United Nations Development Programme

Project Document

<table>
<tr><td colspan="3">Project title: Enhancing Climate Resilience in Thailand through Effective Water Management and Sustainable Agriculture</td></tr>
<tr><td>Country(ies): Thailand</td><td>Implementing Partner (GCF Executing Entity): Royal Irrigation Department, under the Ministry of Agriculture and Cooperatives (MOAC)</td><td>Execution Modality: National Implementation (NIM)</td></tr>
<tr><td colspan="3">Contributing Outcome (UNDAF/CPD, RPD, GPD):

Given the effects of climate change and the impact on livelihoods of the ongoing depletion and mismanagement of natural resources, a climate-resilient, low-carbon and green-growth economy can significantly contribute to improving the lives of vulnerable and the poor. To promote sustainable use of natural resources and the livelihoods of affected populations, particularly women, UNDP will assist the Government through this project to upgrade critical water management infrastructures in the Yom and Nan River basins. This will in turn directly contribute to the 2022-2026 CPD Outcome 1: Thailand's transformation into an inclusive economy based on green, resilient, low-carbon, sustainable development is accelerated.</td></tr>
<tr><td colspan="2">UNDP Social and Environmental Screening Category: Moderate</td><td>UNDP Gender Marker: 2</td></tr>
<tr><td colspan="2">Atlas Award ID: 00098359</td><td>Atlas Project/Output ID: 00101717</td></tr>
<tr><td colspan="2">UNDP- PIMS ID number: 5923</td><td>GCF Project ID number: FP170</td></tr>
<tr><td colspan="3">LPAC meeting date: 10 October 2022</td></tr>
<tr><td colspan="2">Start date (FAA Effective Date):
10 January 2022</td><td>Planned end date (Project Completion Date):
10 January 2027</td></tr>
<tr><td colspan="2">Expected date of posting of Mid-Term Review (GCF Interim Evaluation Report) to ERC:

10 October 2024</td><td>Expected date of posting Terminal evaluation report (GCF Final Evaluation Report) to ERC: 10 July 2027

Expected date of Project Completion Report to GCF:

10 April 2027 (within 3 months after Completion Date)</td></tr>
<tr><td colspan="3">Brief project description:

Thailand is one of the 16 countries identified globally as being in the 'extreme risk' category of those most vulnerable to future climate change impacts over the next 30 years. Severe drought and flood events are likely to be experienced increasingly in the near and longer-term future, as a result of the combined effects of a more vigorous hydrological cycle and enhanced surface drying. Thailand's agricultural sector in particular will be impacted by changing precipitation patterns with increasingly common extreme rain events and floods, as well</td></tr>
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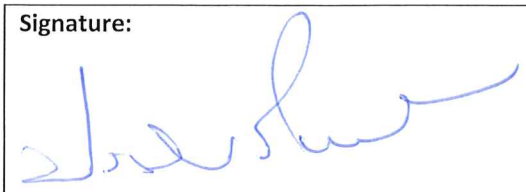
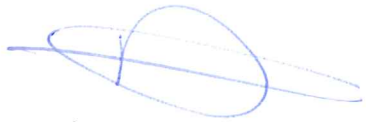
as more extensive drought periods, which particularly affect poor households. With climate extremes expected to increase, climate-informed water management and climate-resilient water infrastructure will be critical in order to prepare for and respond to floods and droughts, which are the key priorities in Thailand's National Adaptation Plan 2018. Given the cost of upgrading existing water infrastructure across the country, the Royal Irrigation Department (RID) is seeking to complement its grey infrastructure with ecosystems-based adaptation measures (EbA), an integrated solution which brings together water management and agriculture.

Specifically, the project seeks to a) support climate informed water management, planning and investment, and b) support vulnerable farmers in reducing volatility to changing climatic conditions, enhancing climate-informed and integrated planning as well as reduce disruption to smallholder farmers. The objective will be achieved through three complementary outputs:

- Output 1: Enhance climate and risk informed planning in the water and agricultural sectors through improved climate information and cross sectoral coordination
- Output 2: Improve water management through strengthened infrastructure complemented by EbA measures, for greater resilience to climate change impacts
- Output 3: Reduce volatility of agriculture livelihoods in drought and flood prone areas through strengthened extension support and local planning, investment in on-farm adaptation measures and greater access to finance and markets.

FINANCING PLAN	
GCF grant	USD 17,533,500
UNDP TRAC resources	N/A
Confirmed cash co-financing to be administered by UNDP	N/A
(1) Total Budget administered by UNDP	**USD 17,533,500**
CONFIRMED CO-FINANCING COMMITTED TO THE FUNDED ACTIVITY (AS DEFINED IN THE FAA)	
The Royal Thai Government through The Royal Irrigation Department (RID)	USD 16,263,940 (in-kind)
Krungsri Bank	USD 113,883 (in-kind)
(2) Total confirmed co-financing that is not cash co-financing administered by UNDP	**USD 16,377,823**
(3) Grand-Total Project Financing (1)+(2)	**USD 33,911,323**

SIGNATURES		
Signature: P. Saiyasitpanich **Dr. Phirun Saiyasitpanich,** **Secretary-General** **Office of Natural Resources and Environmental Policy and Planning**	**Agreed by Thailand's National Focal Point to the United Nations Framework Convention on Climate Change[1]**	**Date/Month/Year:** 22/03/2023

Signature:  **Mr. Praphit Chanma** **Director-General** **Royal Irrigation Department**	**Agreed by Implementing Partner[2]**	**Date/Month/Year:** 22/03/2023
Signature:  **Mr. Renaud Meyer** **Resident Representative** **UNDP Thailand**	**Agreed by UNDP[3]**	**Date/Month/Year:** 22/3/2023

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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DEVELOPMENT CHALLENGE

The Greater Chao Phraya River Basin Area consists of eight sub-river basins including Yom-Nan basin, covering an area of 158,586 km2 with a population of approximately 25 million people. The average annual rainfall is 1,100 mm while the average annual runoff is 34,600 million m3. In the northern part of the basin, the entire storage capacity is approximately 27,446 million m3, while the central area can store only 1,808 million m3. The Chao Phraya River will not overflow its banks if the discharge does not exceed 2,800 m3 per second, which was exceeded during the devastating 2011 floods due to higher discharges from the Yom-Nan basin. The following key climate change impacts on the Chao Phraya basin have been identified: a) Increases in potential evapotranspiration, crop and irrigation water requirements; b) increases in annual rainfall which will manifest mostly through increases in rainfall intensity; c) increases in river discharges beyond current levels (including the devastating 2011 floods).

The topography of the Yom-Nan river basin and the related challenges it presents in managing changes in precipitation and related water flow, make the area an adaptation priority for Thailand. The Yom River (watershed area 23,600 km2), and Nan River (watershed area 34,300 km2) flow from the northern mountain system and join together at Nakhon Sawan. Upstream along the Nan River, the Sirikit Dam reservoir (capacity 9.5 billion m3, catchment area 13,000 km2, built in 1974) was constructed for multiple purposes, including flood and drought management. There is, however, no major dam or reservoir that can regulate water throughout the year in the Yom River basin. With more intense wet seasons, this basin will be increasingly unable to slow runoff to the central plains, and the greater Bangkok area. And with drier dry seasons, the water that the infrastructure is able to retain is insufficient to cover the irrigation needs of farmers for the extended period.

Pressure from climate change induced variations in precipitation patterns (rainfall volume and intensities) challenge the functionality of existing water management practices through the use of existing canals and flood gates, which are increasingly inadequate to contain increased rainfall and consequent discharges during the wet season. Extreme rain events enhance flood risk during wet seasons, while increasing evapotranspiration reduces water availability – both present serious challenges for effective water management and a productive agriculture sector.

Key climate change risks and hazards

a) *Increased temperatures and rainfall variability*

Thailand has experienced significant country-wide warming over the last four decades, as well as associated warm extremes. There is evidence that maximum, mean and minimum temperatures in Thailand as a whole have increased significantly by 0.86°C, 0.95°C and 1.45°C respectively over the 1955-2009 period. These impacts are consistent with the fifth assessment report (AR5) from the Intergovernmental Panel on Climate Change (IPCC), which indicates that temperatures in Southeast Asia have been increasing at a rate of 0.14°C to 0.20°C per decade since the 1960s and predicts increases from 0.8°C to 3.2°C for the overall region by the end of this century.

As to rainfall, nationwide averages of rainfall show little change in annual totals since 1950. With recent analyses of 44 long record quality controlled first order surface weather stations across Thailand for the period from 1955 to 2011, which indicate that precipitation has become less frequent throughout most areas, though precipitation events have become more intense.

b) *Extreme events exacerbated by climate change*

Increasing temperatures and potential evapotranspiration has resulted in increased incidences of severe droughts (as measured through the standardised precipitation evapotranspiration index, SPEI), which are likely to intensify in their magnitude due to climate change. These increases in potential evapotranspiration have been shown to lead to increases in rice crop water requirements during all months, and these increases in requirements are greater than increases in rainfall, leading to increases in irrigation water requirements under climate change.

Given the above evidence, the following key climate change impacts on the Chao Phraya basin have been identified: a) Increases in potential evapotranspiration, crop and irrigation water requirements; b) increases in annual rainfall which will manifest mostly through increases in rainfall intensity; c) increases in river discharges beyond current levels (including the devastating 2011 floods).

Rain variability and drier dry periods are affecting agriculture livelihoods in the proposed project area. Support is needed to both increase resilience of vulnerable agriculture livelihoods as well as to prevent maladaptation, which could inadvertently worsen conditions. Farmers have also been adapting autonomously to climate change by shifting to other crops such as fruit trees, and/or adopting and/or returning to use of aquaculture or aquaculture-diversified livelihoods.

The Royal Irrigation Department (RID) already practices water management in the critical Chao Phraya River basin to stave off excess flooding during the wet season and to ensure water availability during the dry season, using canals and regulators, including reservoir operations. However, existing infrastructure, particularly in the proposed project area (Yom and Nan river basin, in the Uttaradit, Phitsanulok, Sukhothai provinces, middle section, low lying area), are not adequate to cope with the increasing pressures of climate change. To cope with these additional climate-induced flood and drought risks, RID also developed a 20-year roadmap towards Intelligent Organisation: Achieving water security and rendering value-added service within 2036. Investment in the Yom and Nan river basin area is part of a series of interventions ongoing and planned by RID to enhance water management in the Greater Chao Phraya River Basin Area.

At the national level, the RTG seeks to find greener solutions to this challenge. Investment towards effective water management in the Yom-Nan river basin would have multiple benefits – i) slowing water flow to downstream areas during periods of flood risk, ii) retaining water for use during the dry season by farmers in the immediate area, and iii) assisting to maintain soil fertility and reduce sediment loss from agricultural lands, providing environmental flows and retaining ecological system functions, as well as allowing recharge and permeation to groundwater sources.

Climate information for the water and agricultural sectors

Given the cross-sectoral impacts of challenges related to water management, RID established the Smart Water Operation Center (SWOC) to link data with all relevant agencies for water resource management in a systematic manner during drought and flood crises. This center brings together information from the Thai Meteorological Department (TMD), the Hydro and Agro Informatics Institute, the Geo-Informatics and Space Technology Development Agency, the Department of Water Resources, and the Hydrographic Department of the Royal Thai Navy, to be compiled as central information for water analysis and forecasts. SWOC serves as a command center for water resource management for Thailand.

While there is a hydro-meteorological network in place, only recently has the data from the network started to get systematically analyzed, tailored for use, and disseminated for agricultural and water management purposes. SWOC and Thailand's research institutes have worked with the academic-King Mongkut's Institute of Technology North Bangkok (KMUTNB) for developing a water forecast decision making tool, namely the Intelligence-based Real-time Decision-Making Modeling (IRDM) tool. This tool already serves RID's decision makers in managing water in Chao Phraya river basin.

Use of EbA measures to complement grey infrastructure for water management

Thailand generally uses grey infrastructure (e.g. regulators) for water management. Existing plans and designs for the Yom-Nan project area and the Greater Chao Phraya River Basin Area do not include EbA measures. RID seeks to complement grey infrastructure with ecosystem-based adaptation (EbA) measures however RID experience in this area is limited. Combining grey infrastructure with EbA measures would not only support critical ecosystem services, but also reduce overall costs (i.e. lower upfront investment and long-term O&M, compared to a purely grey infrastructure investment).

The project area is heavily altered by small settlements, farms, and cultivation; villages are scattered throughout the catchment area with many irrigation canals cutting through the area. While the area is significantly utilized, there are still different ecological habitats present. Lines of bushes and trees can be found quite often in between paddy fields or other farmland areas. As existing water management systems must be enhanced to be more climate-resilient, there is an opportunity to also introduce EbA measures to complement planned grey infrastructure investments by RID. An assessment on the possibility to integrate EbA measures was conducted during the development of this proposal (see Annex 22). The assessment concluded that there is a high potential to integrate EbA approaches in the project area, with specific recommendations include:

- Application of modeling comprising of three different methodologies each of which build on each other: hydrological river basin and water allocation modelling, hydraulic modelling, and erosion and sediment transport;
- River restoration, with duration curves and depth-discharge curves informed by the above models; and
- And the conduct of a fish survey to inform fish passes.

STRATEGY

The project will help realize Thailand's Commitment to Climate Resilient Agriculture and Digital Transformation. The project is aligned with the country's 20 Year Agricultural Development Plan (2017-2036) whose objective is to lay a foundation for long-term development leading to systematic growth and solutions to problems of the agriculture sector. Furthermore, the project entails the roll-out of innovative technologies for climate solutions and advances use of IoT platforms as part of the country's "MOAC's Digital Agriculture Strategic Plan (2017-2021)".

The project targets to improve the water management capacity of the RID and local communities in the critical area between the Yom and Nan Rivers to address the core problem that climate-induced droughts and floods threatening agriculture livelihoods and infrastructure which increases flood risks downstream in the Greater Chao Phraya river basin. (see problem statement in Theory of Change below). The targeted river basins are key to Thailand's flood risk management and irrigation system, and host some of the most vulnerable groups of society. Therefore, this project will address the following root causes and barriers to mitigate flood and drought risks, and enhance the resilience of local communities:

a) Lack of reliable data and risk information on localized climate change impacts. This reduces the ability to predict droughts, precipitation patterns and other weather-related information to enable a climate change responsive water and irrigation management, as well as to plan adaptation strategies and climate-responsive cropping patterns.

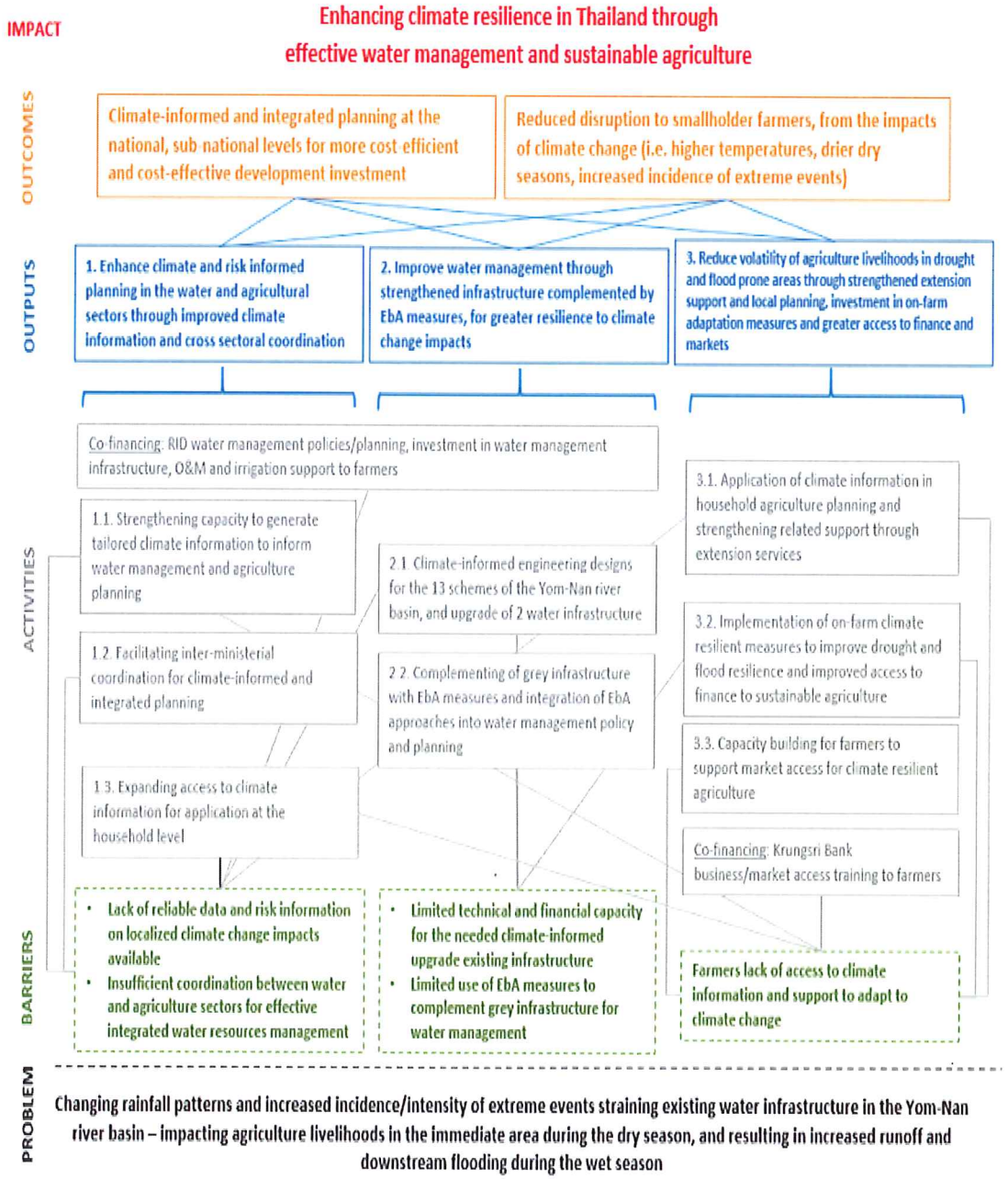
b) Insufficient coordination between water and agriculture sectors for effective integrated water resources management (IWRM). A top adaptation priority for Thailand is to promote and strengthen of IWRM practices to achieve water security, effective water resource management to mitigate flood and drought. To achieve this, greater coordination is needed across sectors.

c) Limited technical and financial capacity for the climate-informed upgrade existing infrastructure. RTG faces daunting costs related to both response to extreme events exacerbated by climate change, as well as investments in adaptation. Current engineering designs for the planned upgrade to water management infrastructure (i.e. regulators) do not adequately take into account climate change, and could result in higher than expected repair costs or a short life of the investments

d) Limited use of Eco-based Adaptation measures (EbA) to complement grey infrastructure for water management. Thailand generally uses grey infrastructure (e.g. regulators) for water management. Existing plans and designs do not include EbA measures. RID seeks to complement grey infrastructure with ecosystem-based adaptation (EbA) measures however RID experience in this area is limited.

e) Farmers lack of access to climate information and support to adapt to climate change. Closely related to the lack of localized climate information, there is currently a constrained access to information and support about climate change and adaptation measures to communities and farmers. Diversification to climate-resilient agricultural practices and water saving technologies requires specific knowledge, skills, and technology transfer that is limited, as communities lack the technical assistance and support owing to limited capacities among peers and local extension staff.

