI? If not, is there any interest/attempt to develop a GESI policy? Does it use the findings of the gender research and assessments? ▪ Is gender expertise and capacity building budgeted for? Commitments: ▪ Are any changes made to make the M&E system more gender-friendly in terms of gender differentiation and in terms of operation? Do indicators exist to assess gender inequality and impact? ▪ Has gender been made a critical factor in the selection of activities and consultation processes? Are women and the marginalized groups consulted, and/or are their needs known and taken into account? ▪ What evidence is there of a commitment to the gender policy or gender mainstreaming program within the organization (management, different levels, board)? What kind of changes can be observed? ▪ Do you feel that the organization cooperates in promoting gender within the organization? Is so how?

Guiding Questions for Community Level Data Collection	
Material Condition Related Questions household and community levels	Social Position Related Questions - household and community levels

Definition of marginalized groups: ▪ Who are considered the marginalized groups from the CC/GLOF perspectives? And why? Engagement and participation: ▪ What kind of GESI/CC/GLOF related knowledge, skills and capacities do different groups of women and men have in the community? (Who does what? How? Where?; Who are the group members? Who are not included in the groups? Why? ▪ What are the GESI/CC/GLOF related needs and priorities of the different groups of women and men in the community? Access: ▪ What are the GESI/CC/GLOF related resources 228 in the community? What are the external GESI/CC/GLOF related interventions/resources in the community? Who has access to these resources? How? Who does not? Why? Benefit sharing: ▪ Who benefits the most from the forest- related resources and interventions and how? Who benefits the least and why?	Participation in decision-making; representation: ▪ Who are included in the decision-making processes and how (e.g. in Local government planning; LDRMP, LAPA, CAPA etc.)? ▪ Who controls decisions? How? Where? Why? ▪ Who leads? Who decides? Who influences decisions? ▪ What are the GESI/CC/GLOF related needs and priorities of the different groups of women and men in the community? Access to social position related resources/information: ▪ Who knows what? Why? Who knows very little, and why?

Appendix 2: List of People Consulted (KIIs/IDIs, FGDs and consultations)

2A. List of KIIs/IDIs

SN.	Name/ Position	Location	Organisation or Profession	Gender		Social Group			
				M	F	BC	D	J	O
1.	Indra Rai	Num, Simlae, Salbote, Makalu	Simale FUG Member	X				X	
2.	Narmaya Parajuli	Num Besi, Makalu	Single Women		X	X			
3.	Ashbol Rai	Num Besi, Makalu	Poor IP Farmer	X				X	
4.	Santa Bahadur BK	Num Besi, Makalu	Blacksmith	X			X		
5.	Jiban Prasad Dulal	Khadbari	CDO	X		X			
6.	Khil Prasad Sharma	Khadbari	Planning Officer, Khandbari Forest Office	X		X			
7.	Salina Rai	Khadbari	Assistant Forest Officer, Khadbari Forest Office		X			X	
8.	Narbhupal Rai	Tamku, Makalu	Rural Municipality Working Committee Member	X				X	
9.	Ganander Dahal	Arund Rural Municipality, Ward Number 6, Jarayatar, Bhojpur	Farmer	X		X			
10.	Sarita Rai	Arund Rural Municipality, ward Number 6, Jarayatar, Bhojpur	Women ward member		X			X	
11.	Devi BK	Arund Rural Municipality, Ward Number 6, Jarayatar, Bhojpur	Women Dalit ward member		X		X		
12.	Arjun K. Rai	Arund Rural Municipality, Ward Number 6, Jarayatar, Bhojpur	Farmer	X				X	

[228] Resources include – social, financial, human, physical and natural capitals.

13.	Phulmaya Rai	Arund Rural Municipality, Ward Number 6, Jarayatar, Bhojpur	Farmer		X			X	
14.	Bishnu Shrestha	Arund Rural Municipality, Ward Number 6, Jarayatar, Bhojpur	Farmer		X			X	
15.	Ritesh Shah	Pakhribash	Livestock Officer, PARC	X					X
16.	Narayan Bhandari	Pakhribash	Site Caretaker/Lead Farmer, PARC, Pakhribash	X		X			
17.	Bal Kumar Rai	Ward Number 6, Hatuwagadi, Ghoretar, Bhojpur	Ward Member	X				X	
18.	Durga Kumar Thapa	Udaipur	Chairperson, Belaka Nagarpalika	X		X			
19.	Ram Chandra Kadel	Kathmandu	Ecologist, DNPWC	X		X			
20.	Prem Kadel	Kathmandu	DDG/ DNPWC	X		X			
21.	Tamdev Chaudhary	Koshi Tappu	Warden, Koshi Tappu	X				X	
22.	Sarju Vaidhya	Kathmandu	DHM	X				X	
23.	Prativa Manandhar	Kathmandu	DHM-Gender Focal Point (GFP)		X			X	
24.	Indira Malapati	Kathmandu	DoFSC/MoEF - GFP		X			X	
25.	Prem Paudel	Koshi Tappu/Kathmandu	DoFSC/MoEF	X		X			
26.	Sindhu Dhungana	Kathmandu	MoEF-Chief-Planning/Gender Focal Point	X		X			
27.	Rishi Acharya	Kathmandu	MoFAGA	X		X			
28.	Kanti Rajbhandari	Kathmandu	Chair-HIMAWANTI		X			X	
29.	Saanu Taibe	Biratnagar	Member, HIMAWANTI		X			X	
30.	Sita Sunar	Kathmandu	Secretary, HIMAWANTI		X		X		
Total				19 (63%)	11 (37%)	11 (37%)	3 (10%)	15 (50%)	1 (3.3%)

Note: M = Male; F = Female; BC = Bahun/Chettri; D = Dalit; J = Janajati; O = Other

2B. FGDs and sharing workshop

2B1. Aggregated and disaggregated data on FGD participants

SN.	District	FGD Number and Names	FGD Type			No. of Participants Gender Wise		No. of Participants Caste/Ethnic Group			
			Rural Muni	Urban Muni	Orgnisation	Male	Female	Brahman/ Chettri	Dalits	Janajati	Tarai
1.	Dhankuta	Pakhribash Agricultural Research Centre, Dhankuta	-	-	X	7	1	4	-	1	3
2.	Dhankuta	Pakhribash Municipality	-	X	-	6	6	8	-	4	-
3.	Sunsari	Koshi Rural Municipality (Ward 3)	X	-	-	6	18	3	20	1	-
4.	Sankhuwasabha	Khandbari Municipality, Venus Hotel	-	X	-	12	3	3	1	11	-
5.	Sankhuwasabha	Makalu Rural Municipality (Ward 5) (women), Num, Saraswati Tole	X	-	-	1	13	-	12	2	-
6.	Sankhuwasabha	Khandbari Municipality (Ward 9), Tumlingtar, Kumal Village (mixed Janajati group)	-	X	-	9	12	-	-	21	-
7.	Sankhuwasabha	Makalu Rural Municipality Office, Num Bazaar (mixed)	X	-	-	5	7	3	1	8	-
8.	Sankhuwasabha	Makalu Rural Municipality (Ward 5), Phyaksinda Besi (mixed group)	X	-	-	7	11	7	3	8	-
9.	Bhojpur	Hatuwagadhi Rural Municipality (Ward 6) Bhojpur (mixed group)	X	-	-	8	16	-	1	23	-
Total	4	9	3	2	1	61	87	28	38	79	3
Total number of people consulted						148					

Appendix 3: Sample of International and National Policies from GESI Perspectives

International Policies	GESI provisions
The Universal Declaration of Human Rights	• Accords protection to the rights of women prohibits discrimination and accords equality before the law.
The International Covenant on Civil and Political Rights	• Prohibits discrimination, promotes equality of women and men's rights and equality before the law.
The International Covenant on Economic, Social and Cultural Rights	• Prohibits discrimination, and calls for equality of women and men regarding the rights recognized by the Covenant.
Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW),	• Adopted in 1979 by the UN General Assembly, is often described as an international bill of rights for women. Consisting of a preamble and 30 articles, it defines what constitutes discrimination against women and sets up an agenda for national action to end such discrimination.
Beijing Declaration and Platform for Action and Beijing +10	• Protects the human rights of women, as defined by international human rights instruments, will only be dead words unless they are fully recognized, protected, applied, and effectively enforced, at national legal and practical levels, in family, civil, criminal, labor and commercial codes, as well as in administrative regulations (Paragraph 218).
Gender and the UN Declaration on the Rights of Indigenous Peoples,	• The human rights of indigenous women are protected by all of the provisions of this UN Declaration, which also calls for particular attention to be paid to their rights and special needs, and calls upon States to take measures to ensure that indigenous women enjoy the full protection and guarantees against all forms of violence and discrimination.
The Hyogo Framework for Action (HFA),	• It is the first plan to explain, describe and detail the work that is required from all different sectors and actors to reduce disaster losses. It was developed and agreed on with the many partners needed to reduce disaster risk - governments, international agencies, disaster experts and many others - bringing them into a common system of coordination. The HFA outlines five priorities for action, and offers guiding principles and practical means for achieving disaster resilience. Its goal is to substantially reduce disaster losses by 2015 by building the resilience of nations and communities to disasters. This means reducing loss of lives and social, economic, and environmental assets when hazards strike.
UN Convention on Rights of People with Disabilities (UNRPD)	• Adopted in 2007, aims to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities, and to promote respect for their inherent dignity.