Below is the theory of change for the project.



The target communities of the proposed project are in three provinces of the northern region of Thailand of the Greater Chao Phraya River Basin, in the confluence of the Yom and Nan Rivers: Phitsanulok, Sukhothai, and Uttaradit. These provinces were selected by RID in consultation with the Office of Natural Resources and Environmental Policy and Planning (ONEP), given the impacts of climate change to the area's critical function in water management in Thailand. The objective of the project is to adapt water management and agricultural livelihoods in the Yom and Nan river basins to climate change induced extreme weather events (droughts and floods), with the paradigm shift to move towards climate risk informed water and livelihood management through tailored climate information, technical support, and the adoption of innovative technologies and practices, such as ecosystem-based adaptation.

Based on the theory of change, barriers and solution analysis, the project will specifically address barriers related to:

a) low availability of reliable, localized, and easily accessible climate and risk information, as well as the improve the inter-ministerial coordination and distribution of risk information to end-users. To do this the project will: (i) strengthen institutional capacities for generating climate risk information, which will directly support the continuous water management and irrigation planning; (ii) enable to mainstream climate change risk information into public planning processes through improved inter-ministerial coordination; and (iii) disseminate climate change information to the community and household levels. This includes upgrading the IRDM tool to provide forecasts for shorter time frames (e.g. monthly or weekly) and tailor and distribute risk information to the needs of subnational decision makers and farmers/ end-users. This can, ultimately, enable farmers to enhance their resilience against climate change induced droughts and floods through better water management planning.

b) limited technical and financial capacities to cope with intensifying climate change induced risks for water management and irrigation infrastructure in northern Chao Phraya river basin. GCF resources will be used to match public finance to: (i) strengthen water infrastructures and its management in the Yom and Nan river basins, to reduce flood risks and increase resilience of agriculture dependent communities to droughts; and (ii) enable RID to expand their capacities to implement ecosystem-based adaptation (EbA) in their planning and implementation approaches, which has the potential to be transformational to Thailand's traditional planning approaches that solely focused on hard structure interventions.

c) low awareness of and access to resilient livelihood practices, lack of technical and financial capacities, and limited adoption and scalability hindering farmers to diversify to climate-resilient livelihoods and implement adaptive livelihood strategies. GCF resources, combined with leveraged RGT co-financing, will ensure that: (i) generate localized climate assessments and adaptation options analysis to capacitate local decision makers and agriculture based communities to integrate climate change risk information into climate change resilient livelihood and adaptation action planning; (ii) promoting EbA on-farm solutions to enhance drought and flood resilience of local farmer communities; and (iii) support farmer household capacity to access markets for climate resilient agriculture products. A particular focus will be given on creating linkages of local producer groups and farmers with buyers, including the promotion of cooperatives and organic products. Complementing this effort, Krungsri Bank will provide training to farmers on financial literacy, so that they are more aware, and can better avail themselves, of market research and financial mechanisms.

Through these inter-related activities, the project will strengthen the resilience of water infrastructure and agriculture-reliant communities to cope with increasing climate change induced floods and droughts in the Yom and Nan river basins – benefiting communities and private sector through reduced damages or disruption, and relieving pressure on public resources related to flood and drought relief programmes.

The project will also enhance the capacity of the RID to incorporate climate change risk information into water management planning processes and integrate EbA approaches into their portfolio of adaptive solutions, alongside traditionally used hard infrastructure interventions. Furthermore, the project will improve the quality of and access to climate change risk information available for decision makers at different levels and local communities.

Following a multi-stakeholder approach, the project implementation will engage with numerous stakeholders, both at a national and local level. These include the implementing partner, and civil society organizations (CSOs), NGOs, private sector organizations, academia, Office of Agriculture Economics (OAE), and other public entities. The private sector and social business have also been consulted to ensure a pragmatic lens to the design of interventions

supporting farmers. This greener, integrated approach is new for Thailand. Best practices of the project will inform water and agriculture planning in the broader Chao Phraya river basin, as well as other river basins in the country.

RESULTS AND PARTNERSHIPS

Expected Results:
The project seeks to: a) support climate informed water management, planning and investment, and b) support vulnerable farmers in reducing volatility to changing climatic conditions, which will achieve the objective through three complementary outputs, which will be generated through implementation of the key activities and sub-activities outlined below.

Output 1: Enhance climate and risk informed planning in the water and agricultural sectors through improved climate information and cross sectoral coordination.

The project will support the improvement of climate risk-responsive decision making through the enhanced quality and availability of tailored climate information for both water management and agriculture livelihoods planning. This can be reached through improved climate projections and the dissemination of tailored climate information to relevant stakeholders to support the integration into policies and planning across sectors (especially the water and agriculture sectors). This Output will also support inter-ministerial coordination, enabling stronger collaboration between key decision-making bodies in country's water and agriculture sectors to incorporate climate risks and adaptation strategies in their sectoral planning processes. Importantly, tailored climate information will be generated and disseminated to agriculture households for application in household level planning.

Activity 1.1. Strengthening capacity to generate tailored climate information to inform water management and agriculture planning.

This Activity aims to strengthen the climate risk-informed planning and implementation of water and agriculture sector interventions. The work under this Output will build upon the IRDM tool, which can forecast the amount of rainfall and inflow of water into reservoirs on the rainy season and optimize water release schedules for a 12 months ahead (a tool jointly developed by integrated data sources from several Thai organisations to enhance the utilization of weather information and projections to inform water management and irrigation practices throughout the Chao Phraya River Basin. Under this output the IRDM tool will be updated to increase the level of forecasting precision as well as generate projections for shorter time frames than annually (current standard of the tool). The climate analysis will also inform the necessary upgrades to existing infrastructure, namely the canal and regulator network in the Yom and Nan river basins. Per the recently-conducted feasibility study undertaken by the Royal Irrigation Department, in order to adequately regulate water during wet and dry season, water gates need to be upgraded and existing canals need to be enlarged to ensure greater climate resilience. Other plans to be supported by Activity 1.1 include Agri-Map (a mandatory and key zoning policy of MoAC, endorsed by the National Economic and Social Development Council (NESDC)), as well as support agriculture planning at the farmer level. This will require procurement of computing and measurement equipment and related training to technical staff in its use. Training will also be provided to RID and TMD to tailor products with information relevant for water management, with consideration of agriculture needs, including rainfall, runoff, temperature, and evapotranspiration. The Thai Meteorological Department and RID will develop the national scope. They will engage the national and sub-national researchers on climate change fields (policy, technical modelling) to the activity.

Sub-activities include:

1. Development of Terms of Reference (ToR) for the climate information processing unit mandate
2. Procurement of hardware and software for enhanced generation of climate and environmental information, and related training

3. Technical training to 30 staff from TMD, RID and relevant agencies on integration of climate change into water management planning, including consideration of agriculture needs
4. Development of tailored climate information products to inform planning, and one-to-two week, monthly, seasonal, annual and long-term climate forecast models

Activity 1.2. Facilitating inter-ministerial coordination for climate-informed and integrated planning

In order to create an enabling environment to mainstream climate change considerations into planning processes in public entities of relevance to water management and livelihoods development, the project aims to promote the inter-ministerial coordination and flow of information. This Activity will support coordination between the Thai Meteorological Department, the Hydro and Agro Informatics Institute, the Geo-Informatics and Space Technology Development Agency, the Department of Water Resources, and the Hydrographic Department of the Royal Thai Navy for improved information sharing. The project will provide technical support in developing standard operating procedures (SOPs) for the related committee for information sharing across government stakeholders, established under the TMD mechanism/forum. This will entail reviewing existing practices for dissemination of climate information, revising in consultation with partners and related sensitization.

Support from the project will ensure consideration of existing committees to ensure complementarity, including integration with ongoing national adaptation plan (NAP) processes, which include capacity building and coordination efforts. As this project is an adaptation priority for the RTG, the project activities feed into national and international commitment on climate action. The Government has established the National Committee on Climate Change Policy (NCCC), chaired by the Prime Minister. The NCCC is responsible for (i) national climate change policy and strategy; (ii) determination of national positions in international negotiations under the UNFCCC and any relevant international agreements; and (iii) monitoring and evaluating implementation results of government agencies, as stated in the national policy and strategy. There are four sub-committees under the NCCC, namely, the Sub-Committee on Climate Change Policy and Planning Integration, the Sub-Committee on Climate Change Knowledge and Database, the Sub-Committee on Climate Change Negotiation and International Cooperation, and the Sub-Committee on Action for Climate Empowerment and Public Relations. Each Ministry has issued an order for the appointment of a Climate Change Focal Officer to ensure inter-ministerial coordination. According to the reporting line, the Director General of RID reports to the Permanent Secretary of the Ministry of Agriculture and Cooperatives (MoAC). Senior Management at RID is part of the Sub-Committees, and through this role can help ensure knowledge sharing, lessons learned from the project. The Sub-Committee members will be invited to the project seminar/workshop bi-annually under the Activity 1.2. In addition, Thailand's National Adaptation Plan (NAP) is under the Cabinet approval process and will then submit to the UNFCCC. UNDP/GCF is also supporting ONEP to update and implementation of the NAP. ONEP is expected to get an approval by the end of this year.

Sub-activities under this activity thus include:

1. Development of SOPs for sharing of climate information across relevant departments
2. Workshops and meetings for sensitization and collaboration in sharing of information and identifying opportunity for collaboration and complementarity

Activity 1.3. Expanding access to climate information for application at the household level

The Activity focuses on the last mile of dissemination of climate information, expanding access of information to the public, and in particular tailored climate information for agriculture households. Various communication means will be developed and employed to ensure climate information reaches a wide audience. The website will be registered under the RID; RID will own and manage the website. KMUTNB would proceed with copyright registration of the app under their institution, potentially together with RID. This point to be further consulted and finalized during the project inception. Intellectual property rights related to the app and website will be captured under the related clauses of cooperation agreements with partners.

Importantly, consideration will be given to what information is needed and how it is communicated, so that it is understood and applicable. To that end, an communications strategy will be developed, followed by the generation of communications products. RID will disseminate the tailored climate change information. Target groups include departments with MoAC (RID and agriculture, the Ministry of Natural Resources and Environment, Office of Water Management Policy, Thai Meteorological Department, the Hydro and Agro Informatics Institute, the Geo-Informatics and Space Technology Development Agency, the Department of Water Resources, the Hydrographic Department of the Royal Thai Navy, financial institutions such as Krungsri Bank and the Bank of Agriculture and Agricultural Cooperative (BAAC), as well as agriculture households.

Sub-activities include:

1. Development of communication strategy for dissemination of information, including timing and media
2. Development of information briefs and reports released for circulation in local and social media (dissemination informed by communications strategy)
3. Development of smartphone and Line app with climate information that can be applied at the agriculture household level
4. Development of complementary website for interactive information in line with information apps or households

Output 2: Improve water management through strengthened infrastructure complemented by EbA measures, for greater resilience to climate change impacts

The second Output focuses on complementing RID investment to improve water management in Yom-Nan river basin area through necessary assessments to ensure that existing designs for the canal regulators/flood gates at 13 schemes are adequate given future climate projections. The project will complement government co-financing and plan by supporting the upgrade of infrastructure at two of the planned schemes and the integration of ecosystems-based measures (EbA).

Activity 2.1. Climate-informed engineering designs for the 13 schemes of the Yom-Nan river basin, and upgrade of 2 water infrastructure

The climate information and enhanced coordination of Output 1 will inform the review of existing designs for water infrastructure, ensuring they are adequate given climate change and importantly that they are both responsive to the needs of people in the immediate Yom and Nan river basin area, as well as adequate to perform the function of water management as part of the greater Chao Phraya River Basin under projected climate change. Based on the review, enhancements will be made to the existing designs as necessary, including those to be supported through co-financing under this project.

While the review of designs will be for all the 13 schemes, GCF resources will only support the actual upgrades at one scheme at Khlong Muang Chang – which is considered as a critical scheme by RID as part of the canal and regulatory network in the Yom and Nan river basins. GCF resources will cover the upgrade construction cost of the two floodgates, size 6.00 * 5.00 meters, two-drainage type - increasing drainage capacity from 50 cubic meters/second to 100 cubic meters/second for flood mitigation and water storage for agriculture and consumption in Kong Kailash district in Sukhothai, and the Bang Rakam district in Phitsanulok. The cost is estimated at USD 5 million and includes contractual services and equipment for the canal head regulator and related appurtenant works. Ownership of related immovable objects will ultimately be with RID.

These upgrades alone however will not be sufficient, therefore the RTG through RID co-financing will support dredging canal and strengthening embankment at the Klong Muang Chang canal (USD 3 million), and operation and maintenance in Yom-Nan river basin (USD 4.24 million) as well as reconstruction of the Khlong Ta Kay culvert located in the Phrom Piram district, Phitsanulok province (USD 4 million). Further, RTG through RID has allocated

resources for operations and maintenance of canals and regulators, including: maintenance of irrigation canals, headwork and road; weed eradication; canal dredging; ecosystem improvement; and related administrative costs. The dredging of canals to a depth that can drain these low-lying areas, will improve connection of waterways to each other.

Sub-activities include:

1. Technical support to review and enhance existing engineering designs for the 13 schemes of the Yom-Nan river basin area, to ensure adequate integration of climate change
2. Construction activities to upgrade of 2 canal head regulators along Khlong Muang Chang and Khlong Ta Kay Reg in the Yom-Nan river basin area.

Activity 2.2. Complementing of grey infrastructure with EbA measures and Integration of EbA approaches into water management policy and planning

The Activity focuses on the promotion of EbA approaches in Thailand in order to widen their range of adaptation options in the field of water management to cope with climate change induced pressures. The project seeks to retrofit ecosystem-based adaptation processes into the area, through the re-introduction and/or strengthening of integrated farming practices (such as rice-fish management), as well as the re-introduction and strengthening of vegetation and waterflow systems, within the reinforcement of the existing canal channels and large irrigation system structures already in place. Given that much of the project is focused on the retention of water in the upper tracts of the project area – some areas will have water areas increased (e.g. monkey cheeks[43]) whereby wetlands management techniques can be employed, and the re-introduction of some of the original fauna and flora can take place. The 'greening' of reservoirs and canals is likely to take place through use in part of riparian vegetation sections – to act in combination with sediment filtration systems for more effective soil management and anti-topsoil runoff loss solutions. Ecosystem-based Adaptation (EbA) measures, in terms of improvements to water infrastructure through restoration principles include vegetating river banks, using erosion management techniques combined with vegetation buffers to conserve soil and maintain water quality, the slowing down of water flow, and the recharge of groundwater sources during periods high precipitation for water access during dry periods; soil conservation measures, among others. Appropriate measures will be introduced to complement the existing water management to slow water flows during flood periods and enable water to permeate to the ground, and to mitigate potential environmental impacts from the construction of two proposed hard infrastructures. These may include: wetland / floodplain / oxbow lake restoration; living weir; riparian zone rehabilitation / bank stabilization by vetiver grass, buffer zones, sedimentation traps and/or an appropriate combination of measures (see Figure below). Support to national partners will also include capacity building for EbA, integration of agriculture and biodiversity into EbA measures, floodplain development and conservation, river restoration, fish migration structures, and longitudinal connectivity of the Yom River.

Following best practices and lessons learned, final selection of the EbA measures will follow a consultative process, informed by vulnerability and economic assessments. GIZ is a Responsible Party for implementing this activity. GIZ's framework for mainstreaming EbA employs an iterative six-step approach (known as the adaptation mainstreaming cycle, see below). It also provides tools and methods that for each step. This guidance is in line with the Voluntary guidelines for the design and effective implementation of ecosystem-based approaches to climate change adaptation and disaster risk reduction upon request by the CBD Conference of the Parties (COP), in its decision XIII/4, to which GIZ contributed[44]. Further, this approach is consistent with national regulations and policies. On 2 February 2021, the NWRC has announced a new regulation that 'In any area of water resource management initiatives, information must be provided sufficiently to the private sector, relevant people and communities to create awareness that will be useful in participating in the management of water resources in the area'.

A climate-sensitive IWRM approach needs to be applied in order to improve the framework conditions for sustainable water management and allow for better mainstreaming of adaptation targets, incl. EbA, into the water sector. The concept of climate-sensitive IWRM focusses on strengthening capacities in the planning process of water related bodies while integrating climate change adaptation needs in policy frameworks (national level) as well as in

the planning and design of water management measures at river basin scale (sub-national level). This includes a comprehensive capacity development strategy using improved diagnostic analysis as well as emphasizing the prioritization and budgeting of most suitable adaptation actions. It will be essential to raise the awareness of the direct and co-benefits of ecosystems, their economic value and critical role for adaptation to climate change. To contribute to the overall monitoring and evaluation of the impact of the different measures in terms of water security, on the flood situation and on socio-economic developments digital tools (incl. UAVs/ drones) shall be applied. The digital solution-based M&E methodology that will enable monitoring quantitative and qualitative changes at river basin scale is established and operated in collaboration with academia and linked to local and national monitoring system(s) of institutions like HII for the documentation of and reporting on climate change adaptation actions in the water sector.

The EbA measures are to be integrated in a climate-sensitive River Basin Management approach (reflected in the River Basin Master Plan – RBMP) that builds on climate risk and vulnerability information and an integrated water resources management (IWRM) concept. Quantity & quality of societal benefits are to be reflected as well (in terms of impact on livelihoods e.g. source of income, reduced risks as well as in terms of ecosystem services e.g. reduced erosion, extreme event buffering for flood and drought situations). In close cooperation with the Thai water sector GIZ is currently in the process of developing an EbA Guidebook as a national standard for the systematic identification, prioritization and selection of EbA measures at river basin scale.

Sub-activities include:

1. Conduct of diagnostic analysis incl. vulnerability and risk assessment, modelling, cause-impact chains and economic evaluation
2. Based on the diagnostic analysis conduct joint prioritization of EbA solutions, finalization of design for three selected EbA measures, including related training and guidance materials
3. Implementation of identified ecosystem-based adaptation measures
4. Integration of ecosystem-based adaptation measures into water management rehabilitation plans: soil conservation measures, floodplain development and conservation, river restoration, fish migration passes, and longitudinal connection of the Yom River
5. Documentation of lessons learned in terms of linking local (river basin) level planning and implementation experience with national level policy developments [contribution to the implementation of the NAP/NDC]

Output 3: Reduce volatility of agriculture livelihoods in drought and flood prone areas through strengthened extension support and local planning, investment in on-farm adaptation measures and greater access to finance and markets

The project area is dominated by agriculture activities. Farmers in the area are particularly vulnerable to climatic conditions and would be directly impacted by any interventions in the area. It is critical therefore that interventions in the project area engage farmers, and the project is informed by their experiences and needs. The project will support training to inform climate-informed decision-making related to agriculture practices, technical expertise and implementation of on-farm interventions for farmers in the immediate project site, with related training materials that can reach across the agriculture sector in Thailand through Farmer Field Training (FFT). The efforts will be conducted in partnership and coordination with King Mongkut's University of Technology North Bangkok (KMUTNB) and Krugsri Bank. KMUTNB will help to deliver training to farmers on applying water forecast based on climate information to household level agriculture practices; and Krungsri Bank, through co-financing activities, will support farmers in developing their business skills for greater market access. The activities and sub-activities include the following.

Activity 3.1. Application of climate information in household agriculture planning and strengthening related support through extension services

Effective application of climate information into household agriculture planning will require shifting the crop choice and crop calendar to correspond to the changes in temperatures and rainfall patterns. For this, inter-agency coordination at the local, provincial, and central levels is needed to adequately support agriculture households to make the necessary changes in order to successfully adapt to climate change.

Based on the tailored climate information of Output 1 and a close collaboration with the IRDM programme and with KMUTNB, GCF resources will support knowledge sharing and training to provincial extension officers from the Department of Agricultural Promotion under MoAC and agriculture households on climate change impacts on agriculture in the Yom and Nan river basins. GCF resources will support awareness raising, informed adaptation measures and training to communities, such as related to appropriate timing for agriculture practices and agriculture crops or technologies which are less water-intensive (e.g. precision farming, application of Unmanned Aerial Vehicle (UAV)). Conservation agriculture, on-farm water storage and aquaculture, linkages to market for diversified crop options are some of the key supportive measures to improving agricultural livelihood resilience.

Informed by vulnerability and risk assessment under Output 2 and the climate information of Output 1, district level action plans will be developed. The action plans will also provide a basis for the type of support households in the project area will require. For instance, where assessments indicate water scarcity issues for the village regions of the project target area, action plans may include the constructing of on-farm ponds. Agriculture extension officers will receive training to support the changing needs of farmers in the area.

In partnership with King Mongkut's University of Technology North Bangkok (KMUTNB), training will be provided to farmers in 22 sub-districts on using and applying the information from the app developed under Output 1. Training will include adaptation measures such as, changes to crop choice and crop calendar which may be required due to climatic changes, and that result in both reliable productivity as well as more sustainable use of natural resources by farmers.

The project will provide technical support and bring in local experience to share lessons learned and best practices related to principles and application of, for example, conservation agriculture, organic agriculture, agroecology, integrated farming, as well as water saving approaches such as water saving techniques related to rice, such as system of rice intensification (SRI) to respond to drier conditions and changing rainfall patterns[45].

Technical support applies to both extension services and Farmer Field Schools. The Famer Field School model is established as a platform for farmers to provide practical learning approaches for livelihoods and in replicating good practice techniques. Whilst being complementary to the Agricultural Extension Services approach and provision, the Farm Field School differs in that it uses participatory teaching methods and is specific to adults and farmer needs – providing opportunity for farmer experimentation with different farming techniques and crop varieties, allowing demonstration, and generating observation and analysis of the outcomes. GCF resources will support climate-resilient agriculture trainings to farmers through existing farmer field schools, which will serve a long-term mandate of facilitating a transformation in agricultural practice through the promotion of ecologically supportive climate smart practices. In consultations during project development, farmers expressed training fatigue, asking that training be accompanied by on-farm support. The project will support on-farm and community-based activities, including demonstrations and regular follow ups.

Thailand has recognised the potential for technology to provide positive results for improved production, quality and agricultural products, and importantly their ability to be resilient to climate change. The National Strategy -Thailand 4.0 includes ambitious targets for agriculture, aiming to transit traditional agriculture to smart agriculture and increase farmer income by fivefold in 20 years; leveraging innovation and digital transformation. The advancement of technology in agriculture is also in line with Thailand's 20 year Agricultural Development Plan (2017-2036) and "MOAC's Digital Agriculture Strategic Plan (2017-2021)" (For further details, refer to paragraph 153). Therefore, the project aims to pilot precision agriculture with IoT system and the usage of drones (see illustrative figure below).

Precision agriculture will be employed at five sites, covering 50 farms. IoT sensors will be installed at the farm and drones with multispectral camera will be used for agricultural area survey. Data will be collected and processed on the cloud server by using the AI from commercial software. The data from IoT sensors and the drones will be linked with the result of climate change data forecasting for decision making. Related information could help inform farmers to divide their fields into smaller and homogeneous zones, assess water quantity needs and even predict crop yield. Equipment will be owned and maintained by the district, and data incorporated into activities under Outputs 1 and 2. Results will be documented and disseminated to farmers in the area as well as provinces/districts with similar landscape and climatic conditions. As data can inform district planning, further upscaling can be done by district authorities through public resources – consistent with Thailand 4.0 aims to shift Thailand's agriculture sector towards an innovative-driven and interconnected sector through the integration of the concepts and approaches from sufficiency economy, smart farm, precision agriculture, intensive agriculture, sustainable agriculture, green economy, and agricultural biotechnology. A more tailored application of the technology may be upscaled by farmers through available loan instruments (for larger farms) or through the credit to be established by BAAC (see Sub-activity 3.2.5). Trainings will be combined where appropriate for efficiency purposes. . It is to be noted that in the project, district authorities would be responsible for O&M for this intervention and related resource commitments (e.g., personnel/finance) would be confirmed before roll out of interventions.

It is not expected that individual small farmers invest in IoT/drone technology, though groups of farmers may find it feasible – bridging the technology gap between small and larger farms; in additional, data collected from IoT can help enable policy and planning therefore benefiting smallholder farms. The use of IoT is meant not only to improve farm outcomes (e.g., increased yields), but also to provide information that can help with local planning and resource allocation (this is in line with National Strategy-Agriculture 4.0, which aims to shift Thailand's agriculture sector towards an innovation-driven and interconnected sector). By focusing on smallholder farmers for the intervention, data is collected from farms that need the greatest support. IoT is an innovative technology (approx. $1M of the total GCF funding request) that is being adopted by the government across its many investments (government and donor funded) and there is a demonstrated commitment for O&M and upscaling that will ensure that these technologies become cost-effective over time. The proposed project will undertake a technical assessment as part of the implementation of this activity to fully inform the design and roll-out, with a view towards replication and scale. The precision agriculture interventions will be based on a successful research conducted by the Kasetsart University Thailand in collaboration with the Ministry of Agriculture and Cooperatives[46] and international best practices, such as International Rice Research Institute[47]. These research indicated the IoT system and drones are especially effectively on:

- Assist timing for planting;
- Land preparation;
- Drone usage for remote sensing (crop health data collection) and efficient herbicide / pesticide application if this is needed;
- Enabling farmers to effectively manage water levels through better management of soil moisture levels (as monitored by IoT sensors);
- Data collection for enabling policy and planning with local government;
- Climate data forecasting for better decision making.

Sub-activities include:

1. Assist in the development of district level adaptation action plans through technical assistance
2. Training of 20 provincial agricultural extension and land development officers in the target provinces to undertake climate-risk informed agricultural extension services
3. Training of agricultural extension and land development officers for the project area in climate-smart agricultural practices and management; including appropriate crops and inclusion of climate risk responsive farm planning
4. Precision agriculture demonstration and related dissemination of data
5. Technical assistance to support farmers to apply cause-effect analysis and climate information to agriculture decisions at the household level (e.g. crop choice and crop calendar)

6. Training through farmer fields schools in each sub-district to complement and support the activities of agricultural services (extension).

Activity 3.2. Implementation of on-farm climate resilient measures to improve drought and flood resilience and improved access to finance for sustainable agriculture

Based on results of cause-effect analysis and related action plans, on-farm water storage and groundwater recharge mechanisms will also be explored, including on farm storage/rainwater infrastructure, installation of underground water traps[48], vegetation management to promote recharge, canal and waterway management constructed and natural wetlands, and so forth[49]. Techniques assist to prevent the dropping of the watershed. Groundwater recharge collects the water during the wet season for use during the dry season when the demand is highest. In the cases where farmers are using chemical fertilizers and pesticides – artificial recharge must only be done using filtration/percolation techniques as to prevent contamination. The project will, however, promote the usage of organic alternatives to chemical fertilizers and pesticides.

To support the EbA measures of Output 2, community nurseries will be established. The preparation for the seedling nursery will be in small pieces of land equipped with water pumps to drain those submerged pieces of land. In other cases, the project will support farmers to cooperate and establish community nurseries on higher ground. Importantly, this can provide means of longer term support to vulnerable farmers during periods of flooding. Ownership of the community nurseries will be with the famer cooperatives in each sub-district. These cooperatives operate under the legal framework, managed by the Cooperative Promotion Department, under the MoCA. GCF will also support investment in small scale equipment to farmers to support EbA through water conservation and better soil management (e.g. alternate wetting and drying technologies that measure more precisely the amount of water needed for rice). Selection criteria for beneficiaries will be guided by vulnerability and priority, and economic needs of beneficiaries. Economic needs include a) elderly farmers, b) newly graduated (unemployed) youth, households with savings not higher than 50,000 THB and household income not higher than 100,000 THB, and c) households with usable area not larger than 50 square meters and total residential area not larger than 5 rai. In the context of COVID-19 and the related economic impact, selection criteria may be revisited.

To support farmers with access to finance for investments, GCF resources will also support the co-design of a credit instrument for farmers practicing climate resilient agriculture. BAAC has committed USD 16 million for this effort. It has been counted as parallel finance for the proposal and the commitment letter is part of Annex 13. The BAAC credit will be available to small-scale farmers, community farmers/cooperatives, agriculture SMEs, as well as larger agricultural businesses. The range of credit available is expected to be 9,000 THB (USD 300) – 10 million THB (USD 320,000). The co-design of the credit instrument will follow a consultative process engaging relevant ministries and communities, to ensure that the product is one that both supports climate resilient agriculture investments and on-farm EbA measures, and suits the needs of farmers in the project area.

Sub-activities include:

1. Technical expertise for development of on-farm EbA guidelines for application by farmers
2. Technical assistance and investment to support to farmers related to on-farm ponds and enhancing on-farm measures to protect irrigation channels (e.g. vegetating on farm canal buffer zones, planting shade cover areas to minimise evaporation of water along canal ways, and vegetating irrigation infrastructure for flood protection)
3. Procurement of small scale equipment for farmers to support water conservation and soil management
4. Establishment of community nurseries to provide alternative livelihood income generation during drought-flood/non-farming periods, and to cultivate and supply climate smart crops, vegetables, and vegetation species for EbA measures implemented in Output 2
5. Co-design of financial instrument with BAAC to support farmers with adaptation investments towards climate resilient agriculture

Activity 3.3. Capacity building for farmers to support market access for climate resilient agriculture products

Uncertain yields due to climate change and falling prices for traditional rice varieties create volatility to farmer livelihoods. During consultations, farmers shared challenges faced by increased temperatures and changing rainfall patterns (particularly drought periods), but also expressed concerns over implementing changing due to the lack of knowledge about and access to markets. Knowledge sharing workshops will be conducted, so that farmers can learn from each other and benefit from each other's best practices and lessons learned. To support market access, the project will establish an online market platform, providing an additional means for farmers to reach consumers.

GCF resources will also support farmers with market access through training and support with identifying links to buyers and markets for climate-resilient agriculture products, including development of contract farming (incl. hospitals, schools, restaurants), linkages through rice cooperatives, linkages to local gatherers and processors, linkages to private sector and community support agriculture (CSA) for larger markets at Phitsanulok province, and comprising of larger market buyers, processors, and cooperatives. With support from Krungsri Bank, farmers will also receive training on business skills to help convert networking opportunities into buyer-seller partnerships.

Sub-activities include:

1. Farmer to farmer knowledge sharing workshops, including reciprocal learning processes (e.g. site visits by farmer field schools to project schemes).
2. Establishment of online market platform to increase visibility and marketability of farmers' products.
3. Training to farmers to support market access for farmers, including capacity building related to financial literacy, linkages to buyers and markets, requirements for contract farming (incl. hospitals, schools, restaurants), linkages through rice cooperatives, linkages to local gatherer and processors, linkages to private sector and community support agriculture (CSA) for larger markets at Phitsanulok province, and comprising of larger market buyers, processor, cooperative.

Co-financing

In addition to the GCF funding support, a total co-financing of USD 16,377,823 will be provided by the Royal Thai Government through RID, and Krungsri Bank (a member of MUFG-global financial group) as details below.

Co-financing source	Co-financing type/financial instrument	Co-financing amount (USD)	Planned Co-financing Activities/Outputs	Risks	Risk Mitigation Measures
Government (RID)	In-kind	16,263,940	Activity 1.1 : Operations and Maintenance of Climate Information System (at approx. $303,030/year for 5 years during Project implementation), Peoplewares for operating climate centers (at $2,424/year for Years 3-5) and training to be provided for government staff (at $3,030/year for Years 3-5) Activity 2.1 : for strengthening of water infrastructure and management of existing irrigation networks and canals with climate-informed engineering design. This Budget	Co-financing not timely realized	Regular communication and reminders.

			is based on regular fiscal budget allocation to the 3 provinces of the Project area. Activity 3.1: for Agricultural extension plan Activity 3.2: For monitoring plans of surface water quality, soil erosion and sedimentation, land slide and soil quality, socio-economic and health.		
Krungsri Bank	In-kind	113,883	Activity 3.3. : provide training to farmers to support market access for farmers, including capacity building related to financial literacy, linkages to buyers and markets, requirements for contract farming (incl. hospitals, schools, restaurants), linkages through rice cooperatives, linkages to local gatherer and processors, linkages to private sector and community support agriculture (CSA) for larger markets at Phitsanulok province, and comprising of larger market buyers, processor, cooperative. BAAC will make finance available to farmers in the project sites for additional adaptation investments by beneficiaries, as well as for further replication and upscaling of Project initiatives	Co-financing not timely realized	Closely monitor implementation of the MoU and workplan

Knowledge Management:

The project team will ensure dissemination of lessons learned and best practices at local and global scales. Results will be disseminated to targeted audiences through relevant information sharing networks. The project will contribute to scientific, policy-based and/or any other networks as appropriate (e.g. by planning for strategic communications, providing knowledge output, and enabling participation of stakeholders/beneficiaries.

Another opportunity for knowledge management and sharing is in connection with the project Interim Evaluation (IE) and Terminal Evaluation (TE), which aim primarily to assess progress and achievement towards the project outcomes and objectives as specified in the Project Document. The final TE report and TE TOR will be publicly available in English and posted on the UNDP website. At the end, the project's final APR along with the terminal evaluation (TE) report 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 lesson learned and opportunities for scaling up.

Partnerships:

The project was designed with extensive stakeholder consultations. Under the guidance of ONEP (office of the NDA) and RID, the project design was further informed by consultations and assessments conducted during the project development phase, which included government ministries, development partners, academia, social enterprise and communities.

The proposed project builds on past community consultations, comprising of several rounds of stakeholder discussions on adaptation priorities, including flood and drought risk management through enhanced green and grey water infrastructure, and climate-resilient agriculture-based livelihoods. Stakeholder discussions took place over the period of 2016-2019, initiated and led by the RID and in coordination with the ONEP (NDA).

The project, through field surveys and consultations with sub-national level decision makers, communities, and community leaders has integrated local level perspectives into the project design. In addition, consultations with technical officials within MoAC with expertise on water management and related modeling, economics, agriculture, and hydromet services, as well as academic institutions in order to incorporate best international and national practices, and seek wide support for the project interventions. Given their expertise and experience ecosystems-based water management in Thailand, GIZ was consulted to inform the design the EbA elements of Output 2.

The private sector and social business have also been consulted to ensure a pragmatic lens to the design of interventions supporting farmers. These include, Siam Organic Co Ltd, which focuses on producing healthy organic products, while applying practical business approaches informed by market research, to help small-scale producers in Thailand grow their way out of poverty. Similarly, consultations with Krungsri Bank[63] regarding supporting farmers with business skills resulted in a partnership for the project through co-financing for Output 3.

Following a multi-stakeholder approach, the project once under implementation will continue to engage with numerous stakeholders, both at a national and local level. These include the implementing partner, and civil society organizations (CSOs), NGOs, private sector organizations, academia, Office of Agriculture Economics (OAE), and other public entities. The roles and responsibilities of the various stakeholders are detailed in the Stakeholder Engagement Plan.