National Policies and Strategies	GESI provisions
Disaster Risk and Management Act 2074 (2017)	• Have provisions that women at risk of disaster, children, senior citizens, Dalits, marginalized groups and communities, and people with disabilities

	will be provided with special plans and programmes.
Disaster Risk Reduction National Policy 2018	• Access, representation and meaningful participation of women, children, senior citizen, people with disabilities and the people from economically and socially marginalized communities will be ensured in all steps and structures of disaster risk reduction based on inclusive disaster management concept.
Guidelines: Disaster Preparedness and Response Plan (DPRP) 2011	• Includes gender and cross cutting issues in preparedness and response planning; recognizes the different needs, capacities and contributions of women, girls, men and boys; ensures that the protection and assistance provided in emergencies is planned and implemented; considers the needs and capacities of people with disabilities (PWD), women, and other excluded groups; active participation in planning, implementing and monitoring of the preparedness as well as response activities.
Guidelines: District Disaster Management Plan (DRMP), 2012	• Ensures participation of women, socially excluded groups, persons with disability in planning, implementation, monitoring and reporting; collection and maintenance of District Profile by sex, age, disability and ethnicity/caste disaggregated data; GESI analyses for District Profile.
Guidelines: Local Disaster Risk Management Planning (LDRMP) 2012	• Implementation of LDRMP has been made mandatory for all local government bodies and it aims to institutionalize disaster risk management work and mainstream it into annual programmes at the local level. It ensures participation women, socially excluded groups, persons with disability at all loves of the development of the Local Disaster Risk Management Plan. Mapping and documentation of VDC profile by sex, age, disability and ethnicity/caste disaggregated data.
National Climate Change Policy 2019	• The policy has recognized the need to integrate GESI through its Objectives, "To mainstream GESI into adaptation and mitigation programs", and as inter-thematic area with GESI related 6 key strategies and working policies. However, the policy is not informed by the specific problems, challenges and opportunities faced by different groups of women and men in the context of climate change. The differential impacts of climate change (CC) on different groups of women and men are not taken into consideration. Even though the GESI policy (inter-thematic area), mentions about different vulnerable groups [229] to be addressed, the sectoral policies within it considers the community/citizens as a monolithic groups and does not take into consideration their historical discrimination, situational vulnerabilities, and hence the differential impacts of CC on these groups. There are no GESI Outcomes making it difficult to measure the achievements in the end of the policy.
National Adaptation Programme of Action (NAPA) to Climate Change 2010	• Climate-induced disasters are one of the themes; GESI as cross-cutting sectors; and gender sensitivity analysis of climate change impacts on NAPA themes. However, the GESI analysis is not fully used to inform the plan and is parked as Annex 5 in the NAPA document.

[229] Chapter "8.9 GESI, Livelihoods and Good Governance" describes vulnerable groups as: Women, Dalit, indigenous people, Madheshi, Tharu, Muslim, oppressed groups, backward class, minorities, marginalized, farmers, laborer, youths, children, senior citizens, persons with all forms of disability, pregnant women, incapacitated and disadvantaged persons or groups

National Disaster Response Framework (NDRF) 2013	• Disaster response activities (61 operational activities from 0 hour 1 month) include: special protection arrangement at the camps and distribution sites for the protection of women, children, elderly, disable (47 activities), MoWCSW; ensure safe environment for survivors particularly the vulnerable groups, and control gender base violence (54), DWDO; social support to unaccompanied children, disable and elderly, who have lost their supporting family members; and reunion of their lost members or relatives (56), MoWCSW/DWDO; Emergency Response Preparedness; protection plan of the vulnerable groups and gender based violence (28), DWDO.
Gender Equality and Social Inclusion Policy of Ministry of Local Development 2010	• Have provisions for GESI being mainstreamed in municipalities by trans-formatory social mobilization by creating community level institutional structures like Inclusive Ward Citizen Forums and Integrated Planning Committees supported by Social Mobilization Guidelines and Capacity Development Guidelines of MoFALD; Social Units in Municipalities facilitate GESI mainstreaming in planning, budgeting, and monitoring; Socially Excluded Groups: Women, Dalits, indigenous nationalities, Madhesis, Muslims, Children below the age of 16 years, senior citizens above the age of 60 years, persons with disability and people living in geographically remote areas
Forest Sector GESI Strategy-2007	• Vision "Ministry of Forests and Soil Conservation is a gender and social equity sensitive and socially inclusive organization practicing good forest governance to ensure equitable access to, benefits from, and decision making power over forest resources of all stakeholders." Its Outcomes states: Favorable policy environment that is GESI sensitive/responsive conservation; Resource, services and benefits made available to the women, poor and excluded in a transparent and accountable manner; GESI responsive program budget and monitoring system institutionalized in all service delivery in conservation; Rights to equitable access and utilization ensured resources, services and benefits.
Forest Sector Strategy (2016-2025)	• Outcome 3 is about inclusive Forest sector organisations and institutions and focuses on increasing participation, competency and leadership of women, indigenous nationalities and other poor and socially excluded groups and individuals. It promote gender equity, inclusive development and economic uplift of the poor, women, dalits, janajatis, adibasi and other marginalised groups of people
Agriculture Development Strategy (ADS) 2015 to 2035.	• The vision, objectives, institutional mechanisms of the strategy has identified inclusion as one of the main component and has provisions for integrating GESI. Although the Strategy promotes capital (commercial) intensive mode of agriculture development, its institutional mechanisms, objectives and actions does provision for GESI integration e.g. emphasis on ensuring farmer's participation in planning, decision making, implementation and monitoring; classification of farmers (commercial, subsistence and landless), where the subsistence and landless farmers will be directly benefitted from the programme, "*The direct effect is very strong in the case of the ADS measures related to gender, social, and geographical inclusion; land (eg. addressing the issues of tenancy, land leasing, cooperative farming, reversing the trend towards degraded land)*."
Fifteen Plan (2076/77-2080/81)	• Its strategy states: Gender equity and social inclusion mainstreaming in

Approach Paper.	Forests, biodiversity and watershed management and equitable sharing of benefit and its Working policy states: implementation of GESI strategy (with revision) in community based forest management modalities.

Gender Action Plan Template with Examples						
Project-level outcome (e.g. Systems and capacity for effective climate adaptation established) [note: align the gender-related activities with project-level outcomes, as relevant. Please also include an activity line for hiring the Project Gender Officer, as relevant]						
Gender-related activities	**Indicator**	**Target [note: progress must be reported annually to GCF on the status of all targets in the GAP]**	**Baseline**	**Budget (including currency)**	**Timeline**	**Responsibility**
e.g. Establishment of water basin management committee with participation of women, poor and excluded in both leadership and non-leadership (staff) positions	*e.g. Committee established that includes women and members of the diverse communities of the basin*	*e.g. 40% of committee members women; 15% from diverse communities of the basin; women make up 40% of leadership positions*	*e.g. No existing water basin committee*	*e.g. % of budget or total estimated amount*	*e.g. years 1 and 2*	*e.g. Ministry of Natural Resources*
E.g. Conduct capacity-building activities to develop tools, emphasizing the capacity needs and priorities of women.	*e.g. # of capacity building activities developed integrating priorities and needs of women*	*e.g.5 workshops developed that fully integrate the priorities and needs of women*	*e.g. 0 capacity building tools*	*e.g. % of budget or total estimated amount*	*e.g. years 2 and 3*	*e.g. Project Gender Specialist*
Total budget allocation (% or amount):						

Annex L: UNDP Risk Register

Project Title: Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal **Project Number:6045** **Date: Click or tap to enter a date.**

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
1	There is a risk that, during project implementation, key project personnel and relevant government staff from provincial and local governments may be frequently rotated, which could disrupt the project's smooth implementation.	As a result of the limited capacity of staff in key government institutions to implement effectively and on time. Staffing challenges may be further compounded by remote locations and short windows of opportunity for work in high altitudes.	Which will impact on delaying the project implementation and negatively impact the retention and transfer of institutional knowledge gained under the project	**7. STRATEGIC (7.6. Change/turnover in government) - UNDP Risk Appetite: OPEN TO SEEKING**	Likelihood: **2 - Low likelihood** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	UNDP	**Risk Treatment 1.1:** Regular stakeholder consultations will be held with all project partners involved in project implementation to ensure that institutional capacity is retained in the event of turnover of key project personnel and government staff. **Risk Treatment 1.2:** The PSC will ensure coordination between relevant project stakeholders during the implementation phase. The PSC will identify personnel whose primary responsibilities will be to serve as a focal point for facilitating stakeholder engagement during the implementation of the project. **Risk Treatment 1.3:** Project operational handbooks will be developed to provide project staff with standardized training on project interventions. UNDP, as the AE, will provide close oversight of project implementation, supporting government staff as needed to avoid delays caused by capacity shortfalls.