To further support farmers access finance for adaptation measures, the Bank for Agriculture and Agricultural Cooperatives (BAAC) has pledged a line of credit of USD 16 million through financial products with incentives for farmers to practice climate resilience. The RTG has also committed USD 17.254 million for O&M for 15 years beyond the GCF-funded project period. These have been counted as parallel financing for this project.

Risks:

A number of risks of varied probability have been identified for the project. These risks relate to project sustainability in terms of infrastructure maintenance in the long term, environmental risks to project investments, limited institutional capacity, project beneficiary target resistance/non-adoption, project timeline disruptions due extreme events (natural disasters, political events). The identified risks include the following.

1. Infrastructure investments (i.e. flood gates) are not maintained and do not serve intended purpose
2. Environmental risks associated with water infrastructure investments
3. Project interventions do not have intended impacts, because behavior that is not conducive to the project objective continues (e.g. crop choice/calendar or related water use not informed by climate change, extraction of groundwater continues, etc.)
4. Staff turnover or lack of technical capacity within executing entity
5. Extreme event disrupts implementation or damages investments, resulting in delays and/or additional costs. COVID-19 and COVID-19 related restrictions delay implementation

Please see the full list of risks identified and associated mitigation measures in SESP (Annex H) and UNDP Risk Register (Annex H)

Stakeholder engagement plan:

The proposed GCF project has been developed in close discussion and participation among a range of stakeholder groups. The Royal Irrigation Department (RID) has played a vital role in leading the discussions on the proposal identification and formulation process with the engagement and guidance of the Office of Natural Resources and Environmental Policy and Planning (ONEP)/GCF National Designated Authority, Office of National Water Resources (ONWR), Thai Meteorological Department (TMD), Land Development Department (LDD), Department of Agricultural Extension (DOAE), Office of the National Economic and Social Development Board (NESDB), and other stakeholder ministries and agencies. Key stakeholders to be involved in the project implementation were identified during the process consistent with government mandates related to areas of work, as well as stakeholder expertise and comparative advantage. Private sector and civil society organizations were also engaged in the process, in line with shared objectives of stakeholders/partners and co-benefits of collaboration.

Stakeholders contributed to the design of the project, across three project outputs: 1) Enhance climate and risk informed planning in the water and agricultural sectors through improved climate information and cross sectoral coordination, 2) Improve water management through strengthened infrastructure complemented by EbA measures, for greater resilience to climate change impacts, and 3) Reduce volatility of agriculture livelihoods in drought and flood prone areas through strengthened extension support and local planning, investment in on-farm adaptation measures and greater access to finance and markets.

Engagement with stakeholders will occur through various means – through the regular consultations and engagement planned during implementation of project activities, as well as through formal mechanisms related to the project's organizational structure. During project inception, Working Groups will be established to support implementation across the 3 Outputs based on roles and responsibilities: Output 1 - KMUTNB and RID; Output 2 – RID, GIZ, provincial offices; Output 3 – RID, DoA, CPD, DoAE, DoF, LDD, Sub-district Administrative Offices. Further a Technical Advisory Group will be established that will include technical expertise from government, as well as representation of private/finance sector and CSOs.

The following Stakeholder Engagement Plan provides an indicative list of stakeholders for the Outputs and Activities for the lifetime of this project. The plan will be reviewed and updated as necessary during the project inception period, as well as regularly throughout implementation as additional stakeholders (particularly private sector and CSOs) are identified.

Outputs	Activity	Stakeholders
Output 1: Enhance climate and risk informed planning in the water and agricultural sectors through improved climate information and cross sectoral coordination	Activity 1.1. Strengthening capacity to generate tailored climate information to inform water management and agriculture planning	Royal Irrigation Department (RID) Office of National Water Resources (ONWR) Ministry of Natural Resources and Environment (MONRE) Thai Meteorological Department (TMD) Hydro and Agro Informatics Institute (HAII) Responsible party: King Mongkut's University of Technology North Bangkok (KMUTNB) KMUTNB is a current partner of RID. They have developed the information system of water management (macro scale) for farmers funded by national research center. Hence, RID has selected KMUTNB to tailor the climate change and water management information in the

Outputs	Activity	Stakeholders
		project area (Yom and Nan River Basin) and assume role in upgrading the national water irrigation management system.
	Activity 1.2. Facilitating inter-ministerial coordination for climate-informed and integrated planning	Royal Irrigation Department (RID) Office of National Water Resources (ONWR) Ministry of Natural Resources and Environment (MONRE) Thai Meteorological Department (TMD) Hydro and Agro Informatics Institute (HAII) King Mongkut's University of Technology North Bangkok (KMUTNB)
	Activity 1.3. Expanding access to climate information for application at the household level	Royal Irrigation Department (RID) Ministry of Natural Resources and Environment (MONRE) Water User Groups (WUG) Disaster of Disaster Prevention and Mitigation, Ministry of Interior Ministry of Public Health Ministry of Agriculture and Cooperatives (MOAC)
Output 2: Improve water Management through strengthened infrastructure complemented by EbA measures, for greater resilience to climate change impacts	Activity 2.1. Climate-informed engineering designs for the 13 schemes of the Yom-Nan river basin and upgrade of 2 water infrastructure	Royal Irrigation Department (RID) Office of National Water Resources (ONWR) Ministry of Natural Resources and Environment (MONRE) Thai Army Local Administrative Organization, Ministry of Interior (MOI) Water User Groups (WUG) Communities Local communities in the Yom-Nan river basin will be engaged according to the existing ministerial regulations issued by the Prime Minister Office. The focal agency is the Office of National Water Resources (ONWR). Regulations apply for the 25 river basins nationwide to facilitate enhancement of cooperation in water resource management as well as flood and

Outputs	Activity	Stakeholders
		drought preparedness sand response. The RID local offices are members of the river basin committee, and will help coordinate the project team, RPs in their engagement with committee members, including the representatives from villages/water users. Further, several of the 11 regulations address selection of river basin committee members, setting up of water user organizations and their roles and responsibilities. This involves rules and guidelines for state measures to compensate people affected floods and water shortages. ONWR will also help to involve the civil sector in water resource management, enhance cooperation across government agencies and help authorities better manage floods and/or droughts.
	Activity 2.2. Complementing of grey infrastructure with EbA of EbA approaches into water management policy and planning	Royal Irrigation Department (RID) Office of National Water Resources (ONWR) Ministry of Natural Resources and Environment (MONRE) GIZ Communities in the Yom, Nan River Basins (See comment above on engagement with communities) <u>Responsible party</u>: Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH As a partner for sustainable development with worldwide operations, the German government owned Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH operates on behalf of German Ministries, the governments of other countries and international clients. With support from the German Federal Ministry for Environment, Nature Conservation and Nuclear Safety (BMU), Thai-German Climate Programme (TGCP), and implementation by GIZ from 2018-2021 is promoting an EbA roadmap in Thailand (from policy to action). Engagement with GIZ ensures complementarity and cost-efficiencies.
Output 3: Reduce volatility of agriculture livelihoods in drought and flood prone areas through strengthened extension	Activity 3.1. Application of climate information in household agriculture planning and strengthening of related support through extension services	Royal Irrigation Department (RID) Ministry of Natural Resources and Environment (MONRE)

Outputs	Activity	Stakeholders
support and local planning, investment in on-farm adaptation measures and greater access to finance and markets		Ministry of Agriculture and Cooperatives (MOAC): Land Development Department (LDD), Department of Fisheries (DOF), Department of Agricultural Extension (DOAE), Department of Agriculture (DOA), Rice Department, Office of Agricultural Economics (OAE), Department of Livestock Development (DLD) Ministry of Public Health (MOPH) Local Administrative Organization, Ministry of Interior (MOI)
	Activity 3.2. Implementation of on-farm climate resilient measures to improve drought and improved access to finance for sustainable agriculture	Royal Irrigation Department (RID) Ministry of Natural Resources and Environment (MONRE) Ministry of Agriculture and Cooperatives (MOAC): Land Development Department (LDD), Department of Fisheries (DOF), Department of Agricultural Extension (DOAE), Department of Agriculture (DOA), Rice Department, Office of Agricultural Economics (OAE), Department of Livestock Development (DLD) Local Administrative Organization, Ministry of Interior (MOI)
	Activity 3.3. Capacity building for farmers to support market access for climate resilient agriculture products	Royal Irrigation Department (RID) Ministry of Natural Resources and Environment (MONRE) Ministry of Agriculture and Cooperatives (MOAC): Land Development Department (LDD), Department of Fisheries (DOF), Department of Agricultural Extension (DOAE), Department of Agriculture (DOA), Rice Department, Office of Agricultural Economics (OAE), Department of Livestock Development (DLD) Ministry of Commerce (MOC) Local Administrative Organization, Ministry of Interior (MOI) Krungsri Bank Bank for Agriculture and Agriculture Cooperatives (BAAC) Finance/Private sector partners CSOs and social enterprise

Outputs	Activity	Stakeholders
		Note: Krungsri Bank is an important partner for Output 3, providing financial literacy training to project beneficiaries. Krungsri Bank has offered an in-kind contribution to the project. Through parallel finance, BAAC will make USD 16 million credit available to farmers seeking to invest in climate resilient, sustainable agriculture and adaptation measures.

Gender Equality and Women's Empowerment:

While the impacts of climate change affect the agricultural sectors and the country, climate change and its impacts are not gender neutral. Inequitable access to and control over natural resources, particularly land, water, and forests, as well as exclusion from the policy- and decision-making processes that affect resource distribution and their livelihood. These disproportionately affect the rural poor, who rely on natural resources for the livelihood.

While there have been significant advances in general for women in Thailand, the potentially growing number of women-headed households in agriculture require particular attention to their needs and challenges in the context of climate change.

The project is aligned with national gender equality and women's empowerment related policies and programmes as well as international commitments under the Paris Agreement, CEDAW, SDGs, etc. The project will aim to support transformational change towards gender equality and women's empowerment and will:

- Seek to understand in greater depth the potentially gender-differentiated knowledge, experience, and skills of women and men at sub-district, district and provincial levels as well as their needs, challenges, and vulnerabilities (e.g. around access to resources, decision-making, etc.) in order to strengthen project interventions including information sharing between implementers and beneficiaries, decision-making around adaptation at community and household levels, production, post-harvest, and market development decisions, etc. This can be done through introducing/piloting approaches such as gender-responsive participatory Integrated Climate Services for Agriculture (PICSA) and piloting and scaling up household methodologies (HHM). Several organizations have championed these approaches which have been applied in several in different regions to strengthen agricultural livelihoods, production, and value chain/market development, etc.
- Ensure capacity building includes the active participation of women and men and incorporates, where relevant, issues around gender and climate information services, market development, farmer engagement, irrigation, use of innovative technology, etc.
- Mitigate any negative impacts on rural women and girls (e.g. in terms of benefit sharing, labor division of labor, access to resources, access to technology and skills development, etc.) Where possible, enhance role of new generation, both female and male youth (aged 18-25) to build a new generation of famers equipped with knowledge and skills to build climate resilience in their community.
- Include a Gender Specialist on the project staff to support data collection and mainstreaming of gender issues (and where relevant, strategic approaches targeted specifically at women/girls across all areas of the project;
- Link with institutions who can provide training to agricultural extension workers on uptake of household methodologies (e.g. Gender Action Learning Systems or GALS) in their work with women and men in vulnerable rural households and communities to complement, strengthen, and leverage farmer to farmer sharing of climate information, Value Chain (VC) and market access opportunities
- Build/strengthen linkages with institutions/networks that can strengthen gender approaches throughout the project (e.g. academic institute, agriculture and other relevant research centres, etc.). The project should also consider linking to existing women's groups, housewife groups, credit groups.

- Build data collection and management in the process of capacity development at all levels. Technical support with integrated gender and social inclusion for each project/program.
- Ensure that good practices and lessons learned from the project around integrating participatory, gender transformative approaches in climate adaptation are documented and shared among stakeholders including line ministries, policymakers, and government/non-government decision-makers/planners/implementers at national and sub-national level and beyond (e.g. regional/international). This may also contribute to reporting on international commitments such as NDCs, etc.

202. Please see gender assessment and action plan (Annex K) for further details.

South-South and Triangular Cooperation (SSTrC):

In addition, to bring the voice of Thailand 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 enhancing climate resilience through effective water management and sustainable agriculture. The project will furthermore provide opportunities for regional cooperation with countries that are implementing initiatives on the greener and integrated approach in addressing climate change issues, especially adaptation and resilience, effective water management and sustainable agriculture in geopolitical, social and environmental contexts relevant to the proposed project in Thailand.

Innovativeness, Sustainability and Potential for Scaling Up:

Thailand has recognised the potential for technology to provide positive results for improved production, quality and agricultural products, and importantly their ability to be resilient to climate change. The National Strategy - Thailand 4.0 includes ambitious targets for agriculture, aiming to transit traditional agriculture to smart agriculture and increase farmer income by fivefold in 20 years; leveraging innovation and digital transformation. The advancement of technology in agriculture is also in line with Thailand's 20 year Agricultural Development Plan (2017-2036) and "MOAC's Digital Agriculture Strategic Plan (2017-2021)" (For further details, refer to paragraph 153). Therefore, the project aims to pilot precision agriculture with IoT system and the usage of drones.

Precision agriculture will be employed at five sites, covering 50 farms. IoT sensors will be installed at the farm and drones with multispectral camera will be used for agricultural area survey. Data will be collected and processed on the cloud server by using the AI from commercial software. The data from IoT sensors and the drones will be linked with the result of climate change data forecasting for decision making. Related information could help inform farmers to divide their fields into smaller and homogeneous zones, assess water quantity needs and even predict crop yield. As data can inform district planning, further upscaling can be done by district authorities through public resources – consistent with Thailand 4.0 aims to shift Thailand's agriculture sector towards an innovative-driven and interconnected sector through the integration of the concepts and approaches from sufficiency economy, smart farm, precision agriculture, intensive agriculture, sustainable agriculture, green economy, and agricultural biotechnology.

An integrated project such as this one can usher in the paradigm shift needed to adapt to the climate impacts on the water and agriculture sectors in Thailand. The project will inform water planning and investment not only in the Yom-Nan river basin, but also the broader Chao Phraya river basin. Upscaling and replication will support Thailand's most vulnerable/poor communities, which have a largely rural profile. Further, the project can prove catalytic in mobilizing additional resources, as is already evident in the co-financing from Krungsri Bank to strengthen financial literacy among farmers, and the parallel financing from BAAC's in the form of a USD 16M credit for farmers practicing climate informed and sustainable agriculture. In addition, UNDP Thailand is laying the groundwork for greater engagement of the private sector. UNDP Thailand has partnered with the Securities and Exchange Commission (approximately 750 listed companies) and Global Compact Network Thailand (50 members) to raise awareness among businesses on shifting from ESG to SDGs and integrating SDGs Impact Measurement and Management Framework into their business and investment strategies. To promote the localization of SDGs and awareness raising

among SMEs, UNDP Thailand is partnering with Thai Chamber of Commerce, who has the local presence in all 76 provinces across Thailand.

To ensure sustainability, the RTG through RID has committed to allocate an additional USD 17.26 million for post project operation and maintenance support investments into water management infrastructures, technical capacity development of public officials, IRDM upgrade, skills transfer to farmers, market linkage creation, and the promotion of climate change resilient livelihoods. The plan reflects local ownership and commitment for the long-term sustainability of the project activities and outcomes.

PROJECT RESULTS FRAMEWORK

This project will contribute to the following Sustainable Development Goal (s): 2 (Zero hunger), 6 (Clean water and sanitation), 13 (Climate action)					
This project will contribute to the following country outcome included in the UNDAF/Country Programme Document: Outcome 1: Thailand's transformation into an inclusive economy based on green, resilient, low-carbon, sustainable development is accelerated.					
GCF Paradigm shift objectives: Increased climate resilient sustainable development					
	Objective and Outcome Indicators	**Baseline**	**Mid-term Target**	**End of Project Target**	**Assumptions**
FUND LEVEL IMPACT:					
A1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions	*A 1.1 Change in expected losses of lives and economic assets (US$) due to the impact of extreme climate-related disasters in the geographic area of the GCF intervention*	USD 4 million in losses	USD 0.03 million reduction in losses	USD 2 million reduction in losses	Estimated flood damage cost reduction at each return period in case without and with project Annex 3b_Econ Analysis
A1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions	*A1.2 Number of males and females benefiting from the adoption of diversified, climate resilient livelihood options (including fisheries, agriculture, tourism, etc.)*	*0*	Male = 7,750 Female = 7,750	Male =29,896 Female = 32,104	Training and capacity building measures will result in change responses for agricultural activities and practices. Provision of climate information tailored to stakeholders' needs will result in climate information being integrated into planning and decision-making of farmers and government stakeholders, and which is climate-risk responsive.
A2.0 Increased resilience of health and well-being, and food and water security	*A2.3 Number of males and females with year round access to reliable and safe water supply despite climate shocks and stresses*[66]	*0*	Male = 7,750 Female = 7,750	Male =29,896 Female = 32,104	Water infrastructure completion and ongoing maintenance retained to effectively continue supply of water. Water access and climate smart agricultural measures will improve food security outcomes.
A3.0 Increased resilience of infrastructure and the built environment to climate change	*A3.1 Number of physical assets made more resilient to climate variability and change, considering human benefits*	0 Existing infrastructure (canal head regulars along Khlong Muagn Chang and Khlong Ta Kay) has not been upgraded to	0 USD 0	2 USD 5 million	Extreme weather does not damage infrastructure works.