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
								Risk Treatment 1.4: Measures related to the smooth transition of the staff may not experience delay by establishing knowledge inventory as part of the institutional memory. **Risk Treatment Owner:** Project Coordination Specialist
2	There is a risk that the mobilization of the workforce for construction and other required services will be difficult during the project implementation	As a result of remote locations and short windows of opportunity for work in high altitudes.	Which will impact on timely implementation of the project activities	**3. OPERATIONAL (3.7. Occupational safety, health and well-being) - UNDP Risk Appetite: EXPLORATORY TO OPEN**	Likelihood: **2 - Low likelihood** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**		**Risk Treatment 2.1:** For remote location access: drawing on past experience, the project will engage in advanced planning to ensure timely mobilization of human resources not to miss the working season in harsh remote locations (in such locations, working season is only a few month-window during the year for hard work). **Risk Treatment 2.2:** The project will also use the local work force who are accustomed to the conditions and are capable of doing hard work in such locations. **Risk Treatment Owner:** Project Coordination Specialist
3	There is a risk that a GLOF could occur, leading to sudden and severe flooding that may cause loss of life and damage of assets.	As a result of the occurrence of a GLOF, other flooding event, earthquake or other natural disaster or climate change-related event during project implementation	Which will impact on objectives and timely delivery of the project as well as occupational health and safety risk to the project staff and people resulting long-term negative impacts on	**8. SAFETY AND SECURITY (8.6. Natural hazards) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **3 - Moderately likely** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	DHM	**Risk Treatment 3.1:** Project interventions will be continuously monitored to identify potential extreme events for appropriate measures to be enacted should such an event occur. **Risk Treatment 3.2:** Operational manuals will also be developed to identify the necessary measures to be enacted for different

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
			vulnerable communities and ecosystems in the project areas.					extreme events and hazards (Activity 1.1). **Risk Treatment 3.3:** To ensure as minimal disruption as possible to project interventions, disaster mitigation and response activities will be prioritised at the target communities while the project interventions are being established. **Risk Treatment 3.4:** Project implementation schedules will consider historical trends regarding the frequency of extreme climate events and will plan around these periods accordingly. All available information from DHM will be used to assess the GLOF risk prior to and during implementation. **Risk Treatment Owner:** DHM
								Risk Treatment 3.5: Where possible, downstream risk reduction interventions will be conducted after lake lowering and EWS interventions, when the risk is already reduced. Workers will be briefed on the potential risks, signs to be aware of, and actions to take in the event of an emergency. **Risk Treatment Owner:** DoFSC

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
4	There is a risk that delays in the procurement process may hinder timely implementation of project activities leading to affecting the delivery schedule.t	As a result of challenges in identifying suitable service providers for the higher altitude. Further, there might be the grievances or complaints to the government procurement system, further escalated to the investigation authority	Which will impact efficient implementation of project interventions affecting project schedule.	**4. ORGANIZATIONAL (4.9. Procurement) - UNDP Risk Appetite: EXPLORATORY TO OPEN**	Likelihood: **2 - Low likelihood** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	UNDP	**Risk Treatment 4.1**: UNDP will assist DHM with the procurement process to ensure that the process proceeds according to international standards and to ensure that any delays or problems that arise are resolved quickly and efficiently. Moreover, UNDP's experience in the adaptation field will enable them to directly approach potential partners should the initial rounds of the procurement process prove unsuccessful. **Risk Treatment Owner**: UNDP **Risk Treatment 4.2**: Additional mitigation actions identified to avoid procurement delay include: i) advance procurement planning and approval of procurement plan at the time of approval of annual work plan of the project; and ii) directly working with the entities who have gone through competitive process and the government or UNDP has long-term agreements signed. Fair pricing and transparency is mandatory for both the government and UNDP to ensure a competitive process has been adopted in procurement as set by standard procurement rules of the government and UNDP. All procurement notices are made public and given sufficient time to seek quotations or bids, which are evaluated based on pre-set criteria,

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
								which is part of procurement notice. All project transactions are mandatory audited by the government and UNDP as per set audit rules every year which also includes financial management **Risk Treatment Owner**: UNDP
								Risk Treatment 4.3: Given the relevance of EWS, weather stations and measuring equipment and civil works among the projected procurement needs for this project, a dedicated meeting will be scheduled between UNDP Nepal and Bureau of Management/Office of Procurement/Crises, Climate and Infrastructure Team soon after securing GCF Board approval. UNDP also has the option to channel high-value procurement actions through existing corporate LTAs. In addition, UNDP can also provide specialized support for infrastructure/civil works and lessons learnt through other GCF projects of a similar nature. **Risk Treatment Owner:** UNDP
5	There is a risk that shift in political priorities may potentially disrupt the project implementation and achievement of intended outcome.	As a result of the frequent cabinet reshuffles or new elected government from the upcoming federal and/or local government elections may bring the	Which will impact in project stakeholders' engagement diverting their efforts away from project implementation that could directly impact	**7. STRATEGIC (7.5. Government commitment) - UNDP Risk Appetite: OPEN TO SEEKING**	Likelihood: **2 - Low likelihood** Impact: **3 - Intermediate** Risk level:	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	UNDP	**Risk Treatment 5.1**: The Government of Nepal's transition from a unitary governance system to a federal democratic republic means that the mandates, capacities and interagency relationships of governmental institutions and mechanisms are still being established. While Nepal's

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
		new agenda and new priorities.	the outcome of the project.		**MODERATE (equates to a risk appetite of EXPLORATORY)**			Constitution and its Local Government Operation Act (2017) both provide detailed information on the roles, responsibilities and coordination mechanisms of government operations, the project will be developed with the lessons learned from previous and existing projects in Nepal to ensure that project activities incorporate, but are not solely reliant on, government agencies. This approach aims to minimise the impact of any potential shifts in the political landscape. The PSC will engage directly with the NDA to ensure close communication with government officials and to identify and address potential delays or changes to project management or interventions. **Risk Treatment Owner**: UNDP
6	There is a risk that check dams constructed in the project areas as a part of project interventions may not sufficiently mitigate extreme flood events in the downstream which potentially damage to infrastructure, disruption of livelihoods, and negative impacts on	As a result of inadequate study, proper forecasting of the severity of disaster and the fault in preparing design specifications as part of the mitigation	Which will impact on overall objective of the project and the continued flood risks to targeted communities in downstream.	**8. SAFETY AND SECURITY (8.6. Natural hazards) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **3 - Moderately likely** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	NDRRMA	**Risk Treatment 6.1**: Prior to construction, all infrastructure will be designed based on site evaluations, with specifications relevant to each target site (Activities 3.1 and 3.2). The construction of these infrastructure will occur during periods when extreme climate events are less likely according to historical trends to minimise the potential risks during construction. All infrastructure will be designed and built to be consistent with international engineering standards, to ensure that they are resilient to extreme climate events and natural disasters.

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
	vulnerable communities.							**Risk Treatment Owner**: NDRRMA
7	There is a risk that a lack of buy-in or commitment from communities where project interventions are intended to be implemented may undermine the timely implementation of the project interventions, reducing effectiveness and sustainability of the results.	As a result of inadequate participation in the decision-making, stakeholder consultation and the dissemination of the proper information creates different understanding of the project interventions	Which will impact negatively on the expected objectives, effectiveness and sustainability of the project activities	**7. STRATEGIC (7.3. Stakeholder relations and partnerships) - UNDP Risk Appetite: OPEN TO SEEKING**	Likelihood: **2 - Low likelihood** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	DHM	**Risk Treatment 7.1:** The project will actively seek to create community ownership of the project through community consultations and trainings and will accordingly encourage community participation in project activities. These community consultations and trainings will ensure that community members understand the importance of the project interventions, in addition to enabling them to effectively maintain, monitor and report on these interventions. **Risk Treatment Owner**: DHM
8	There is a risk that limited collaboration and coordination among project stakeholders, including relevant government departments, ministries and the private sectors may hinder effective and efficient implementation of the project.	As a result of power balance or struggle among the departments for approving/rejection of the decisions taken, ambiguity in managing the regulatory mechanism creates difficulty in stakeholder engagements processes.	Which will impact in the timely delivery, low delivery and effectiveness of the project	**7. STRATEGIC (7.3. Stakeholder relations and partnerships) - UNDP Risk Appetite: OPEN TO SEEKING**	Likelihood: **2 - Low likelihood** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	DHM	**Risk Treatment 8.1**: Extensive stakeholder consultations will ensure that the roles and responsibilities of project stakeholders are well defined, while also developing and strengthening existing interagency collaboration and coordination. The PSC will be responsible for ensuring coordination between all relevant project stakeholders during project implementation. This responsibility also includes facilitating stakeholder engagements during the project implementation to ensure continued collaboration and to mediate potential disputes. **Risk Treatment Owner**: DHM

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
9	There is a risk that the Procurement process may not be perceived as leading to concern of imbalance among the concerned stakeholder that undermine the project credibility.)	As a result of weak procurement processes i) price manipulation; ii) contractors lacking capacity/experience to deliver on time and in budget; and iii) contractors not following the procedures laid out in the ESMP	This will impact the quality and work schedule with likely delay in implementation of construction/civil works related to lake lowering and EWS equipment	**4. ORGANIZATIONAL (4.9. Procurement) - UNDP Risk Appetite: EXPLORATORY TO OPEN**	Likelihood: **2 - Low likelihood** Impact: **4 - Extensive** Risk level: **SUBSTANTIAL (equates to a risk appetite of OPEN)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	UNDP	**Risk Treatment 9.1**: UNDP, as the accredited entity, will ensure that fair and transparent procurement processes are followed, and that a detailed vendor selection process is carried out to assess the experience and credentials of potential vendors. The quality assurance process for the procurement of technical suppliers will include inputs from a suitably qualitied chief technical specialist , who will sit on the PMU, with support from members of the TAG. This includes screening proposals against the project's ESMP to ensure that all provisions for environmental and social safeguards are strictly adhered to. Should suitably experienced firms not be identified for the glacial lake lowering, the Nepal Army, who has experience implementing similar activities from previous GLOF risk reduction projects, may be brought in to support. **Risk Treatment Owner:** UNDP
10	There is a risk that challenges in maintaining financial sustainability and ensuring compliance with evolving environmental regulations, and protect infrastructure	As a result of Nepal's economic situation and the challenges faces related to adapting to changing political priorities during federal transition	Which will impact on the long-term sustainability of interventions	**7. STRATEGIC (7.5. Government commitment) - UNDP Risk Appetite: OPEN TO SEEKING**	Likelihood: **2 - Low likelihood** Impact: **3 - Intermediate** Risk level:	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	UNDP	Risk Treatment 10.1: a) Nepal's priorities to build resilience against risks including from GLOFs prevails all other priorities, including economic development, which will continue despite changes in political landscape, as risk reduction remains at the top of political parties agenda, b) as the transition towards federal system of

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
	against natural hazards may undermine the project implementation.				**MODERATE (equates to a risk appetite of EXPLORATORY)**			governance will be expedited in the near future, empowering sub-national governments who will be expected to play more stronger role in risk mitigation as per constitutional mandates c) project sites mainly include protected areas of Nepal, governed under strict environment conservation regulations supported by protected area laws, which has remained stable in comparison to other environment conservation related regulations d) at national level monitoring of GLOF risks and sharing risk information with concerned authorities has been embedded in the regular work stream of DHM funded from the government budget. **Risk Treatment Owner**: UNDP
11	There is a risk that related to money laundering (ML), terrorist financing (TF), and prohibited practices (PP)	As a result of weak financial oversight, particularly in remote or high-risk areas	Which will impact in undermine the integrity of project financing, leading to misallocation of funds, reputational damage, and potential legal repercussions, or expose the project to illicit financial flows, impacting effective	**5. REPUTATIONAL (5.6. Exposure to entities involved in money laundering and terrorism financing) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **2 - Low likelihood** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	UNDP	**Risk Treatment 11.1:** UNDP has robust processes in place to safeguard against money laundering, terrorist financing, and prohibited practices, clearly articulated in the stand-alone AML-CFT policy. The project will strictly follow the processes and procedures defined in this policy, including related to due diligence and partnership assessment criteria for all partners it engages. Each entity will be screened against the criteria set out in this policy and other policies referenced herein. Core project

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
			implementation and stakeholder trust.					partners have already been screened, with the overall PCAT risk rating for all partners to be engaged in the project assessed as "Low risk" or "Very Low Risk". **Risk Treatment Owner**: UNDP
12	There is a risk that the project may experience significant delays related to procurement issues or logistical challenges associated with works in remote and high-altitude glacial lakes, or more seriously should the works may not meet international technical standards.	As a result of Government of Nepal's bureaucratic procedures of the public procurement policies and act, diverse level of complaints and grievances on governmental process and the complex nature of the engineering activities under the project	Which will impact UNDP reputation as the technical assistance is provided by UNDP	**5. REPUTATIONAL (5.1. Public opinion and media) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **2 - Low likelihood** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	UNDP	**Risk Treatment 12.1**: The project has been designed in close consultation with technical experts both locally and globally. This includes detailed assessments during the design of the project's lake lowering interventions, with technical experts to ensure that designs are fully in line with international standards. The implementation plan, including disbursement schedule, logistical support and procurement actions are also prepared based on the narrow working season under difficult/remote conditions. During implementation, the project will continue to engage technical experts to bolster Project's internal capacity for meeting engineering standards. This will include ensuring that the full-time Project Coordination Specialist has considerable experience in managing complex engineering projects (including experience related to GLOF risk reduction), as well as the establishment of a Technical Advisory Group (TAG) that will bring together

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
								local and international expertise to provide technical oversight and guidance for the implementation of all technical engineering works. Furthermore, approaches to avoid reputational damage include the mitigation measures linked to procurement detailed in Risks 3 and 9 above, as well as mitigation measures related to works happening in remote locations and high altitudes described under Risk 5. **Risk Treatment Owner:** UNDP
13	There is a risk that rights holders and local communities in the project vicinity may lack the necessary capacities to effectively claim their rights which could undermine the sustainability of the project outcome.	As a result of the project operating in areas where villages are remote, literacy skills may be lacking, and indigenous peoples exist information does not reach all stakeholders; culturally inappropriate practices or messaging, grievances and/or reprisals are raised etc.	Which will impact on difficulty in implementing the project and related activities timely and smoothly	**1. SOCIAL AND ENVIRONMENTAL (1.1. Human rights) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **4 - Highly likely** Impact: **2 - Minor** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	DHM	**Risk Treatment 13.1**: Confirmation of land tenure at all project sites as part of detailed site survey during implementation (all sites identified are public) Initiation and Implementation of the Land Access Plan **Risk Treatment Owner**: PCS
								Risk Treatment 13.2: Three scoped ESIAs/ESMPs (on a catchment basis) to be made public and comments invited planned **Risk Treatment Owner**: Environmental/Social Safeguards Expert

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
								Risk Treatment 13.3: Implementation of the key measures as suggested by Stakeholder Engagement Plan Implementation of measures mentioned in ESMF. Establish and start implement the IPP(including FPIC protocol(s)) **Risk Treatment Owner**: Environmental/Social Safeguards Expert
14	There is a risk that the project interventions could replicate historical/structural exclusion of certain groups, undermining the inclusivity and equity of project results.	As a result of gender, caste, ethnicity, language, or location differences	Which will impact in reduced employment opportunities, inequitable access to information or representation.	**1. SOCIAL AND ENVIRONMENTAL (1.1. Human rights) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **2 - Low likelihood** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	UNDP	**Risk Treatment 14.1**: Effective implementation of Stakeholder Engagement Plan Effective implementation of Grievance Redress Mechanism Effective implementation of Gender Action Plan Effective implementation of Indigenous Peoples Planning Framework Develop and start implementation of Indigenous Peoples Plan **Risk Treatment Owner**: Environmental/Social Safeguards Expert
								Risk Treatment 14.2: Carry out the Capacity building activities as part of Activities suggested in 2.2 and 3.3 **Risk Treatment Owner**: Environmental/Social Safeguards Expert

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
15	There is a risk that habitat modification, particularly associated with the lake lowering and flood diversion structures, may negatively affect ecosystems and biodiversity	As a result of the project involving construction activities within natural ecosystems	Which will impact ecosystem integrity	**1. SOCIAL AND ENVIRONMENTAL (1.4. Biodiversity conservation and sustainable natural resource management) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **3 - Moderately likely** Impact: **5 - Extreme** Risk level: **SUBSTANTIAL (equates to a risk appetite of OPEN)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	DHM	**Risk Treatment 15.1**: Effective implementation of findings of Hydrology and modelling **Risk Treatment Owner**: DHM **Risk Treatment 15.2**: Apply lessons learnt related to risk mitigation measures implemented in Imja Lake project - planned **Risk Treatment Owner**: Environmental/Social Safeguards Expert **Risk Treatment 15.3**: Effective Implementation of measures included in ESMF Carry out Scoped ESIAs (to meet UNDP SES and Nepalese law) three planned (one for each catchment) Carry out Scoped ESMPs three planned, one for each catchment Development and implementation of IPP **Risk Treatment Owner**: Environmental/Social Safeguards Expert
16	There is a risk that the maintaining the biodiversity in the sensitive area may be compromised during project implementation	As a result of activities proposed within or adjacent to environmentally sensitive areas, including legally protected areas (e.g.	Which will negatively impact climate system in the upstream, project sensitive areas and/or	**1. SOCIAL AND ENVIRONMENTAL (1.4. Biodiversity conservation and sustainable natural resource**	Likelihood: **5 - Expected** Impact: **2 - Minor** Risk level:	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	DHM	**Risk Treatment 16.1**: initiation of National Parks Management Plan (including existing biodiversity plans) to be amended through the addition of a new chapter to specifically permit carrying out activities in Output 3 within the National Park areas - planned

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
	which may lead to degradation to econsystem.	nature reserve, national park).	extinction of native species	**management) - UNDP Risk Appetite: CAUTIOUS**	**MODERATE (equates to a risk appetite of EXPLORATORY)**			**Risk Treatment Owner**: DNPWC **Risk Treatment 16.2**: conduction of SEP National Parks will be a key stakeholder. Development of IPPF and IPP ensure involvement of IPs who place cultural values on the lakes of the Himalayas. Initiation of ESIAs (to meet UNDP SES and Nepalese law) three (one for each watershed) - planned Initiation of ESMPs based on findings of ESIAs. Three ESMPs one for each catchment **Risk Treatment Owner**: Environmental/Social Safeguards Expert
17	There is a risk that as part of the mitigation measures inappropriate species may be selected for revegetation to replace lost vegetation which might lead to ecological imbalance.	As a result of Eco-based solutions are proposed which include revegetation/reforestation	Which will impact on ecosystem health through the proliferation of invasive species or future harvesting of areas revegetated by the project.	**1. SOCIAL AND ENVIRONMENTAL (1.4. Biodiversity conservation and sustainable natural resource management) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **3 - Moderately likely** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	DoFSC	**Risk Treatment 17.1**: Start identification and storage of the appropriate local species to be selected for use in revegetation - planned **Risk Treatment Owner**: DoFSC **Risk Treatment 17.2**: Capacity building to enhance engagement and ownership of interventions by local communities - planned **Risk Treatment Owner**: DoFSC **Risk Treatment 17.3**: Develop and implement Operation and Maintenance

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
								Plan for the vegetative structures and forests **Risk Treatment Owner**: DoFSC
								Risk Treatment 17.4 Implementation of the key recommendations of SEP **Risk Treatment Owner**: Environmental/Social Safeguards Expert
18	There is a risk that glacial lake waters are released too fast, causing destructive surface water flows	As a result of lowering of the glacial lakes and the construction of flood structures	Which will impact downstream water resource availability and flood risk leading to reduced availability for intended use and degradation of ecosystems	**1. SOCIAL AND ENVIRONMENTAL (1.4. Biodiversity conservation and sustainable natural resource management) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **2 - Low likelihood** Impact: **4 - Extensive** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	DHM	**Risk Treatment 18.1**: Apply the Design assessment, including Hydrology and modelling **Risk Treatment Owner**: Environmental/Social Safeguards Expert
								Risk Treatment 18.2: Development of Operation and Maintenance Plan for lowering and flood structures **Risk Treatment Owner**: DHM
								Risk Treatment 18.3: Apply lessons learnt from Imja Lake project related to impact on water flow due to lake lowering **Risk Treatment Owner**: Environmental/Social Safeguards Expert
								Risk Treatment 18.4: Implement the key areas as identified by ESMF Scoped ESIAs (to meet UNDP SES and Nepalese law) three planned (one for each catchment) Start developing the scoped ESMPs three planned, one for each catchment