		respond to climate impacts			
A4.0 Improved resilience of ecosystems and ecosystem services.	*A4.1 Coverage/scale of ecosystems protected and strengthened in response to climate variability and change.*[67]	*0*	120 km²	200 km²	Assessment identified suitable locations for EbA measures to complement water infrastructure
PROJECT OUTCOMES:					
A7.0 Strengthened adaptive capacity and reduced exposure to climate risks	A7.1 Use by vulnerable households, communities, businesses and public-sector services of Fund-supported tools instruments, strategies and activities to respond to climate change and variability [68]	Household Level = 1 0 credit available to farmers practicing climate resilient farming (co-designed by project)	Household Level = 2 0	Household Level = 4 USD16 million	Climate-information and guidance on on-farm measures and/or crop alternatives are adopted by beneficiary households BAAC commitment to parallel finance through financial product
PROJECT RESULTS (Outputs): ***Copy from GCF funding proposal (no changes can be made).***					
1. Enhance climate and risk informed planning in the water and agricultural sectors through improved climate information and cross sectoral coordination	1.1. Level[69] of integration of climate related information into water and agriculture planning 1.2. Number of people trained on integrating climate information into planning	Level = 1 0 staff from TMD, RID and other stakeholders	Level = 2 15 (30% women)	Level = 4 30 (30% women)	Government commitment to climate-informed planning
2. Improve water management through strengthened infrastructure complemented by EbA measures, for greater resilience to climate change impacts	2.1. Climate risk informed upgrades and enhancements to the Yom and Nan river basin area, updating the canal and regulator network to effectively manage water for both flood and drought periods for efficient use.	0 Existing infrastructure (canal head regulators/flood gates along Khlong Muang Chang and Khlong Ta Kay Reg) have not been upgraded and designs are not informed by climate information; infrastructure not complemented by EbA measures	3 flood gates covering water distribution area of 120km²	5 upgrades/modifications, complemented by EbA, covering water distribution area of 200km²	Co-financing by RID to support infrastructure investment (3 flood gates) and other works Extreme weather does not damage infrastructure works. Climate information integration into upgrade designs will mitigate potential damage to infrastructure works from flood. Assessment identified suitable locations for EbA measures

3. Reduce volatility of agriculture livelihoods in drought and flood prone areas through strengthened extension support and local planning, investment in on-farm adaptation measures and greater access to finance and markets	3.1. Level of action and application of climate information towards climate resilient practices by beneficiary households	0 farm ponds 0 community nurseries in subdistricts 0 Online market platform to increase visibility and marketability of farmers' products	0 0 0	100 22 1	Climate-information is tailored and disseminated for use by farmers Guidance on on-farm measures and/or crop alternatives is provided to farmer through extension services, and is adopted by beneficiary households
	3.2. Number of households with access to finance for climate resilient farming investment	0 agriculture households practicing climate resilient agriculture (e.g. on farm EbA measures, water saving technologies/IoT) with access to finance (measured as household or head of household, may also include small enterprise)	10,000	20,000	BAAC commitment to parallel finance through financial product
	3.3. Number of listed companies contributing to climate resilient agriculture through contracts to purchase sustainably produced products or investment to support climate resilient agriculture (in-kind/cash contributions)	*0*	70	210	Continued UNDP support to companies for integration of SDG impact measurement and management into business operations and strategy. UNDP has network of 700 listed companies of the Thailand stock market

Modifications to the Project Results Framework: No modifications to the Project Results Framework shall be allowed, unless the Implementing Partner has sought and obtained prior agreement/approval from UNDP. Where required 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/NCE in line with UNDP policies and Standard Operating Procedures.

MONITORING AND EVALUATION (M&E) PLAN

The project results, corresponding indicators and mid-term and end-of-project targets in the project results framework will be monitored annually and 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. The Monitoring Plan included in Annex details the roles, responsibilities, frequency of monitoring project results.

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 monitoring, quality assurance, risk management, and evaluation requirements.

Additional M&E requirements will be undertaken in accordance with the GCF initial approach to monitoring and evaluation policy and other relevant GCF policies. The costed M&E plan included below, and the Monitoring plan in Annex, 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.

GCF monitoring and reporting requirements:

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 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 log; 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) The inception report will be cleared by the UNDP Country Office and the UNDP-BPPS/NCE Regional Technical Adviser and approved by the Project Board.

GCF Annual Performance Report (APR) (due 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. The APR process and final Project Completion Report will follow the standard annotated GCF templates and UNDP guidance prepared by the UNDP NCE directorate for GCF-financed projects. The APR will include reporting of: environmental and social risks and related management plans, gender, co-financing and

financial commitments, GCF 'conditions precedent' outlined in the FAA, amongst other issues. The APR submitted to the GCF shall be shared with the Project Board and disclosed publicly on GCF's website.

The Project Manager, the UNDP Country Office, and the UNDP-NCE Regional Technical Advisor will provide objective input to the annual project report covering the calendar year for each year of project implementation. The Project Manager 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 Annual Project Report submitted to the GCF will also be shared with the Project Board. The UNDP Country Office will coordinate the input of other stakeholders to the report as appropriate. The quality rating of the previous year's report will be used to inform the preparation of the subsequent report.

The last APR (i.e. Project Completion Report) will be due for submission within 3 months after the project completion date.

Knowledge management: The project team will ensure extraction and dissemination of lessons learned and good practices to enable adaptive management and upscaling or replication at local and global scales. Results will be disseminated to targeted audiences through relevant information sharing fora and networks. The project will contribute to scientific, policy-based and/or any other networks as appropriate (e.g. by providing content, and/or enabling participation of stakeholders/beneficiaries)

Independent Interim Evaluation Report (IER):

An interim independent evaluation report will be completed within nine (9) months after year two (2) after Effective Date.

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 will be hired 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 consultants should not be in a position where there may be the possibility of future contracts regarding the project being reviewed.

The GCF NDA and other stakeholders will be involved and consulted during the evaluation process. Additional quality assurance support is available from the UNDP-NCE Directorate.

The final IER report and IER TOR will be publicly available in English and will be posted on the UNDP ERC by **10 October 2024**. A management response to IER recommendations will be posted in the ERC within six weeks of the IER report's completion.

Independent Final Evaluation Report (FER):

An independent final evaluation report (FER) or terminal evaluation report (TE) will take place upon completion of all major project outputs and activities. The terms of reference, the evaluation process and the final FER report will follow the standard templates and guidance prepared by the UNDP for GCF-financed projects available on the UNDP Evaluation Resource Center.

The evaluation will be 'independent, impartial and rigorous'. The evaluator(s) that will be hired by 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 consultants 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 the UNDP-NCE Directorate.

The final FE report and FE TOR will be publicly available in English and posted on the UNDP ERC by 10 July 2027. A management response to the FER recommendations will be posted to the ERC within six weeks of the FER report's completion.

Final Report:

The project's final APR (a.k.a. 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 lesson learned and opportunities for scaling up.

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 in accordance with relevant policies notably the UNDP Disclosure Policy[4] and the GCF Disclosure Policy[5]. 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.

GCF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[6] (US$)	Time frame
Inception Workshop	Implementing Partner Project Manager (PM)/Coordinator/Chief Technical Advisor (CTA)	9,600	*Within 1 month of ProDoc signature*
Inception Report and baseline assessments	PM/Coordinator/CTA	None	*Inception Report submission – Within six months after Effective Date* *Baseline Assessments submission - Within one (1) year after Effective Date*
Risk management (including Atlas Risk logs)	PM/Coordinator/CTA Country Office	27,600	On-going

[5] See https://www.greenclimate.fund/documents/20182/184476/GCF_B.12_24_-_Comprehensive_Information_Disclosure_Policy_of_the_Fund.pdf/f551e954-baa9-4e0d-bec7-352194b49bcb

[6] Excluding project team staff time and UNDP staff time and travel expenses.

GCF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[6] (US$)	Time frame
Monitoring of indicators in project results framework *(including hiring of external experts, project surveys, data analysis etc...)*	PM/Coordinator/CTA	22,800	Annually
GCF Annual Performance Report	RTA UNDP Country Office[7] PM/Coordinator/ CTA	25,000	Annually as per FAA
Audit of Implementing Partner as per UNDP audit policies	UNDP Country Office	27,341	As per UNDP Audit policies
Lessons learned, case studies, and knowledge generation	Project Manager	15,000	On-going
Monitoring of gender action plan	Project Gender Officer	6,600	On-going
Monitoring of stakeholder engagement plan	Project Stakeholder Engagement Officer	10,000	On-going
Addressing environmental and social grievances	Project Manager UNDP Country Office UNDP-BPPS/NCE as needed	50,000	*Costs associated with missions, workshops, UNDP-BPPS expertise etc. can be charged to the project budget.*
Project Board meetings	Project Board UNDP Country Office PM	15,000	At minimum annually
Supervision missions	UNDP Country Office	None[8]	Two per year
Oversight missions	RTA UNDP-NCE Unit	None[9]	Troubleshooting as needed
GCF learning missions/site visits	UNDP Country Office and Project Manager and UNDP-NCE Unit	15,000	To be determined.
Interim independent evaluation (add additional lines if more than one interim evaluation is required)	Independent evaluators	35,500	Within nine months after year two from Effective Date
Oversight of IE process and IE management response	UNDP Country Office and UNDP-BPPS/NCE	None	
Final independent evaluation	Independent evaluators	35,500	10 July 2027
Project Completion Report	RTA UNDP Country Office[10] PM/Coordinator/ CTA	10,000	10 April 2027

[7] Or equivalent for regional or global project
[8] The costs of UNDP Country Office and BPPS/NCE Unit's participation and time are charged to the GCF Agency Fee.
[9] The costs of UNDP Country Office and UNDP-BPPS/NCE Unit's participation and time are charged to the GCF Agency Fee.
[10] Or equivalent for regional or global project

GCF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[6] (US$)	Time frame
Translation of evaluation reports into English	UNDP Country Office	6,500	As required. GCF will only accept reports in English.
Oversight of FE process and FE management response	UNDP	None	
TOTAL indicative COST Excluding project team staff time, and UNDP staff and travel expenses		**TOTAL budget USD 311,441**	

GOVERNANCE AND MANAGEMENT ARRANGEMENTS

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

Implementing Partner: The Implementing Partner for this project is the Royal Irrigation Department (RID) under the Ministry of Agriculture and Cooperative (MOAC).

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.

Responsible Parties:

The Executing Entity (Implementing Partner) will enter into or put in place legal arrangements and/or agreements, either directly or through the Accredited Entity (UNDP), with the Responsible Parties (in UNDP Terminology) for the implementation of the Activities set out in Table 1 of this Schedule 3 of FAA below:

(i) King Mongkut's University of Technology North Bangkok ("**KMUTNB**"); and
(ii) Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH ("**GIZ**"); and

(together, the "**Responsible Parties**").[11]

[11] As indicated in the Funding Proposal, the legal arrangement may be through a direct contracting by the Executing Entity with the Responsible Party (as will be the case for the engagement of RID, which is part of the Executing Entity) or through an indirect

Output	Activity	Executing Entity	Responsible Parties/Executing Entity
Output 1: Enhance climate and risk informed planning in the water and agricultural sectors through improved climate information and cross sectoral coordination	1.1. Strengthening capacity to generate tailored climate information to inform water management and agriculture planning	RTG acting through the Ministry of Agriculture and Cooperatives	KMUTNB (RP) and RID (EE)
	1.2. Facilitating inter-ministerial coordination for climate-informed and integrated planning		KMUTNB (RP)
	1.3. Expanding access to climate information for application at the household level		KMUTNB (RP)
Output 2: Improve water management through strengthened infrastructure complemented by EbA measures, for greater resilience to climate change impacts	2.1. Climate-informed engineering designs for the 13 schemes of the Yom-Nan river basin and upgrade of 2 water infrastructure		RID (EE)
	2.2. Complementing of grey infrastructure with EbA measures and integration of EbA approaches into water management policy and planning		GIZ (RP) and RID (EE)
Output 3: Reduce volatility of agriculture livelihoods in drought and flood prone areas through strengthened extension support and local planning, investment in on-farm adaptation measures and greater access to finance and markets	3.1. Application of climate information in household agriculture planning and strengthening of related support through extension services		RID (EE)
	3.2. Implementation of on-farm climate resilient measures to improve drought and flood resilience and improved access to finance for sustainable agriculture		RID (EE)

contracting through UNDP where funds will be directly transferred by UNDP to the Responsible Parties (as will be the case for the engagement of KMUTNB and GIZ).

Output	Activity	Executing Entity	Responsible Parties/Executing Entity
	3.3. Capacity building for farmers to support market access for climate resilient agriculture products		RID (EE)

Project stakeholders and target groups:

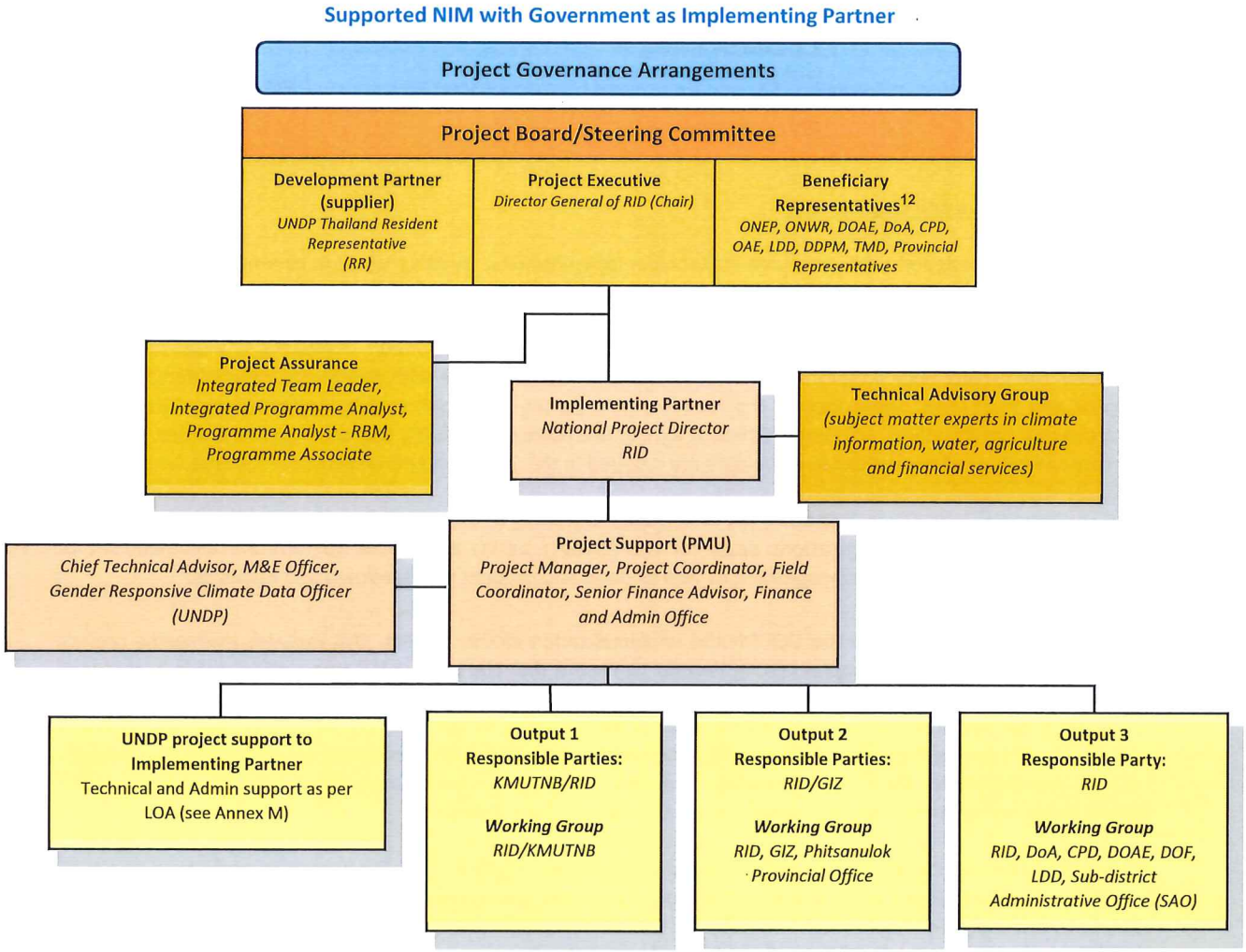
The project was designed with extensive stakeholder consultations, building on past community consultations, comprising several rounds of stakeholder discussions on adaptation priorities, including flood and drought risk management through enhanced green and grey water infrastructure, and climate-resilient agriculture-based livelihoods. The private sector and social business have also been consulted. Following a multi-stakeholder approach, the project once under implementation will continue to engage with numerous stakeholders, both at a national and local level. These include the implementing partner, and civil society organizations (CSOs), NGOs, private sector organizations, academia, Office of agriculture economics, (OAE), and other public entities. The roles and responsibilities of the various stakeholders are detailed in the Stakeholder Engagement Plan (see Annex J).

Local communities in the Yom-Nan basin will be engaged according to the existing ministerial regulations issued by the Prime Minister Office. Regulations apply for the 25 river basins nationwide to facilitate enhancement of cooperation in water resource management as well as flood and drought preparedness and response.

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 NCE 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.

[12] The representatives of Government in the project board as beneficiaries and in Output 3 as Responsible Party must be from different units/section of the Government Entity.

UNDP project support: As a result of the capacity assessments (PCAT and HACT) and the capacity gaps identified therein, the Implementing Partner has requested UNDP to provide support services in the amount of **USD 579,602** (technical support: 502,038 and admin support: 77,564) for the full duration of the project, the cost of which has been duly budgeted in the TBWP. 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 as Annex M 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 Integrated Team Leader, Integrated Programme Analyst, Programme Analyst – RBM and Programme Associate. UNDP's execution support role in the project (as requested by the implementing partner and approved by the GCF) is performed by UNDP Programme and Operations Staff who will report to Deputy Representative, UNDP CO as indicated in the LOA for technical and admin support services.

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 (also called the Project Steering Committee) is the most senior, dedicated oversight body for a project.

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 logs 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** (as explained in the "Manage Change" section of the POPP). The Project Board has an equally important, secondary role of approving, with the concurrence/approval of the GCF (where required by GCF policies and UNDP guidance on GCF programming), certain adjustments above provided tolerance levels, including substantive programmatic revisions (major/minor amendments), budget revisions, requests for suspension or extension and other major changes.