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
								Risk Treatment Owner: Environmental/Social Safeguards Expert
19	There is a risk that accelerated glacial melting could result in increased water flows leading to flooding, erosion, and potential damage to downstream communities and ecosystem.	As a result of climate change impacts in areas of sensitive or vulnerable interventions	Which will impact on project interventions and downstream infrastructure, livelihoods, and ecosystem.	**1. SOCIAL AND ENVIRONMENTAL (1.5. Climate change and disaster risks) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **3 - Moderately likely** Impact: **4 - Extensive** Risk level: **SUBSTANTIAL (equates to a risk appetite of OPEN)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	DHM	**Risk Treatment 19.1**: Design took take account of likely climate change parameters - completed Modelling tested effectiveness of interventions under different scenarios completed Final technical designs and timing of construction works will account for the preliminary work completed during preparation. **Risk Treatment Owner**: DHM
								Risk Treatment 19.2: Apply lessons learnt from Imja Lake project planned **Risk Treatment Owner**: Environmental/Social Safeguards Expert
								Risk Treatment 19.3: Capacity building for EWS included as part of Activity 2.2 - planned **Risk Treatment Owner**: NDRRMA
								Risk Treatment 19.4: Develop and roll out the Operation and Maintenance Plan planned Information from Output 3 to be provided to agencies to allow update of existing DRR plans. **Risk Treatment Owner**: DHM

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
20	There is a risk related to occupational health and safety e.g. OHS risks may arise during the project implementation, including risks associated with collecting field data, construction and O&M; social risks associated with influx of temporary workers.	As a result of project involving construction of relatively large-scale infrastructure development ie the lake lowering structures and diversion structures, which will involve significant manual labour in remote project target areas. Low consideration of the safety gears (PPE, helmet, cold resistive jackets, gloves etc.) Low arrangements of the health personnel that are suitable for the upstream, proper storage and application of the medicines and first aid box	Which will impact in health and safety of local communities and workers	**1. SOCIAL AND ENVIRONMENTAL (1.6. Community health, safety and security) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **3 - Moderately likely** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	DHM	**Risk Treatment 20.1**: Capacity building and use of PPE for construction workers to be done as part of project implementation. **Risk Treatment Owner**: DHM **Risk Treatment 20.2**: An assessment of project areas prior to implementation and installation of equipment and/or infrastructure will ensure that the correct measures are established (Activities 2.1, 2.2, 3.1 and 3.2). **Risk Treatment Owner**: Environmental/Social Safeguards Expert **Risk Treatment 20.3**: Apply lessons learnt from Imja Lake project related to community health, safety and security planned **Risk Treatment Owner**: Environmental/Social Safeguards Expert **Risk Treatment 20.4**: Continuous monitoring from local government officials and community-based organisations (CBOs) in the project areas, to inform the PSC, will ensure the safety of contractors and workers during project implementation, and will serve as the institutional mechanism to ensure effective maintenance of project interventions.

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
								Risk Treatment Owner: Environmental/Social Safeguards Expert
								Risk Treatment 20.5: Implement the key recommendation of ESMF Start developing of ESIAs (one for each catchment) and ESMP/s (catchment basis) planned Implementation of Gender Action Plan - completed Development and implementation of Labour Management Procedure and an OHS plan (to be included in contracts with construction companies) Construction Emergency Medical Pan contractor to prepare **Risk Treatment Owner**: Environmental/Social Safeguards Expert
21	There is a risk that, during the project implementation, failure of lake lowering structures or collapse of moraine itself may occur, resulting to sudden flooding and damage to downstream communities and ecosystem.	As a result of GLOF risk reducing measures including structural works within natural terminal moraines eg. Proper assessment of natural terminal moraines of the proposed structure Inadequate Civil and engineering measures applied	Which will impact severe destruction, financial loss and potential loss of human lives by GLOF in both upstream and downstream communities and the geography	**1. SOCIAL AND ENVIRONMENTAL (1.6. Community health, safety and security) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **2 - Low likelihood** Impact: **5 - Extreme** Risk level: **SUBSTANTIAL (equates to a risk appetite of OPEN)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	DHM	**Risk Treatment 21.1**: Engineering modelling and design (use of experts) Dam break modelling to determine areas of impact and assist in identifying mitigation measure designs and identify 'safe zones'/escape ways as part of EWS. Provision of information to disaster agencies to support/update existing DRR plans. **Risk Treatment Owner**: DHM

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
		Unpredcted natural hazards						
22	There is a risk that the project interventions may potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values	As a result of the construction of flood diversion structures and/or installation of EWS equipment.	Which will impact cultural heritage through the loss of access to or destruction of culturally important sites.	**1. SOCIAL AND ENVIRONMENTAL (1.7. Cultural heritage) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **2 - Low likelihood** Impact: **4 - Extensive** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	DHM	**Risk Treatment 22.1**: Development and implementation of: IPPF - completed IPP - planned SEP - completed Design assessment and discussions with communities Scoped ESIAs to consider risk to heritage as part of scope planned Chance Finds Procedure (to be included in ESMPs) planned **Risk Treatment Owner**: Environmental/Social Safeguards Expert
23	There is a risk that the project activities may affect lands and territories that are claimed by or of cultural, spiritual, or livelihood importance to indigenous peoples which could result to adverse social, cultural and environmental impacts	As a result of project interventions being located in areas where indigenous peoples are present, without adequate consultation, participation, and recognition of their rights and interests.	Which will impact on the rights, cultural heritage, and livelihoods of indigenous peoples, potentially leading to exclusion, social conflict, or lack of community support for the project implementation and expected outcomes.	**1. SOCIAL AND ENVIRONMENTAL (1.9. Indigenous peoples) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **4 - Highly likely** Impact: **2 - Minor** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**	DHM	**Risk Treatment 23.1**: Development and implementation of: SEP - completed IPPF - completed IPP FPIC if determined to be required (for activities that require land ie Activity 3.2 and 3.3) planned Scoped ESIAs to incorporate outputs of IPP LAP - planned **Risk Treatment Owner**: Environmental/Social Safeguards Expert

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
24	There is a risk that project construction activities may overexploit natural resources and generate significant waste resulting environmental degradation	As a result of the need for stone, gravel, and other construction materials, over extraction, unplanned extraction and potential use of equipment and machine that do not suit for the specific geography as well as the use of goods and services that may pose labour and natural resource risks within supply chains.	Which will impact on local ecosystems, contribute to environmental degradation, increase waste management challenges, and potentially create reputational and compliance risks for the project.	**1. SOCIAL AND ENVIRONMENTAL (1.10. Labour and working conditions) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **3 - Moderately likely** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**		**Risk Treatment 24.1**: Development and implementation of: Scoped ESIAs that consider sources of materials and well as waste and pollution risks. Scoped ESMPs that include Waste management plan Procurement of construction materials to consider source impacts and any waste that could be generated as well as supply chains in line with ESAIs and ESMPs Labour Management Procedure and an OHS plan (to be included in contracts with construction companies) planned GRM - completed **Risk Treatment Owner**: Environmental/Social Safeguards Expert
25	There is a risk that an influx of external workers into project areas could increase incidents of gender-based violence (GBV), sexual exploitation, abuse, and harassment (SEAH) which might endanger the vulnerable groups and communities.	As a result of the recruitment of workers from outside the local community to support project implementation, without adequate safeguards in place.	Which will impact on community safety, undermine social cohesion, and create significant reputational and operational risks for the project.	**1. SOCIAL AND ENVIRONMENTAL (1.13. Sexual exploitation and abuse) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **3 - Moderately likely** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**		**Risk Treatment 25.1**: Development and implementation of: SEP completed GRM - completed Gender Action Plan completed Labour Management Plan planned OHS Plan to include GBV/SEAH planned **Risk Treatment Owner**: Environmental/Social Safeguards Expert

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner	Risk Treatment and Treatment Owner
26	There is a risk that land may not be available for the construction of project infrastructure in preferred locations which could delay the effective project implementation.	As a result of the absence of suitable public land or competing land-use claims in areas where stations and other facilities are required.	Which will impact on the timely siting and delivery of infrastructure, increase financial burden and costs, and potentially cause disputes with landowners or communities ultimately delay the project implementation	**1. SOCIAL AND ENVIRONMENTAL (1.8. Displacement and resettlement) - UNDP Risk Appetite: CAUTIOUS**	Likelihood: **2 - Low likelihood** Impact: **3 - Intermediate** Risk level: **MODERATE (equates to a risk appetite of EXPLORATORY)**	From: **Click or tap to enter a date.** To: **Click or tap to enter a date.**		**Risk Treatment 26.1**: initiate to develop LAP which should define process of tenure confirmation and obtaining legal land use rights Develop and implement IPP, GRM **Risk Treatment Owner**: Environmental/Social Safeguards Expert

Annex M: Letter of Agreement with the government in case UNDP Support Service Costs are applied

LETTER OF AGREEMENT
BETWEEN
THE UNITED NATIONS DEVELOPMENT PROGRAMME
AND
THE DEPARTMENT OF HYDROLOGY AND METEOROLOGY OF MINISTRY OF ENERGY WATER RESOURCES AND IRRIGATION, GOVERNMENT OF NEPAL
FOR THE PROVISION OF SUPPORT SERVICES

UNDER THE PROJECT TITLED:

"Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal"

Dear Director General,

1. Reference is made to consultations between the officials of the Department of Hydrology and Meteorology under the Ministry of Energy, Water Resources and Irrigation (MoEWRI) (hereinafter referred to as "Implementing Partner"- IP) and officials of UNDP with respect to the provision of support services by the UNDP Country Office Nepal for the GCF funded project FP272 titled "Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal"
2. The UNDP Country Office may, at the request of the Implementing Partner, provide the following support services for the activities of the Project or the Work Plan (s) of the Portfolio (as applicable):
    a. Assistance with reporting requirements and direct payment; provided that, in providing such support services, UNDP Nepal shall ensure that the capacity of the Implementing Partner is strengthened to enable it to carry out such activities directly
    b. Identification and/or recruitment of Project or Portfolio (as applicable) and programme personnel.
    c. Identification and facilitation of training activities.
    d. Procurement of goods and services.
3. UNDP shall provide support services, including any procurement of goods and services and the recruitment of Project or Portfolio personnel (as applicable), in accordance with UNDP's regulations, rules, policies and procedures.
4. The support services to be provided by UNDP are described in detail in the Schedule hereto. This Letter and the Schedule will be attached to the Project or Portfolio Document (as applicable). If the requirements for support services by UNDP Nepal change during the life of a project or portfolio, the Schedule may be amended by mutual agreement of UNDP and the Implementing Partner, and the amended Schedule will be attached to the Project or Portfolio Document (as applicable)
5. UNDP shall recover the costs incurred by UNDP Nepal in providing support services from the Project or Portfolio (as applicable). The manner and method of cost-recovery by UNDP shall be specified in the Schedule.
6. The relevant provisions of the Standard Basic Assistance Agreements (SBAA)[230] signed between the Government of Nepal and UNDP on 13 February 1984 (the "SBAA"), including the provisions on liability and privileges and immunities, shall apply to the provision of support services. The Implementing Partner shall retain overall responsibility for the Project or the Work Plan(s) of the Portfolio (as applicable). The responsibility of UNDP Nepal shall be limited to providing the support services described in the Schedule hereto.
7. The Implementing Party shall indemnify, defend, hold and save harmless UNDP and its officials, agents and persons performing services for UNDP from and against all suits, proceedings, claims, demands, losses and liability of any kind, or nature brought by any third party against UNDP with respect to the support services.
8. In addition to the indemnification obligations set forth in this paragraph, the Implementing Party shall be obligated, at its sole expense, to defend UNDP and its officials, agents and employees, pursuant to this paragraph,

[230] The Government of Nepal and UNDP entered into a basic agreement to govern UNDP's assistance to the country (signed by both parties on 23 February 1984). Based on Article I, paragraph 2 of the SBAA, UNDP's assistance to the Government shall be made available to the Government and shall be furnished and received in accordance with the relevant and applicable resolutions and decisions of the competent UNDP organs, and subject to the availability of the necessary funds to the UNDP.

regardless of whether the suits, proceedings, claims and demands in question actually give rise to or otherwise result in any loss or liability.

9. UNDP shall advise the Implementing Party about any such suits, proceedings, claims, demands, losses or liability within a reasonable period of time after having received actual notice thereof. The Implementing Party shall have sole control of the defense of any such suit, proceeding, claim or demand and all negotiations in connection with the settlement or compromise thereof, except with respect to the assertion or defense of the privileges and immunities of UNDP or any matter relating thereto, for which only UNDP itself is authorized to assert and maintain. UNDP shall have the right, at its own expense, to be represented in any such suit, proceeding, claim or demand by independent counsel of its choosing.
10. Nothing in or relating to this LOA shall be deemed a waiver, express or implied, of any of the privileges and immunities of the United Nations, including UNDP.
11. The provision of the support services may be suspended or terminated by UNDP in the event that the Project or Portfolio (as applicable) or the Implementing Partner's management of the Project or the Work Plan(s) of the Portfolio (as applicable) is suspended or terminated.
12. Notwithstanding paragraph 11 above, UNDP may suspend or terminate this Letter, in whole or in part, upon written notice to the Implementing Partner if circumstances arise which, in UNDP's opinion, jeopardize the successful provision of the support services.
13. Any claim or dispute arising under or in connection with this Letter shall be addressed in accordance with the relevant provisions of the Standard Basic Assistance Agreements (SBAA).
14. UNDP Nepal shall submit progress reports on the support services provided and shall report on the costs incurred in providing such services, as may be requested by the Implementing Partner. The reporting will be done in accordance with UNDP's policies and guidelines on reporting.
15. Any modification to this Letter or the Schedule shall be effected by mutual written agreement of the Parties.
16. If you agree with the provisions set forth above, please sign two copies of this Letter and return both to UNDP. Upon signature by UNDP, this Letter shall constitute an agreement between the Parties for UNDP Nepal to provide support services for the Project or Portfolio (as applicable).

For and on behalf of the Implementing Partner	For and on behalf of UNDP
Dr Archana Shrestha Director General, Department of Hydrology and Meteorology 14 May 2026	Ms. Kyoko Yokosuka Resident Representative 14 May 2026

SCHEDULE

DESCRIPTION OF UNDP NEPAL SUPPORT SERVICES

1. Reference is made to the consultation between officials of the Department of Hydrology and Meteorology under the Ministry of Energy, Water Resources and Irrigation (MoEWRI) (Implementing Partner), and officials of UNDP with respect to the provision of execution support services by the UNDP Country Office for the nationally managed project " Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal" " (GCF).

2. In accordance with the provisions of the Letter of Agreement signed and the Project Document, the UNDP Nepal shall provide support services for the Project: 3.

Support services	Schedule for the provision of support services	Cost to UNDP of providing such support services (where appropriate)	Amount and method of reimbursement of UNDP (where appropriate)
A. The technical services and assistance will be provided directly to Implementing Partner (IP)- DHM and Responsible Parties (RPs): NDRRMA, DoFSC and DNPWC, who are implementing the activities across two project outcomes namely; Local and national level institutions adopt an integrated approach to planning and development that takes climate risk and hazard information into account, and Communities downstream of glacial lakes have increased resilience to the potential impact of GLOF and flash floods, including but not limited to: • Substantive technical analysis on issues related to planning, strategies and approach, review of ToRs and support in implementation • Policy analysis and coordination with national counterparts contributing to ongoing policies and programmes • Strategic inputs for project alignment with other initiatives supported by UN Agencies and development partners including support for post-implementation synergies • Regular dialogue with development partners re to aligning project results with	Throughout project implementation when applicable	As per pro-forma costs, basing on an agreed actual working days for the project and time-sheet records: • Part time (10%) of ARR/Policy Advisor Environment and Resilience • Part time (35%) of Programme Analyst • Parttime (15%) of GESI Analyst • Part time (12%) of Communication Analyst UNDP's execution support role in the project will be performed by a separate team of UNDP CO led by UNDP's ARR with support from UNDP's Programme Analyst Climate Change and Resilience. Other oversight responsibilities will be covered by UNDP staff members such as GESI, Results Based Monitoring, Communication and Youth engagement. **Estimated subtotal (A) including annual inflation of 7.8%:** **$** 316,081.37	UNDP will directly charge the project upon approval of annual work and monthly record of time spent to provide the services to the project. Actual charge will include staff cost and general operating expense.

Support services	Schedule for the provision of support services	Cost to UNDP of providing such support services (where appropriate)	Amount and method of reimbursement of UNDP (where appropriate)
SDGs and other international frameworks such as Paris agreement on CC (NDC, NAP) and Sendai DRR framework • Technical inputs to develop/finalize training need assessment, training materials and packages and support to organize training. • Synthesis of lessons learned and provision of substantive guidance and support to develop knowledge products • Technical Analysis of options, strategic approach, and action plan to replicate best practices • Facilitation of international and regional knowledge building, South-South cooperation on topics related to the project, including but not limited to monitoring of glaciers and glacial lakes, watershed management, Early Warning System and local livelihoods • Peer reviews of inception/final project deliverables and produce technical reports and support for , monitoring and donor reporting. • Review lessons learned and provision of substantive guidance and support to develop knowledge products from the project • Setting up Technical Advisory Group (TAG) and support to agenda-based regular TAG meeting and decision making; support to setting up regular PB and SC meeting and decision making			

Support services	Schedule for the provision of support services	Cost to UNDP of providing such support services (where appropriate)	Amount and method of reimbursement of UNDP (where appropriate)
<u>Partnership collaboration</u> • Provide analysis of options, strategic approaches and action plan to establish partnership with other UNDP projects, public and private sectors **<u>Nationally-led Programme Development related to project themes</u>** • The strengthened regulatory frameworks, combined with capacity building and skills development in the disaster risk reduction sector, will create an enabling environment for the upscaling and replication of project interventions across the country. • Support in conceptualizing and formulating new climate resilience-related programmes and/or projects for further resource mobilization and linkages with the Green Climate Fund or other international financing windows in addressing Climate Change.			
B. Services related to procurement and finance, which include but not limited to: **Procurement** • Recruitment of Individual Consultants (international and national), contractors, and service providers planned under the project, including all steps, i.e. announcement, short-listing & selection and contract issuance.* **Procurement of goods and services as outlined in the project**	Ongoing throughout implementation where applicable	As per attached price list. **Estimated DPC cost :** $ 19,776.30 $ 93,459.54	UNDP will charge direct project costs directly to the project budget.