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 once.
- 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 logs 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 manager's tolerances as required, within the parameters outlined in the project document, and provide direction and advice for exceptional situations when the project manager'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 manager 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/NCE 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), and it must be UNDP for projects that are direct implementation (DIM). 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

representatives of another category, it typically does so with a development partner representative. The Project Executive is: Director General of the Royal Irrigation Department

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 in a Project Board. The Beneficiary representative (s) is/are: Representatives of ONEP, ONWR, DOAE, DOA, CPD, OAE, LDD, DDPM TMD, provincial representatives.
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(s) is/are the Resident Representative, UNDP Thailand.

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 Manager. 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/are: Integrated Team Leader, Integrated Programme Analyst, Programme Analyst – RBM and Programme Associate.

c) **Project Management – Execution of the Project:** The Project Manager (PM) (also called project coordinator) 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 manager 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.

In order for each output to be implemented in an agile manner, there will be technical-level working groups with key output base stakeholders, mainly formed by technical staff, engineers and consultants, these working groups will meet regularly to discuss implementation issues on a technical level, and communicate back to the governance side of the project. The work groups will not be in any governance structure of the project and will promptly report to the project board, in addition, there will be no project implementation decisions made within the work groups, project implementation decisions will be decided by the project board.

Project Management Unit, with close coordination with the Chief Technical Advisor, Monitoring and Evaluation Officer, and Gender-Responsive Climate Data Officer, will oversight the quality of work delivered by RPs, provide support to the project implementation, and monitor the progress of the performance of assigned project's activities under output-1 and output-2 as detailed in the project's work plan and the Responsible Party Agreement.

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 Manager.

FINANCIAL PLANNING AND MANAGEMENT

The total cost of the project is USD 33,911,323. This is financed through a GCF grant of USD 17,533,500, and USD 16,377,823 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 activities/outputs:

Co-financing source	Co-financing type/financial instrument	Co-financing amount	Planned Co-financing Activities/Outputs
Government (RID)	In kind	USD 16,263,940	Activity 1.1: Operations and Maintenance of Climate Information System (at approx. $303,030/year for 5 years during Project implementation), Peoplewares for operating climate centers (at $2,424/year for Years 3-5) and training to be provided for government staff (at $3,030/year for Years 3-5) Activity 2.1: for strengthening of water infrastructure and management of existing irrigation networks and canals with climate-informed engineering design. This Budget is based on regular fiscal budget allocation to the 3 provinces of the Project area. Activity 3.1: for Agricultural extension plan Activity 3.2: For monitoring plans of surface water quality, soil erosion and sedimentation, land slide and soil quality, socio-economic and health.
Krungsri Bank	In kind	USD 113,883	Activity 3.3. : provide training to farmers to support market access for farmers, including capacity building related to financial literacy, linkages to buyers and markets, requirements for contract farming (incl. hospitals, schools, restaurants), linkages through rice cooperatives, linkages to local gatherer and processors, linkages to private sector and community support agriculture (CSA) for larger markets at Phitsanulok province, and comprising of larger market buyers, processor, cooperative. BAAC will make finance available to farmers in the project sites for additional adaptation investments by beneficiaries, as well as for further replication and upscaling of Project initiatives
Total		**USD 16,377,823**	

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-NCE Unit 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 on a timely manner, within the planned duration to avoid extension of the project.

Disbursements	GCF Proceeds (USD)	Indicative disbursement timeline
Disbursement 1	2,441,840	5 April 2023
Disbursement 2	5,192,698	December 2023
Disbursement 3	5,629,396	April 2024
Disbursement 4	2,706,809	April 2025
Disbursement 5	1,562,757	April 2026
Total	**17,533,500**	

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-NCE unit will conduct a compliance review of the FAA conditions precedent and covenants to disbursement as a part of the internal clearance procedures for submitting request for disbursements to the GCF, specifically refer to **clauses 9 and 10 of the FAA**.

Clause 9. Conditions Precedent to Disbursements

9.01 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. *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 Disbursement is requested to be made, which shall not be later than the Closing Date;
   iv. Delivery to the Fund by the Accredited Entity of evidence indicating the status and the amount of the Co-financing disbursed and applied to the implementation of the Funded Activity up to the date of the request for funds made by the Accredited Entity; and
   v. Confirmation to the Fund by the Accredited Entity that there is no event of default occurring with respect to this Agreement and/or the Subsidiary Agreement.

b. *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 Subsidiary Agreement, in the form of a Project Document, between the Accredited Entity and the Executing Entity and in accordance with the AMA;
   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, and the authenticated specimen signature of each such person; and

iv. Delivery to the Fund by the Accredited Entity, of (1) a feasibility assessment (based on existing case-studies and platforms in South East Asia) on the implementation of the Project's proposed utilization of an Internet of Things ("IoT") irrigation system for rice cultivation; this should include a costing analysis, review of technical requirements, review of equipment suppliers, plan for development of a Thai version of an IoT irrigation software platform; and (2) a plan for development and scaling up such IoT irrigation systems by the government of the Host Country as part of its plans for digital transformation and sustainability.

9.02 If within ninety (90) calendar days from the Effective Date, or such longer period established by the Fund in writing, the Accredited Entity has not requested the first Disbursement or 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.

9.03 If at the Closing Date, the Accredited Entity has not requested the Disbursement of the full amount of the GCF Proceeds with at least thirty (30) calendar days prior to such date, or the Fund has not otherwise disbursed the full amount of the GCF Proceeds, the undisbursed portion of the GCF Proceeds shall automatically be cancelled and no longer available for Disbursement.

Clause 10. Additional Representations, Warranties and Covenants of the Accredited Entity

10.01In 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 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 FAA, 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;On the date of the first Disbursement by the Fund under this Agreement and throughout the term of this Agreement, the Subsidiary Agreement remains in effect;

(b) On the date of each Disbursement by the Fund under this Agreement, no Event of Default has occurred and is continuing under this Agreement and no event of default or equivalent event has occurred and is continuing under the Subsidiary Agreement;

(c) On the date of execution and the Effective Date of this Agreement and the date of each Disbursement made by the Fund under this Agreement, the policies of the Accredited Entity addressing AML/CFT are substantially consistent with the principles of the AML/CFT Policy; and

(d) 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 and indigenous peoples policy, which are equivalent to the Updated Gender Policy and Indigenous Peoples Policy.

Direct Project Services as requested by the Government

The government has requested UNDP to undertake the following services: a) technical services and assistance to the IP and RPs who are implementing activities under the three outputs; b) partnership collaboration; c) nationally-led programme development related to project themes; and d) services related to procurement and finance.

The Implementing Partner has requested UNDP to provide support services in the amount of USD$ 579,602 for the full duration of the project, the cost of which has been duly budgeted in the TBWP. The The signed letter of agreement between UNDP and the Implementing Partner detailing these support services are included in Annex M. To ensure the strict independence required by the GCF and in accordance with the UNDP Internal Control Framework, these execution services should be delivered independent from the GCF-specific oversight and quality assurance services (i.e. not done by same person to avoid conflict of interest) – Please refer to the Governance and Management Arrangements above).

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-NCE's 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 UNDP- NCE 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 manager 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 Manager and UNDP Country Office will seek the approval of the UNDP-NCE Unit.

Any over expenditure incurred beyond the available GCF grant amount will be absorbed by non-GCF resources (e.g., UNDP TRAC or cash co-financing).

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: The UNDP-NCE Executive Coordinator must approve all project extension requests. Note that all extensions incur costs and the GCF project budget cannot be increased. A single extension may be granted on an exceptional basis and subject to the conditions and maximum durations set out in the UNDP POPP and the UNDP-GCF extension policy; the project management costs during the extension period must remain within the originally approved amount, and any increase in PMC costs will be covered by non-GCF resources; the UNDP Country Office oversight costs during the extension period must be covered by non-GCF resoruces, in accordance UNDP's policy set out 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.

Project completion: 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:

Milestones	Expected Dates
Start of Project Implementation	FAA Effectiveness date (the "**Effective Date**")
Inception Report	Within six (6) months after Effective Date
Baseline Assessments	Within one (1) year after Effective Date
Independent Interim Evaluation Report	Within nine (9) months after Year two (2)
End of Project Implementation	Five (5) years after Effective Date ("**Completion Date**")
Project Completion Report (Final APR)	Within three (3) months after the Completion Date
Independent Terminal Evaluation Report	Within six (6) months after submission of Project Completion Report

Please note that extensions of the timeline for project closure will require consultations with the GCF and possible further action, as per the instruction of the GCF. Please see GCF policy on cancellation and restructuring. The only costs a project may incur following the Project Completion and the Project Completion Report are those included in the project completion budget.

Operational closure: The project will be operationally closed when the last UNDP-financed inputs have been provided and the related activities have been completed. This includes the final clearance of the Terminal Evaluation Report (that will be available in English) and the corresponding management response, and the end-of-project review Project Board meeting, including the project completion budget. Operational closure must happen at the Completion Date, as defined in the FAA, i.e. 10 January 2027. The Implementing Partner through a Project Board decision will notify the UNDP Country Office when operational closure has been completed. At this time, the relevant parties will have already agreed and confirmed in writing on the arrangements for the disposal of any equipment that is still the property of UNDP.

Transfer or disposal of assets: In consultation with the NIM Implementing Partner and other parties of the project, UNDP programme manager (UNDP Resident Representative) 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 (and it is strongly encouraged to be done before the operational closure date). In all cases of transfer, a transfer document must be prepared and kept on file[13]. The transfer should be done before Project management Unit (team) complete their assignments.

In addition, the following GCF requirements must be followed: As stated in Clause 9.03 of the Funding Activity Agreement included in Annex[1], 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.

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

[1] 23.04 of the AMA states: "In relation to a Funded Activity that is a grant financed in whole or in part with GCF Proceeds, if any part of such grant is used to purchase any durable assets or equipment used to implement the relevant Funded Activity (such as vehicles or office equipment), upon completion of the Funded Activity or termination of the relevant FAA in accordance with its terms, the Accredited Entity shall take such steps in relation to such assets or equipment which it reasonably deems in the best interest of the continued operation of the Funded Activity taking into consideration the objectives of the Fund and the terms of the applicable SBAA."

Financial completion: The project will be financially closed when the following conditions have been met: a) The project is operationally completed or has been cancelled; b) The 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).

The project is required to be financially completed within 6 months of operational closure or after the date of cancellation. 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/NCE for confirmation before the project will be financially closed in Atlas by the UNDP Country Office.

Refund to GCF: Should a refund of unspent funds to the GCF be necessary, this will be managed directly by the UNDP-BPPS/NCE Directorate in New York. No action is required at CO level on the actual refund from UNDP project to the GCF.

TOTAL BUDGET AND WORK PLAN

TOTAL BUDGET AND WORK PLAN			
Atlas [1] Proposal or Award ID	00098359	Atlas Primary Output Project ID:	00101717
Atlas Proposal or Award Title:	Enhancing Climate Resilience in Thailand through Effective Water Management and Sustainable Agriculture (GCF)		
Atlas Business Unit	THA10		
Atlas Primary Output Project Title:	Enhancing Climate Resilience in Thailand through Effective Water Management and Sustainable Agriculture (GCF)		
UNDP-GEF PIMS No.:	5923		
Implementing Partner:	Royal Irrigation Department		

Output	Activity	Responsible Party	Financing Source	Atlas Budget Account Code	Account Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	TOTAL (USD)	Budget Note)
1. Enhance climate and risk informed planning in the water and agricultural sectors through improved climate information and cross sectoral coordination	1.1. Strengthening capacity to generate tailored climate information to inform water management and agriculture planning	KMUTNB / RID	GCF	61100	Salary costs - NP staff	10,040	10,041	10,041	10,041	10,041	50,204	1.1A
				71200	International Consultants	-	-	5,400	-	5,400	10,800	1.1B
				71300	Local Consultants	-	-	4,500	-	4,500	9,000	1.1C
				71600	Travel	-	-	750	-	750	1,500	1.1D
				75700	Training, Workshops and Conference	-	-	9,000	10,500	10,500	30,000	1.1E
				72100	Contractual Services - Companies	202,240	373,160	373,160	31,320	31,320	1,011,200	1.1F
					Activity 1.1 Sub-Total	**212,280**	**383,201**	**402,851**	**51,861**	**62,511**	**1,112,704**	
	1.2. Facilitating inter-ministerial coordination for climate-informed and integrated planning	KMUTNB		61100	Salary costs - NP staff	10,041	10,040	10,041	10,041	10,041	50,204	1.2A
				74200	Audio Visual & Print Prod Costs	2,000	2,000	2,000	2,000	2,000	10,000	1.2B
				75700	Training, Workshops and Conference	12,000	12,000	12,000	12,000	12,000	60,000	1.2C
				72100	Contractual Services - Companies	40,000	80,000	80,000	-	-	200,000	1.2D
					Activity 1.2 Sub-Total	**64,041**	**104,040**	**104,041**	**24,041**	**24,041**	**320,204**	
	1.3. Expanding access to climate information for application at the household level	KMUTNB		61100	Salary costs - NP staff	10,041	10,041	10,040	10,041	10,041	50,204	1.3A
				72100a	Contractual Services - Companies / Nat-Serv	40,000	80,000	80,000	-	-	200,000	1.3B
					Activity 1.3 Sub-Total	**50,041**	**90,041**	**90,040**	**10,041**	**10,041**	**250,204**	
	GCF Total Output 1					**326,362**	**577,282**	**596,932**	**85,943**	**96,593**	**1,683,112**	
	Co-financing Total Output 1					**303,030**	**303,030**	**308,485**	**308,485**	**308,485**	**1,531,515**	Co-fin 1
OUTPUT 1 TOTAL						**629,392**	**880,312**	**905,417**	**394,428**	**405,078**	**3,214,627**	
		RID	GCF	61100	Salary costs - NP staff	10,041	10,041	10,041	10,040	10,041	50,204	2.1A

Output	Activity	Responsible Party	Financing Source	Atlas Budget Account Code	Account Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	TOTAL (USD)	Budget Note)
2. Improve water management through strengthened infrastructure complemented by EbA measures, for greater resilience to projected climate change impacts	2.1 Climate-informed engineering designs for the 13 schemes of the Yom-Nan river basin, and upgrade of 2 water infrastructure			71200	International Consultants	-	-	7,200	-	7,200	14,400	2.1B
				71300	Local Consultants	-	-	6,000	-	6,000	12,000	2.1C
				71600	Travel	-	-	1,000	-	1,000	2,000	2.1D
				72100	Contractual Services - Companies	1,186,240	2,686,240	1,686,240	186,240	186,240	5,931,200	2.1E
				Activity 2.1 Sub-Total		1,196,281	2,696,281	1,710,481	196,280	210,481	6,009,804	
	2.2. Complementing of grey infrastructure with EbA measures and integration of EbA approaches into water management policy and planning	GIZ/RID		61100	Salary costs - NP staff	15,061	15,061	15,061	15,062	15,061	75,306	2.2A
				71200	International Consultants	142,080	142,080	142,080	142,080	142,080	710,400	2.2B
				71300	Local Consultants	181,200	181,200	181,200	181,200	181,200	906,000	2.2C
				71600	Travel	24,200	24,200	24,200	24,200	24,200	121,000	2.2D
				73400	Rental & Maint of Other Equip	6,400	6,400	6,400	6,400	6,400	32,000	2.2E
				75700	Training, Workshops and Conference	7,120	26,020	26,020	23,320	7,120	89,600	2.2F
				72100	Contractual Services - Companies	91,200	91,200	587,320	835,380	91,200	1,696,300	2.2G
				Activity 2.2 Sub-Total		467,261	486,161	982,281	1,227,642	467,261	3,630,606	
	GCF Total Output 2					1,663,542	3,182,442	2,692,762	1,423,922	677,742	9,640,410	
	Co-financing Total Output 2					**2,121,212**	**2,121,212**	**3,787,879**	**4,696,970**	**757,576**	**13,484,849**	Co-fin 2
OUTPUT 2 TOTAL						3,784,754	5,303,654	6,480,641	6,120,892	1,435,318	23,125,259	
3. Reduce volatility of agriculture livelihoods in drought and flood prone areas through strengthened extension support and local planning, investment in on-farm adaptation measures and greater access to finance and markets	3.1. Application of climate information in household agriculture planning and strengthening of related support through extension services	RID	GCF	61100	Salary costs - NP staff	15,061	15,061	15,061	15,062	15,061	75,306	3.1A
				75700	Training, Workshops and Conference	-	28,400	85,200	85,200	85,200	284,000	3.1B
				72100	Contractual Services - Companies	73,560	73,560	73,560	73,560	73,560	367,800	3.1C
				72800	Information Technology Equipmt		673,750	673,750			1,347,500	3.1D
				Activity 3.1 Sub-Total		88,621	790,771	847,571	173,822	173,821	2,074,606	
	3.2. Implementation of on-farm climate resilient measures to improve drought and	RID		61100	Salary costs - NP staff	15,061	15,061	15,061	15,062	15,061	75,306	3.2A
				71200	International Consultants	-	16,000	5,400	-	5,400	26,800	3.2B
				71300	Local Consultants	-	20,000	4,500	-	4,500	29,000	3.2C
				71400	Contractual Services - Individual	109,200	109,200	109,200	109,200	109,200	546,000	3.2D

Output	Activity	Responsible Party	Financing Source	Atlas Budget Account Code	Account Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	TOTAL (USD)	Budget Note)
	flood resilience and improved access to finance for sustainable agriculture			71600	Travel	27,800	27,800	28,550	27,800	28,550	140,500	3.2E
				74200	Audio Visual & Print Prod Costs	-	3,000	9,000	9,000	9,000	30,000	3.2F
				72100	Contractual Services - Companies	42,240	216,240	577,519	577,518	196,240	1,609,757	3.2G
					Activity 3.2 Sub-Total	194,301	407,301	749,230	738,580	367,951	2,457,363	
	3.3. Capacity building for farmers to support market access for climate resilient agriculture products	RID		61100	Salary costs - NP staff	15,061	15,061	15,061	15,060	15,061	75,304	3.3A
				75700	Training, Workshops and Conference	-	88,000	132,000	132,000	88,000	440,000	3.3B
				72100	Contractual Services - Companies	21,120	21,120	485,120	21,120	21,120	569,600	3.3C
					Activity 3.3 Sub-Total	36,181	124,181	632,181	168,180	124,181	1,084,904	
	GCF Total Output 3					319,103	1,322,253	2,228,982	1,080,582	665,953	5,616,873	
	Co-financing Total Output 3					**52,634**	**75,114**	**71,320**	**87,638**	**74,753**	**361,459**	Co-fin 3
OUTPUT 3 TOTAL						**371,737**	**1,397,367**	**2,300,302**	**1,168,220**	**740,706**	**5,978,332**	
Project Management		RID	GCF	71600	Travel	30,000	30,000	30,000	30,000	30,000	150,000	PM1
				72500	Supplies	2,000	2,000	2,000	2,000	2,000	10,000	PM2
				72800	Information Technology Equipment	15,000	-	-	-	-	15,000	PM3
				74596	Service to Projects – GOE	15,513	15,513	15,513	15,512	15,513	77,564	PM4
				75700	Training, Workshops and Conference	12,600	3,000	3,000	3,000	3,000	24,600	PM5
				72100	Contractual Services - Companies	57,720	57,720	57,720	57,720	57,720	288,600	PM6
				74100	Professional Services	-	2,488	2,487	8,130	14,236	27,341	PM7
GCF Total Project Management						**132,833**	**110,721**	**110,720**	**116,362**	**122,469**	**593,105**	
Co-financing Total Project Management						**272,727**	**272,728**	**212,121**	**121,212**	**121,212**	**1,000,000**	Co-fin 4
Project Management TOTAL						**405,560**	**383,449**	**322,841**	**237,574**	**243,681**	**1,593,105**	
GCF PROJECT TOTAL						**2,441,840**	**5,192,698**	**5,629,396**	**2,706,809**	**1,562,757**	**17,533,500**	
CO-FINANCING TOTAL						**2,749,603**	**2,772,084**	**4,379,805**	**5,214,305**	**1,262,026**	**16,377,823**	
GRAND TOTAL						**5,191,443**	**7,964,782**	**10,009,201**	**7,921,114**	**2,824,783**	**33,911,323**	

Budget Notes:

	Description of cost items	Unit cost (USD)	Quantity	Unit	Amount (USD)
Output 1					
1.1A	Technical assistance to be provided by UNDP - substantive technical analysis on issues related to the project interventions, strategic support, scoping of ToRs across all Outputs. *Note: the cost is 10% of the total time allocation from UNDP staff including 15% of Programme Specialist time; 25% of Programme Analyst time; 5% of Economic Specialist and 20% of Programme Associate time* ** Unit cost rounded to the nearest dollar*	10,041	5	Years	50,204
1.1B	Cost for independent and external mid-term evaluation – Mid-term Review (MTR) consultant (international) 30% prorated for Output 1	18,000	30%	Contract time	5,400
	Cost for independent and external terminal evaluation – Terminal Evaluation (TE) consultant (international) 30% prorated for Output 1	18,000	30%	Contract time	5,400
1.1C	Cost for independent and external mid-term evaluation - MTR consultant (national) 30% prorated for Output 1	15,000	30%	Contract time	4,500
	Cost for independent and external terminal evaluation - TE consultant (national) 30% prorated for Output 1	15,000	30%	Contract time	4,500
1.1D	Travel costs for MTR and TE missions 30% prorated for Output 1	5,000	30%	Total amount	1,500
1.1E	2-day staff capacity building training (30 pax from TMD, RID, others at USD 5,000/time, 2 times/year starting in Year 3)	5,000	6	Workshops	30,000
1.1F	Local climate and water monitoring equipment to be installed in the project sites including Computing server (2) – $21,200; Flow radar (12 - type: not touching water 1-15m) – $367,920; Met station (5 variables) – $12,575; CCTV (3) – $2,895; Drone (2) – $6,000; Automatic bubble gauge, lake (5) – $40,000; Automatic pressure gauge (10) – $37,800; Automatic bubble gauge, crop plots (20) – $160,500; Soil moisture meter (30) – $9,000; maintenance telemetry system (5 years) – $76,750; spare parts telemetry system – $36,800; introducing project in the area – $6,560	778,000	1	Contract	778,000
	Consultancy company to develop the full scope and details for the climate information processing unit mandate, including training the model (usage), piloting (validation), training mobile app usage	76,600	1	Contract	76,600
	Project Manager ($55,200/year for 5 years - 30% prorated for Output 1)	276,000	30%	Contract time	82,800
	Project Coordinator ($30,000/year for 5 years - 30% prorated for Output 1)	150,000	30%	Contract time	45,000
	Field Coordinator ($19,200/year for 5 years - 30% prorated for Output 1)	96,000	30%	Contract time	28,800
Total Activity 1.1					**1,112,704**
1.2A	Technical assistance to be provided by UNDP: (1) Policy analysis and technical support towards Project's alignment and coordination with other adaptation initiatives supported by UNDP, other UN Agencies and the World Bank including facilitating synergies post-implementation; and (2) Regular facilitation and dialogue with development partners in aligning the Project results with SDGs and other international frameworks, such as the Paris Agreement and Sendai Framework for Disaster Risk Reduction (DRR). *Note: the cost is 10% of the total time allocation from UNDP staff including 15% of Programme Specialist time; 25% of Programme Analyst time; 5% of Economic Specialist time and 20% of Programme Associate time* ** Unit cost rounded to the nearest dollar*	10,041	5	Years	50,204
1.2B	Printing costs of training materials including mobile app manual on climate decision on water forecast, SOP on climate data sharing, communications materials and reports, etc.	2,000	5	Years	10,000
1.2C	Committee meeting for information sharing across government stakeholders established under the TMD mechanism/forum (@USD 3,000/time, 2 times/year over 5 years)	3,000	10	Workshops	30,000
	Existing inter-ministerial Stakeholder committees' meetings (@USD 3,000/time, 2 times/year over 5 years)	3,000	10	Workshops	30,000

	Description of cost items	Unit cost (USD)	Quantity	Unit	Amount (USD)
Output 1					
1.2D	Contractual services-company or institution to review existing practices for dissemination climate data, develop SOPs for developing and sharing information for public planning as well as household application, developing and sharing information, and capacity building	200,000	1	Contract	200,000
Total Activity 1.2					**320,204**
1.3A	Technical assistance to be provided by UNDP: (1) Substantive technical analysis on issues related to the Project interventions, strategic support, scoping of ToRs across all Outputs; and (2) Provide direct technical inputs in all project training materials, and act as resource person/training facilitator in relevant training programmes under the Project. *Note: the cost is 10% of the total time allocation from UNDP staff including 15% of Programme Specialist time; 25% of Programme Analyst time; 5% of Economic Specialist time and 20% of Programme Associate time* ** Unit cost rounded to the nearest dollar*	10,041	5	Years	50,204
1.3B	Contractual Service-company to prepare information brief and reports for circulation in local and social media as well as develop complementary website for interactive information dissemination in line with climate information application	100,000	1	Contract	100,000
	Contractual Service-company to develop smartphone and Line application for household as well as conduct capacity building	100,000	1	Contract	100,000
Activity 1.3 Total					**250,204**
Co-fin 1	In-kind co-finance from RID for Operations and Maintenance of Climate Information System (at approx. $303,030/year for 5 years during Project implementation), Peoplewares for operating climate centers (at $2,424/year for Years 3-5) and training to be provided for government staff (at $3,030/year for Years 3-5) [Activity 1.1]	1,531,515	100%	Co-finance	1,531,515
Output 1 Total					**3,214,627**
Output 2					
2.1A	Technical assistance to be provided by UNDP: Substantive technical analysis on issues related to the review of 13 schemes planning and improvement related to Ecosystem-based Adaptation approach and review of ToR for contractual service company for ESMF *Note: the cost is 15% of the total time allocation from UNDP staff including 15% of Programme Specialist time; 25% of Programme Analyst time; 5% of Economic Specialist time and 20% of Programme Associate time* ** Unit cost rounded to the nearest dollar*	10,041	5	Years	50,204
2.1B	Cost for independent and external mid-term evaluation - MTR consultant (international) 40% prorated for Output 2	18,000	40%	Contract time	7,200
	Cost for independent and external terminal evaluation - TE consultant (international) 40% prorated for Output 2	18,000	40%	Contract time	7,200
2.1C	Cost for independent and external mid-term evaluation - MTR consultant (national) 40% prorated for Output 2	15,000	40%	Contract time	6,000
	Cost for independent and external terminal evaluation - TE consultant (national) 40% prorated for Output 2	15,000	40%	Contract time	6,000
2.1D	Travel costs for MTR and TE missions 40% prorated for Output 2	5,000	40%	Total amount	2,000
2.1E	Contractual Service-Company - Improvement of Khlong Muang Chang canal regulator and appurtenant (located in Kong Krai Lat district, Sukhothai province). This would include water diversion activities during the construction, two flood gates (6x5m); four drainages; and two power distribution system expansions. Cost breakdowns are provided below: - Water diversion activities during construction: $60,718 - Two flood gates at 6x5m: $4,598,275 - Four drainages: $230,774	5,000,000	1	Contract	5,000,000

	Description of cost items	Unit cost (USD)	Quantity	Unit	Amount (USD)
Output 1					
	- Two power distribution system expansions: $110,233 *Note:* the costs include operations and other indirect costs				
	ESMF - Updating and Auditing	2,000	5	Years	10,000
	ESMF - General ESMF Expenses	4,000	5	Years	20,000
	ESMF - Ecological Monitoring (two assessments/year over five years)	24,000	5	Years	120,000
	ESMF - Water Quality Monitoring (monitoring to be undertaken over five years)	30,000	5	Years	150,000
	ESMF - Water Quality Sample Laboratory Analysis (monitoring to be undertaken over five years)	12,000	5	Years	60,000
	ESMF - Sediment Sample Field Testing (monitoring to be undertaken over five years)	18,000	5	Years	90,000
	ESMF - Sediment Sample Laboratory Analysis (monitoring to be undertaken over five years)	18,000	5	Years	90,000
	ESMF - Erosion, Drainage and Sediment Control	15,000	5	Years	75,000
	ESMF - Stakeholder Engagement Workshop	20,000	5	Years	100,000
	ESMF - Grievance Redress Mechanism	10,000	5	Years	50,000
	Project Manager ($55,200/year for 5 years - 30% prorated for Output 2)	276,000	30%	Contract time	82,800
	Project Coordinator ($30,000/year for 5 years - 30% prorated for Output 2)	150,000	30%	Contract time	45,000
	Field Coordinator ($19,200/year for 5 years - 40% prorated for Output 2)	96,000	40%	Contract time	38,400
Activity 2.1 Total					**6,009,804**
2.2A	Technical assistance to be provided by UNDP: Provide direct technical inputs to the project to ensure effective coordination with the national counterparts on National Water Management Committee and contributing to ongoing policies and programmes *Note: the cost is 15% of the total time allocation from UNDP staff including 15% of Programme Specialist time; 25% of Programme Analyst time; 5% of Economic Specialist time and 20% of Programme Associate time* ** Unit cost rounded to the nearest dollar*	15,061	5	Years	75,306
2.2B	International Experts to provide technical guidance and advise on the intended change processes at institutional and technical as well as at policy and planning levels. The team consists of - Team leader and principal advisor 300 days*$1,100 over 5 years; and - Senior IWRM and EbA Specialist 440 days*$865 over 3 years *Total of $710,400 with rounded $960 daily rate for 2 pax*	960	740	Days	710,400
2.2C	Technical advice, facilitation of capacity development measures and management of multi-governance and multi-stakeholder dialog processes at river basin scale as well as M&E; link to river basin committee (RBC) and national policy level (ONWR + ONEP) for reflection of standards and contributions to NDC adaptation priorities and NAP reporting. Three national experts include: - Senior Advisor & Community Development Specialist 880 days*$500; - IWRM & EbA Specialist 660 days*$480; - Training Officer 300 days*$240 over 3 to 5 years *Total of $828,000 with rounded daily rate of $450 for 3 pax*	450	1,840	Days	828,000
	National technical consultants for specific technical designs, development of guidebooks and technical trainings as well as training support; 195 days*$400 over 5 years ($78,000)	195	400	Days	78,000
2.2D	Travels and DSA for international and national consultants under Activity 2.2 for 5 years. It comprises International travel: $3,875 per round trip including DSA, 8 trips ($31,000) and the Domestic travel: $200 per round trip, 80 trips ($16,000); DSA for domestic travel: $100/day for total of 240 days ($24,000). The experts are home-based and will be traveling on missions when required	14,200	5	Years	71,000

	Description of cost items	Unit cost (USD)	Quantity	Unit	Amount (USD)
	Output 1				
	Digital solution based M&E mechanism to capture and monitor quantitative and qualitative changes at river basin scale is established in collaboration with academia and linked to local and national monitoring system(s) for the documentation of and reporting on (nature/ecosystem based) adaptation actions in the water sector. The M&E is focused on the impact evaluation of the EbA measures. M&E mechanism shall cover socio-economic and environmental impacts through a set of quantitative and qualitative indicators. 20 monitoring missions for 5 years are planned + documentation and presentation of results. The monitoring shall be conducted in cooperation with Thai academia involving graduates/students from Environmental and Water Resources Engineering programs (20 trips/app. $2,000 each incl. travel costs and DSA + $10,000 fee for reporting)	2,500	20	Trips	50,000
2.2E	Project vehicle rental for Project activities in the river basin $80 day/400 days ($34,000)	32,000	1	Contract	32,000
2.2F	Foundation trainings/workshops on the concept of climate sensitive IWRM and EbA. The training content will be adjusted in terms of the progress of the project and planned as a quarterly meeting and exchange platform for all stakeholders that are involved in the implementation of the EbA component; 12 meetings with 20 to 25 pax; app. $1,300 for one workshop package incl. travel costs and DSA	1,300	12	Workshops	15,600
	Advanced technical on-the job training / objective-based learning at river-basin scale in line with the consultancy missions (7 sessions during a 3 year period with 12-15 selected participants of local government agencies - 3 teams 4-5 pax ($14,000); plus one learning, dissemination, exchange, and training visit to a selected country in Southeast Asia (South-South knowledge exchange) in Year 2, a 5-day exposure visit for the three teams, (app. $18,750 for regional travel and DSA for 15 people); plus an international study trip for the best team in combination with the participation at a related international seminar/workshop for the presentation of the project results (award for the best team + lead change agents; app. $21,250 for international travel and DSA) *Unit cost averaged to $6,000/workshop*	6,000	9	Workshops	54,000
	3-4 days training/role play for members of the RBC, the RBC secretariat and representatives of the community in the selected sub-river basins on multi-stakeholder dialog processes, dealing with conflicting stakeholder interests and result-based design and monitoring of project activities - 1 time app. 16 participants/potential change agents (GIZ training package of app. $1,250/pax)	20,000	1	Workshops	20,000
2.2G	Consultancies for risk identification, cause-effect analysis to identity the root-causes of issue ex. floods or water scarcity due to negative impact of Climate Change. Propose and prioritize suitable EbA measures to RBC (could be 1-3 contracts for the 3 locations)	44,000	3	Contracts	132,000
	Consultancy for the Economic evaluation for proposed EbA measures - The economic analysis of the proposed EbA measures is linked with on-the-job training session at 3 locations (could be 1-3 contracts for the 3 locations)	44,000	3	Contracts	132,000
	Consultancy for the final design of selected EbA measures - Collaboration of international expertise and local wisdom, in order to design the most beneficial and sustainable EbA measures (could be 1-3 contracts for the 3 locations)	64,000	3	Contracts	192,000
	Contractual services - companies for the three most suitable EbA measures to be selected based on the study. The number of contracts is to be determined later, based on the selection of EbA measures. Note: This total amount is estimated based on previous pilot EbA demonstration project funded by the Department of Water Resources, under the Ministry of Natural Resources and Environment. It costs about 413,000 USD per each EbA measure. The final suitable selected EbA measures will be determined after the site survey and study and stakeholders consultation in	1,240,300	1	Contracts	1,240,300

	Description of cost items	Unit cost (USD)	Quantity	Unit	Amount (USD)
	Output 1				
	Years 1-3. Costs include labor, materials, contracting, rental equipment and other direct costs.				
	Total Activity 2.2				**3,630,606**
Co-fin 2	In kind co-finance from RID for strengthening of water infrastructure and management of existing irrigation networks and canals with climate-informed engineering design. This Budget is based on regular fiscal budget allocation to the 3 provinces of the Project area. [Activity 2.1] Cost breakdowns include: - Maintenance of irrigated canals, structures, headwork and road; weed eradication; canal dredging; ecosystem improvement; utilities and office supplies; safety; vehicle and petrol; and staff at $2,272,727 - Repair and improvement of irrigation system $4,242,424 - Improvement of Khlong Muang Chang canal regulator and appurtenant $3,030,303 - Improvement of Khlong Ta Kay Culvert $3,939,395	13,484,849	100%	Co-finance	13,484,849
	Output 2 Total				**23,125,259**
	Output 3				
3.1A	Technical assistance to be provided by UNDP: (1) Technical inputs to develop the adaptive livelihood approach informed by lessons learnt from previous adaptation project, including enabling scale and replication beyond the Project. (2) Synthesize lessons learn and provide substantive guidance and support to develop knowledge products in the Project training materials; act as resource person/training facilitator in relevant training programmes under the Project. (3) Provide direct technical inputs in all project training materials, and act as resource person/training facilitator in relevant training programmes under the Project. *Note: the cost is 15% of the total time allocation from UNDP staff including 15% of Programme Specialist time; 25% of Programme Analyst time; 5% of Economic Specialist time and 20% of Programme Associate time* ** Unit cost rounded to the nearest dollar*	15,061	5	Years	75,306
3.1B	Training of trainers: extension officers (one time/year for 4 years, @ $4,300/time). 35 pax expected	4,300	4	Workshops	17,200
	Training of agricultural extension and land development officers (one time/year for 4 years, @ $4,300/time). 35 pax expected	4,300	4	Workshops	17,200
	Workshops (technical support) for farmers to apply vulnerability assessment and climate information to agricultural decisions in 22 sub-districts (@$25,000/year, a total of 60 workshops approx. in 4 years)	25,000	4	Years	100,000
	Establishment of Farmer Field Schools (FFS)to complement and support the activities of agricultural services in 22 sub-districts (4 times/sub-districts/4 years, @$1,700/time)	1,700	88	Workshops	149,600
3.1C	National consultant - Agricultural specialist (1 person, 6 months /year for 5 years - $4,000/month) - contribution to Activity 3.1 (40%)	120,000	40%	Contract time	48,000
	National consultant - Agricultural Marketing expert (1 person, 6 months/year for 5 years - $2,600/month) - contribution to Activity 3.1 (40%)	78,000	40%	Contract time	31,200
	National consultant - Economics and finance specialist (1 person, 6 months/year for 5 years - $3,200/month) - contribution to Activity 3.1 (40%)	96,000	40%	Contract time	38,400
	National consultant - Community relations and public participation specialist (1 person, 6 months/year for 5 years - $2,600/month) - contribution to Activity 3.1 (40%)	78,000	40%	Contract time	31,200
	National consultant - Part-time assistant specialists to provide coordination support on farm activities in 22-sub districts of the project area as well as to assist in developing the on-farm adaptation measures. (2 persons, 12 months/year for 5 years – approx. $925/month/person) - contribution to Activity 3.2 (40%)	111,000	40%	Contract time	44,400