Support services	Schedule for the provision of support services	Cost to UNDP of providing such support services (where appropriate)	Amount and method of reimbursement of UNDP (where appropriate)
• Procurement not Involving CAP, involving CAP and R/ACP **Administration services** • General admin support including IT **Human Resource** • Staff Selection, Recruitment and induction Process • Staff HR and Benefit Administration & Management • Recurrent Personnel Management Service for NPSA • HR and Payroll Management for International staff/consultants **Financial Management** • Payments, adjustments and cancellations • Reporting • VAT claim processing • Pay cycle processing and PPCF management		$ 30,610.67 $ 65,824.11 $ 331,601.12 **Estimated subtotal (B) including annual inflation of 7.8%:** : **$** 541,271.73	
Direct Project Costs for 7 years Project Period (6%)		**$ 857,353.11**	
Average Direct Project Costs/year over 7 years		$ 122,479.02	

Indicative Direct Project Costs Schedule

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
$ 122,479.02	$ 122,479.02	$ 122,479.02	$ 122,479.02	$ 122,479.02	$ 122,479.02	$ 122,479.02

3. Description of functions and responsibilities of the parties:

The Environment and Resilience Team and Operation Team of UNDP Country Office, together with the Transactional Services Team of UNDP Bangkok Regional Hub, will be responsible for providing the support services as referred to in the above table. The reimbursement costs of support services by UNDP Country Office, in relation to activity implementation and/or delivery of the outputs, which are beyond UNDP's roles of general project oversight and monitoring, will be considered as the project direct cost. The cost of these support services will be analyzed based on the actual time spent of UNDP Country Office staff and charged to the project accordingly.
The support services cost provided by the Transactional Services Team will be recorded to the project budget as per transactions, based on established UNDP policies.

DHM, as the Implementing Partner under the CO Support to National Implementation Modality, shall be responsible for the technical execution and day-to-day management of project activities in accordance with the approved Project Document, Annual Work Plans, and budgets.

Annex N: HACT micro assessment and Partner Capacity Assessment Tool (PCAT)

The HACT Assessments, PCAT for MoEWRI/DHM has been included in the separate file in the folder.

HACT Assessments

MoEWRI/DHM:

PCAT

DoFSC

MoEWRI/DHM:

Annex O: Additional agreements(Not Applicable)

Annex P: UNDP Project Quality Assurance Report (to be completed in UNDP Quantum+ and the printout to be attached to the project document)

It is included as a separate file.]

Annex Q: Monitoring Activity Table

Please fill in this table based on the M&E Plan from the project design stage (i.e. the plan submitted to the GCF prior to approval by its Board.)

Monitoring Activity	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods[231]	Frequency	Responsible for data collection
Fund Level Impact from the results framework	**Indicator 1:** Scale	3 - The number of people with reduced GLOF risk is substantially increased in the targeted watersheds. An enabling environment exists for private-sector investment in further risk-reduction measures, including the availability of customized, targeted risk information and the establishment of public-private partnerships.	The degree to which there has been a significant increase in quantifiable results within and beyond the scope of the GCF project Qualitative indicator 1 - Low 2 - Medium 3 - High	APRs Stakeholder interviews GCF Paradigm Shift Scorecard	Annual by AE Interim evaluation Final evaluation	M&E Officer Evaluator
	Indicator 2: Replicability	3 - By reducing the risk of a GLOF at the 4 most at-risk glacial lakes in Nepal, namely the Thulagi, Lower Barun, Lumding Tsho, and Hongu 2 Lakes, and addressing downstream residual flood impacts and response strategies, the project will further demonstrate the tangible benefits from these interventions, thereby promoting their use at the remaining 17 PDGLs in Nepal and across the Himalayan region. This will be supported by the upscaling of multi-hazard assessments and integrated, climate- and gender-responsive watershed and national park management plans beyond the target districts and communities.	Degree to which key structural elements of a GCF project are exported elsewhere within the same sector and/or to other sectors, regions or countries Qualitative indicator as per GCF Scorcard 1 - Low 2 - Medium 3 - High	APRs Stakeholder interviews GCF Paradigm Shift Scorecard	Annual by AE Interim evaluation Final evaluation	M&E Officer Evaluator

[231] Data collection methods should outline specific tools used to collect data and additional information as necessary to support monitoring. The PIR cannot be used as a source of verification.

Monitoring Activity	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods[231]	Frequency	Responsible for data collection
	Indicator 3: Sustainability	3 - Regularly updated knowledge on lake-lowering and other GLOF risk reduction measures is integrated into the decision-making processes of national and sub-national institutions. Public-private partnerships are established to formalize and institutionalize long-term agreements and mobilize investment focused on the sustainable uptake of GLOF risk reduction in Nepal, complementing investment in long-term capacity building. Communities are actively engaged in downstream risk-reduction measures and take ownership of the long-term operation and maintenance of interventions.	The degree to which the results of a GCF project are sustained beyond completion, through the creation of a structural and/or financial base, as well as through climate resilient practices Qualitative indicator 1 - Low 2 - Medium 3 - High	APRs Stakeholder interviews GCF Paradigm Shift Scorecard	Annual by AE Interim evaluation Final evaluation	M&E Officer Evaluator
Project Outcome 1	Indicator 4: Direct and indirect beneficiaries reached	Direct: 385,956 total Women: 201,228 Men: 184,728 Indirect: 1,986,980 Women: 1,036,658 Men: 950,322	Communities benefit from risk reduction through reduced loss of life and decreased impact on personal assets and livelihoods. Beneficiaries considered all people living within the flood risk zones Flood risk reduction benefits were considered as an integrated outcome, with at-risk communities benefitting from the full suite of direct risk reduction interventions. Specifically, this included lake lowering and downstream hybrid EcoDRR measures.	1. DHM/MoEWRI a. Annual Progress Report (Reports - MOEWRI) 2. MOFE/DOFSC/DNPWC a. Annual Progress Report (https://www.mofe.gov.np/resources/progress-reports-6128 c. Annual Progress Report (Report | Department of National Park and Wildlife Conservation) 3. NDRRMA/MoHA (https://bipad.gov.np/np/report) a. Annual Progress Report b. Nepal Disaster Report c. 5 W Dashboard (https://bipad.gov.np/np/5w-dashboard-flood-and-landslide-september-2024)	Annual Interim evaluation Final evaluation	M&E Officer

Monitoring Activity	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods[231]	Frequency	Responsible for data collection
				4. Project Specific a. Quarterly Monitoring Report b. Third-party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report		
	Indicator 5: Beneficiaries (female/male) covered by new or improved early warning systems	Direct: 385,956 total Women: 201,228 Men: 184,728	Population in the four vulnerable glacial basins covered by improved EWS under Component 2. Benefits include: -increased duration of potential response time when a GLOF is triggered, enabling evasive actions to avoid damages and loss of life from residual flood risks; -availability and awareness of locally appropriate response strategies	1. DHM/MoEWRI a. Annual Progress Report (Reports - MOEWRI) 2. NDRRMA/MoHA (https://bipad.gov.np/np/report) a. Annual Progress Report b. Nepal Disaster Report c. 5 W Dashboard (https://bipad.gov.np/np/5w-dashboard-flood-and-landslide-september-2024) 3. Project Specific a. Quarterly Monitoring Report b. Third party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report	Annual Interim evaluation Final evaluation	M&E Officer
	Indicator 6: Change in expected losses of lives due to the impact of extreme climate-related disasters in the geographic	A decrease of 2,208 in lives lost because of a GLOF.	Expected loss of life was calculated using the number of households affected by a GLOF under different modelled scenarios. Average household size was considered as 4.6 people.	Ministry of Home Affairs/NDRRMA BIPAD Portal- Real time loss and damage report (https://bipadportal.gov.np/damage-and-loss/) Post Disaster Assessment Report if disaster happens Nepal Disaster Report (NDRRMA)	After a disaster event	M&E Officer

Monitoring Activity	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods[231]	Frequency	Responsible for data collection
	area of the GCF intervention		Potential loss of lives in the baseline considers a full breach without any intervention. Target scenarios consider lower lake levels, leading to only a partial breach, with down-stream mitigation measures addressing residual flood risk.			
Project Outcome 2	Indicator 7: Change in expected losses of economic assets due to the impact of extreme climate-related disasters in the geographic area of the GCF intervention	Expected losses reduced by US$ 45,126,562 86,919,219 through avoided damages.	Two different methods were used for the cost-benefit analysis conducted for the project, namely a scenario assessing annual probability of a GLOF and another scenario assessing the return period based probability. Scenario I: Annual Probability determined the annual probability of a GLOF at any one lake to be 1.16%. Scenario II: Return Period based Probability calculated GLOF probability using return period data from a published paper titled 'Hazard from Himalayan glacier lake outburst floods'. This method used statistical models to infer lake volumes from lake areas known through satellite data and subsequently simulated scenarios to predict the sizes and frequency of	Ministry of Home Affairs/NDRRMA BIPAD Portal- Real time loss and damage report (https://bipadportal.gov.np/damage-and-loss/) Post Disaster Assessment Report if disaster happens Nepal Disaster Report (NDRRMA)	After a disaster event	M&E Officer

Monitoring Activity	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods[231]	Frequency	Responsible for data collection
			future GLOF events. The probability from this study that was applicable to the four target lakes was used to derive return periods as an annual probability.			
Project Outcome 3	Indicator 8: Hectares of terrestrial forest, terrestrial non-forest, freshwater and coastal marine areas brought under restoration and/or improved ecosystems	200 ha of improved terrestrial ecosystems 109 ha in Arun 91 ha in Dudkoshi	Considers EcoDRR measures under Component 3. Interventions listed by volume or length converted to area according to average values as follows: Vegetative gabion walls with average height of ~2.25m Living check dams with average width of ~2m Vegetative gabion revetments with average height of ~3.15m Vegetative gabion spurs with average height of ~3.5m Vegetative gabion or dry-stone check dams with average height of ~2.25m Brush layering with average width of ~2m	1. MOFE/DOFSC/DNPWC a. Annual Progress Report (https://www.mofe.gov.np/resources/progress-reports-6128) c. Annual Progress Report (Report | Department of National Park and Wildlife Conservation) 2. Project Specific a. Quarterly Monitoring Report b. Third party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report	Annual Interim evaluation Final evaluation	M&E Officer
Project Results (Outputs) 1 **Institutional and technical capacity**	Indicator 9: Capacity of DHM to assess risk, prioritize GLOF risk reduction strategies, and direct	Level 4	**Level 1:** No formal processes, methodologies, or SOPs in place for regularly assessing GLOF risk or prioritizing risk reduction measures in Nepal. Prioritization and investment is undertaken by external entities	1. Capacity Assessment Scorecard 2. DHM/ MoEWRI a. Annual Progress Report (Reports - MOEWRI) 4. Project Specific a. Quarterly Monitoring Report b. Third party Monitoring Report	Interim evaluation Final evaluation	M&E Officer

Monitoring Activity	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods[231]	Frequency	Responsible for data collection
strengthened to develop and integrate climate risk and hazard information into planning and development.	investments towards GLOF risk reduction in Nepal		(e.g. UNDP/ICIMOD) and not by the government **Level 2:** Methodologies and SOPs are in place to regularly assess GLOF risk and produce an updated priority list of glacial lakes for GLOF risk reduction interventions, but DHM staff lack the capacity to adequately implement these processes. Risk reduction prioritization and investment are still reliant on external entities. **Level 3:** Methodologies and SOPs are in place for regular assessment of GLOF risk, and DHM staff are trained in the processes and have updated the priority list of glacial lakes for GLOF risk reduction interventions. **Level 4:** Risk knowledge systems related to GLOFS are fully operational, and updated priority lists of glacial lakes are regularly updated using geophysical and geospatial data, enabling prioritization of risk-reduction interventions in Nepal. Project M&E systems are	c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report		

Monitoring Activity	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods[231]	Frequency	Responsible for data collection
			fully integrated into national entities under DHM leadership.			
Project Results (Outputs) 2 **Improved hazard monitoring and the generation and dissemination of early warnings to local communities and important economic sectors leading to reduced economic loss and loss of human lives from GLOF events.**	Indicator 10: Number of stations for Nepal's EWS to account for the four most vulnerable glacial basins to GLOFs and rain-induced flooding in Nepal.	A total of 67 pieces of new monitoring equipment were installed, comprising: 6 Base Stations installed (2 in the Marsyangdi Basin, 2 in the Dudhkoshi Sub-basin and 2 in the Arun Sub-basin) 24 automatic weather stations installed (7 AWS in the Marsyangdi Basin, 5 in the Dudhkoshi Sub-basin and 12 in the Arun Sub-basin) 9 precipitation gauges (2 in the Marsyangdi Basin and 7 in the Dudhkoshi Sub-basin) 27 radar-based water level sensors (RLS) installed (11 in the Marsyangdi Basin, 8 in the Dudhkoshi Sub-basin and 8 in the Arun Sub-basin) 1 low-cost tower with a free air satellite mode system and 9 accompanying siren towers (4 towers in the Marsyangdi Basin, 2 in the Dudhkoshi Sub-basin and 3 in the Arun Sub-basin)	Qualitative indicator tracking number of physical EWS infrastructure units installed.	1. DHM/MoEWRI a. Annual Progress Report (Reports - MOEWRI) 2. Project Specific a. Quarterly Monitoring Report b. Third-party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report	Annual Interim evaluation Final evaluation	M&E Officer
	Indicator 11: Change in lead times for communities from when an early warnings received till a GLOF hits	At least 30 minute lead time for all target communities	The targets consider the flood arrival time at the first downstream community from the triggering point for a GLOF, based on flood modeling.	1. DHM/MoEWRI a. Annual Progress Report (Reports - MOEWRI) 2. Project Specific a. Quarterly Monitoring Report b. Third-party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report	Annual Interim evaluation Final evaluation	M&E Officer

Monitoring Activity	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods[231]	Frequency	Responsible for data collection
Project Results (Outputs) 3 **Area or volume of Eco-DRR measures implemented in downstream catchments of Arun and Dudhkoshi Sub-basins**	Indicator 12: Change in the water level of the four highest-risk glacial lakes in Nepal.	3 m reduction in water level in the Thulagi, Lower Barun and Lumding Tsho Lakes and 1 m reduction in water level in the Hongu 2 Lake. The water levels of the target lakes after lowering will be as follows: Lower Barun: 202 m Lumding Tsho: 111 m Hongu 2: 52.4 m Thulagi: 73 m	Qualitative indicator tracking the depth of glacial lakes.	1. DHM/MoEWRI a. Annual Progress Report (Reports - MOEWRI) 2. NDRRMA/MoHA (https://bipad.gov.np/np/report) a. Annual Progress Report b. Nepal Disaster Report c. 5 W Dashboard (https://bipad.gov.np/np/5w-dashboard-flood-and-landslide-september-2024) 3. Project Specific a. Quarterly Monitoring Report b. Third-party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report	Annual Interim evaluation Final evaluation	M&E Officer
	Indicator 13: Number or volume of infrastructural risk reduction measures installed to reduce the impacts of GLOFs and flooding.	3,101.61 m3 of flood walls and RCC revetments in the Arun Sub-basin 67 conservation ponds of at least 60m3 each (38 in the Arun Sub-basin and 29 in the Dudhkoshi Sub-basin)	Qualitative indicator tracking the extent of infrastructural flood reduction measures installed.	1. MOFE/ DOFSC/DNPWC a. Annual Progress Report (https://www.mofe.gov.np/resources/progress-reports-6128) b. Annual Progress Report (Report | Department of National Park and Wildlife Conservation) 2. Project Specific a. Quarterly Monitoring Report b. Third party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report	Annual Interim evaluation Final evaluation	M&E Officer

Monitoring Activity	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods[231]	Frequency	Responsible for data collection
	Indicator 14: Area or volume of Eco-DRR measures implemented in the downstream catchments of the Arun and Dudhkoshi Sub-basins	153.3ha of trees planted (81.6 ha in the Arun Sub-basin and 71.6 ha in the Dudhkoshi Sub-basin) 17,744 m3 of vegetative gabion walls constructed (10,796 m3 in the Arun Sub-basin and 6,948 m3 in the Dudhkoshi Sub-basin). 978,436 m of live check dams constructed (955,396 m in the Arun Sub-basin and 23,040 m in the Dudhkoshi Sub-basin). 15,298.94 m3 of vegetative gabion revetments constructed (3,447.5 m3 in the Arun Sub-basin and 11,851.44 m3 in the Dudhkoshi Sub-basin). 7,246 m3 of vegetative gabion spurs constructed (4,608 m3 in the Arun Sub-basin and 2,638 m3 in the Dudhkoshi Sub-basin). 29,685 m3 of vegetative gabion check dams constructed (21,960 m3 in the Arun Sub-basin and 7,725 m3 in the Dudhkoshi Sub-basin). 15,009.8 m3 of vegetative dry stone check dams (9,371.25 m3 in the Arun Sub-basin and 5,638.5 m3 in the Dudhkoshi Sub-basin).	Qualitative indicator tracking the area pr volume of EcoDRR measures installed.	1. MOFE/ DOFSC/DNPWC a. Annual Progress Report (https://www.mofe.gov.np/resources/progress-reports-6128) b. Annual Progress Report (Report | Department of National Park and Wildlife Conservation) 2. Project Specific a. Quarterly Monitoring Report b. Third party Monitoring Report c. Annual Progress Report d. Interim Evaluation Report e. Project Completion Report f. Terminal Evaluation Report	Annual Interim evaluation Final evaluation	M&E Officer

Monitoring Activity	Indicators	Targets	Description of indicators and targets	Data source/Collection Methods[231]	Frequency	Responsible for data collection
		3,194 m2 of vegetative stone rip-rap planted (1,582.5 m2 in the Arun Sub-basin and 1,611.5 m2 in the Dudhkoshi Sub-basin). 45,188 m of brush layering planted (36,750 m in the Arun Sub-basin and 8,438 m in the Dudhkoshi Sub-basin). 298,162 m2 of grass seedlings planted (155,419 m2 in the Arun Sub-basin and 142,743 m2 in the Dudhkoshi Sub-basin).				

Annex R: On-Granting Provisions Applicable to the Implementing Partner

(Not Applicable)

Annex S: Other annexes included in the Funding Proposal annex package approved by the GCF Board

Annex S.1	Feasibility study
Annex S.2	Economic and/or financial analyses
Annex S.3	Operations and Maintenance Manual (Operations and maintenance)
Annex S.4	Assessment of Hydro- Met Stations
Annex S.5	Residual Risk Modeling & Watershed Vulnerability Assessment Risk Reduction Measures
Annex S.6	Residual Risk Modeling & Watershed Vulnerability Assessment Risk Reduction Measures - Cost Estimates, Models & Drawings
Annex S.7	Dam Breach Modeling Assessment Report
Annex S.8	Technical Lake Lowering Design Report
Annex S.9a	Calculation of Adaptation Beneficiaries
Annex S.9b	Adaptation Beneficiaries (Excel)
Annex S.10	CBA Modeling Outputs
Annex S.11	EX-ACT Nepal 2025_ Summary GHG Analysis