	Description of cost items	Unit cost (USD)	Quantity	Unit	Amount (USD)
Output 1					
	National consultant - Part-time desk assistants to support survey data processing in 3 provinces of the project area and assist the national consultants in communication, economic, and agricultural marketing as well as assist in logistic arrangement for local events with farmers (2 persons, 12 months/year for 5 years - $375/month/person) - contribution to Activity 3.2 (40%)	45,000	40%	Contract time	18,000
	Project Manager ($55,200/year for 5 years - 30% prorated for Output 3)	276,000	30%	Contract time	82,800
	Project Coordinator ($30,000/year for 5 years - 30% prorated for Output 3)	150,000	30%	Contract time	45,000
	Field Coordinator ($19,200/year for 5 years - 30% prorated for Output 3)	96,000	30%	Contract time	28,800
3.1D	Climate Resilience and Smart Farming - The Internet of Things (IoT) 1 platform for each district. Detailed breakdown provided below: - Drone kit for Multispectral Camera (for Vegetation indices NDVI) including camera - 28,000 - Drone kit for spaying liquids (water/organic fertilizer) - 15 liters - 20,000 - On ground IoT sensor node (Smart Agriculture Solution Kit including battery and solar panel) for monitoring soil and surface temperature, electrical conductivity, water content, and etc. - 3,500x20 - 70,000 - Others including tablet, IoT gateway, data server and cloud storage, data communication - 26,500 - On cloud based Application/Agricultural Software / Precision Agriculture / Management / Monitoring - 20,000 - Technical Support for setting the platform and Training and misc - 105,000 Total: $269,500/ platform	269,500	5	Platforms	1,347,500
Activity 3.1 Total					**2,074,606**
3.2A	Technical assistance to be provided by UNDP: (1) Regular facilitation and dialogue with development partners in aligning the Project results with SDGs and other international frameworks, such as Paris agreement and Sendai Framework for Disaster Risk Reduction (DRR). (2) Technical inputs to develop women centered social enterprises around the Project area that adapt to EbA. *Note: the cost is 15% of the total time allocation from UNDP staff including 15% of Programme Specialist time; 25% of Programme Analyst time; 5% of Economic Specialist and 20% of Programme Associate time* ** Unit cost rounded to the nearest dollar*	15,061	5	Years	75,306
3.2B	Cost for independent and external mid-term evaluation - MTR consultant (international) 30% prorated for Output 3	18,000	30%	Contract time	5,400
	Cost for independent and external terminal evaluation - TE consultant (international) 30% prorated for Output 3	18,000	30%	Contract time	5,400
	International consultant to co-design financial credit with BAAC (approx. $800 for 20 days)	16,000	1	contract	16,000
3.2C	Cost for independent and external mid-term evaluation - MTR consultant (national) 30% prorated for Output 3	15,000	30%	Contract time	4,500
	Cost for independent and external terminal evaluation - TE consultant (national) 30% prorated for Output 3	15,000	30%	Contract time	4,500
	National consultant to co-design BAAC financial credit (approx. $500/day for 40 days)	20,000	1	contract	20,000
3.2D	Chief Technical Advisor ($50,400/year for 5 years) - for all Outputs	50,400	5	Years	252,000
	M&E Officer ($45,600/year for 5 years) - for all Outputs	45,600	5	Years	228,000
	Gender Responsive Climate Data Officer ($13,200/year for 5 years) - for all Outputs	13,200	5	Years	66,000
3.2E	Travels and DSA for national consultants for Output 3 (1,000 USD for 4 nights DSA + ticket*18 trips per year)	18,000	5	Years	90,000

	Description of cost items	Unit cost (USD)	Quantity	Unit	Amount (USD)
	Output 1				
	Travels and DSA for the International Chief Technical Advisor (CTA), M&E Officer, and Gender Responsive Climate Data Officer (1,000USD for 4 nights DSA + ticket *9 trips and local transportation per year)	9,800	5	Years	49,000
	Travel costs for MTR and TE missions 30% prorated for Output 3	5,000	30%	Total amount	1,500
3.2F	Communications cost (e.g. outreach communication materials including fact sheets, roll up, posters and reports	30,000	1	Contract	30,000
3.2G	National consultant - Agricultural specialist (1 person, 6 months /year for 5 years - $4,000/month) - contribution to Activity 3.2 (40%)	120,000	40%	Contract time	48,000
	National consultant - Agricultural Marketing expert (1 person, 6 months/year for 5 years - $2,600/month) - contribution to Activity 3.2 (40%)	78,000	40%	Contract time	31,200
	National consultant - Economics and finance specialist (1 person, 6 months/year for 5 years - $3,200/month) - contribution to Activity 3.2 (40%)	96,000	40%	Contract time	38,400
	National consultant - Community relations and public participation specialist (1 person, 6 months/year for 5 years - $2,600/month) - contribution to Activity 3.2 (40%)	78,000	40%	Contract time	31,200
	National consultant - Part-time assistant specialists to provide coordination support on farm activities in 22-sub districts of the project area as well as to assist in developing the on-farm adaptation measures. (2 persons, 12 months/year for 5 years - approx. $925/month/person) - contribution to Activity 3.2 (40%)	111,000	40%	Contract time	44,400
	National consultant - Part-time desk assistants to support survey data processing in 3 provinces of the project area and assist the national consultants in communication, economic, and agricultural marketing as well as assist in logistic arrangement for local events with farmers (2 persons, 12 months/year for 5 years - $375/month/person) - contribution to Activity 3.2 (40%)	45,000	40%	Contract time	18,000
	On-farm water resources development (100 on farm ponds in Year 1 - Year 3; USD 1000/pond)	1,000	100	Items	100,000
	Small equipment for adaptation action with farmers such as water pumps* (2,250 * $223***), small cultivators to be shared by farmer groups (9 * $17,970), and SRI related equipment - rotary weeder to be shared by farmer groups (20 * $500), on-farm water level measurement/perforated tube gauges and other items such as markers (345 * $25),** etc. * Pumping water from canals regulated by RID, which monitors water levels and informs famers about the allowable period/quantity for pumping water from a specific irrigation canal. ** SRI estimated at 15% of project area currently cultivated for rice ***rounded to the nearest dollar	682,557	1	Contract	682,557
	Community nurseries and supply crops, vegetables, vegetable species for 22 sub-districts for 4 years ($3,000/sub-district)	264,000	1	Contract	264,000
	Soil conservation management practices integrated with FFS education on soil conservation - with incentives for farmer start-ups for 22 sub-districts (10 times/sub-district/4 years, @$1,600/time)	352,000	1	Contract	352,000
	Activity 3.2 Total				**2,457,363**
3.3A	Technical assistance to be provided by UNDP: (1) Peer reviews of inception/final project deliverables and technical reports produced by CTA, Monitoring and Donor Requirement Support and project teams. (2) Technical Analysis and inputs on options, strategic approach, and action plan, based on best practices, to replicate and scale the Project approaches. (3) Facilitation and dialogue to ensure private sector engagement in the development and dissemination of sustainable financial management at household/family level and use of climate information to enable sustained scale beyond the Project. Note: the cost is 15% of the total time allocation from UNDP staff including 15% of Programme Specialist time; 25% of Programme Analyst time; 5% of Economic Specialist time and 20% of Programme Associate time	15,061	5	Years	75,304

	Description of cost items	Unit cost (USD)	Quantity	Unit	Amount (USD)
Output 1					
	** Unit cost rounded to the nearest dollar*				
3.3B	Farmer to farmer knowledge sharing through FFS, e.g. site visit for FFS at Jom thong sub-district as well as provision of support on market access for farmers (10 times/sub-district/4 years, @$2,000/time)	2,000	220	Workshops	440,000
3.3C	National consultant - Agricultural specialist (1 person, 6 months/year for 5 years - $4,000/month) - contribution to Activity 3.3 (20%)	120,000	20%	Contract time	24,000
	National consultant - Agricultural Marketing expert (1 person, 6 months/year for 5 years - $2,600/month) - contribution to Activity 3.3 (20%)	78,000	20%	Contract time	15,600
	National consultant - Economics and finance specialist (1 person, 6 months/year for 5 years - $3,200/month) - contribution to Activity 3.3 (20%)	96,000	20%	Contract time	19,200
	National consultant - Community relations and public participation specialist (1 person, 6 months/year for 5 years - $2,600/month) - contribution to Activity 3.3 (20%)	78,000	20%	Contract time	15,600
	National consultant - Part-time assistant specialists to provide coordination support on farm activities in 22-sub districts of the Project area as well as to assist in developing the on-farm adaptation measures. (2 persons, 12 months/year for 5 years – approx. 925/month/person) - contribution to Activity [3.3] (20%)	111,000	20%	Contract time	22,200
	National consultant - Part-time desk assistants to support survey data processing in 3 provinces of the project area and assist the national consultants in communication, economic, and agricultural marketing as well as assist in logistic arrangement for local events with farmers (2 persons, 12 months/year for 5 years - $375/month/person) - contribution to Activity [3.3](20%)	45,000	20%	Contract time	9,000
	Online market platform for farming products - to be operated mainly by local women - including salaries (Administrator, Content and Branding Creator, and Packing & Stock Control), office rental fee, furnishing expense, and office equipment, utility expenses, shipping fee, packing cost	464,000	1	Contract	464,000
Activity 3.3 Total					**1,084,904**
Co-fin 3	In-kind co-finance from RID for the following: [Activity 3.1] - Agricultural extension plan $145,455 [Activity 3.2] - Surface water quality monitoring plan $53,030 - soil erosion and sedimentation monitoring plan $12,121 - Land slide and soil quality monitoring plan $3,636 - Socio-economic monitoring plan $18,182 - Health monitoring plan $15,152	247,576	100%	Contracts	247,576
	In-kind Co-financing from the Bank of Ayudhaya (Krungsri Bank) to provide training to farmers to support market access for farmers, including capacity building related to financial literacy, linkages to buyers and markets, requirements for contract farming (incl. hospitals, schools, restaurants), linkages through rice cooperatives, linkages to local gatherer and processors, linkages to private sector and community support agriculture (CSA) for larger markets at Phitsanulok province, and comprising of larger market buyers, processor, cooperative. BAAC will make finance available to farmers in the project sites for additional adaptation investments by beneficiaries, as well as for further replication and upscaling of Project initiatives. [Activity 3.3]	113,883	100%	Co-finance	113,883
Output 3 Total					**5,978,332**
Project Management					
PM1	Travels for programme implementation at 3 sites (transportation, fuel, per diem, etc (4 nights DSA and travel cost 1,000USD/trip*30 trip/year) at over 5 years	30,000	5	Years	150,000
PM2	Stationery and other office supplies	2,000	5	Years	10,000
PM3	Office equipment - 5 laptops and 1 printer	15,000	1	Years	15,000
PM4	UNDP support to be provided in the following areas: - Procurement $21,520	15,513	5	Years	77,564

	Description of cost items	Unit cost (USD)	Quantity	Unit	Amount (USD)
Output 1					
	- Finance $56,044 Pro rate 5 years at 15,513USD/year *Note: Unit cost is rounded to the nearest dollar*				
PM5	Inception workshop (1-2 days meeting package and travel cost for 25 pax)	9,600	1	Meeting	9,600
	Board meeting (2 times/year - $1,500/time) over 5 years	1,500	10	Meetings	15,000
PM 6	Project Manager ($55,200/year for 5 years - 10% prorated for PMC)	276,000	10%	Contract time	27,600
	Project Coordinator ($30,000/year for 5 years - 10% prorated for PMC)	150,000	10%	Contract time	15,000
	Senior Finance Advisor ($30,000/year for 5 years)	150,000	100%	Contract time	150,000
	Finance and Admin Officer ($19,200/year for 5 years)	96,000	100%	Contract time	96,000
PM7	Audit costs (*rounded to the nearest dollar)	5,468*	5	Years	27,341
Project Management Total					**593,105**
Co-fin 4	In-kind contribution to Project Management Costs over the period of 5 years of implementation for staff time from relevant units under RID and office space in Phitsanulok province	1,000,000	100%	Co-finance	1,000,000
PMC Total					**1,593,105**
GRAND TOTAL					**33,911,323**

LEGAL CONTEXT

The project document shall be the instrument envisaged and defined in the Supplemental Provisions to the Project Document, attached hereto and forming an integral part hereof, as "the Project Document".

This project will be implemented by The Royal Irrigation Department (RID) under the Ministry of Agriculture and Cooperatives (MOAC)] ("Implementing Partner") 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.

The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations or UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

RISK MANAGEMENT

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.

   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 list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml.

3. 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.

4. 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 persons 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.

5. 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).

6. 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.

7. 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.

8. 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. The Implementing Partner will ensure that its financial management, anti-corruption and anti-fraud policies are in place and enforced for all funding received from or through UNDP.

9. 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.

10. 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.

11. The signatories to this Project Document will promptly inform one another in case of any incidence of inappropriate use of funds, or credible allegation of fraud or corruption 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.

13. UNDP shall be entitled to a refund from the Implementing Partner of any funds provided that have been used inappropriately, including through fraud or corruption, 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 for the recovery of any funds determined by UNDP to have been used inappropriately, including through fraud or corruption, 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.

14. 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.

15. 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.

16. 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.

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 and HR plans

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

Annex H: UNDP Social and Environmental and Safeguards screening procedure (SESP)

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 Log

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

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 online corporate planning system, does not need to be attached as separate document)

Annex Q: Monitoring and evaluation plans

- Annex R: Project-specific Annexes
- Annex R-1 Feasibility Study
- Annex R-2 Econ analysis
- Annex R-3 Financial Analysis
- Annex R-4 Operations and Maintenance Plan
- Annex R-5 Yom-Nan operation maintenance project
- Annex R-6 Survey of Climate impact
- Annex R-7 Climate Change in Chao Phraya

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

The Implementing Partner (Executing Entity in GCF terminology) has taken particular note of the provisions of the Funded Activity Agreement (FAA) entered into between UNDP and the GCF, as reflected in this Annex below, and which are relevant for the implementation of the Project/Funded Activity by the Implementing Partner. The relevant terms, conditions, representations, warranties and covenants contained in the FAA shall apply *mutatis mutandis* to the Implementing Partner (Executing Entity) and, where relevant, to any responsible parties or other counterparties engaged by the Implementing Partner. The Implementing Partner therefore acknowledges and agrees that the availability of GCF funding is contingent on meeting all terms and conditions in the FAA stipulated below and the continued compliance with all representations, warranties and covenants in the FAA. The Implementing Partner also agrees to support and cooperate in a timely and diligent manner with UNDP in order to allow UNDP to meet its obligations in relation to this Project as an Accredited Entity towards the GCF, in each case as set out in the AMA and the relevant clauses of the FAA set out below.

Clause 1. Definitions; AMA

1.01 The terms of the AMA are incorporated in their entirety, and form an integral part of, this Agreement and pursuant to clauses 1.02 and 1.03 of the AMA, any derogations from, deviations or modifications to the AMA in relation to the Funded Activity are set forth in this Agreement. In case of termination of the AMA, its terms as incorporated in this Agreement shall continue to apply.

1.02 In the event of a conflict between:

(a) The terms and conditions in the Clauses of this Agreement and the terms and conditions of any of its Schedules or Annex, the terms and conditions in the Clauses of the Agreement shall prevail; and
(b) The terms and conditions in the Schedules to this Agreement and the terms and conditions in the Annex to this Agreement, the terms and conditions in the Schedules shall prevail.

1.03 Wherever used in this Agreement, terms defined in the AMA shall have the respective meanings therein set forth unless modified herein or the context otherwise requires. Additional terms used in this Agreement shall have the following meanings:

(a) "**Accredited Entity Fee**" shall have the meaning ascribed to it in Clause 4 of this Agreement;

(b) "**Activity(ies)**" shall have the meaning ascribed to it in Schedule 1;

(c) "**AML/CFT Policy**" means the Fund's Anti-Money Laundering and Countering the Financing of Terrorism Policy adopted by Decision B.18/10;

(d) "**Budget**" means the costs of the Funded Activity and the breakdown thereof, as set out in Part A of Schedule 2 to this Agreement;

(e) "**Civil Works**" means all types of civil, mechanical, electrical or other engineering services (other than consulting services) as well as the supply of construction materials and equipment to be financed out of the GCF Proceeds;

(f) "**Closing Date**" means the date which is four (4) years and six (6) months 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 in respect of the Funded Activity will have terminated;

(g) "**Co-financier(s)**" means the following co-financier(s) of the Project:

(i) RTG, through the RID under the Executing Entity for an amount of USD16,263,940 (sixteen million two hundred sixty-three thousand nine hundred forty United States Dollars) in the form of in-kind contribution, for the financing of Activities 1.1, 2.1, 3.1 and 3.2 of the Funded Activity and the project management costs; and

(ii) Krungsri Bank for an amount of USD113,883 (one hundred thirteen thousand eight hundred eighty-three United States Dollars) in the form of in-kind contribution for the financing of Activity 3.3 of the Funded Activity;

(h) "**Co-financing**" means jointly the amounts of funding to be provided by the Co-financiers, and separately, any of such co-financing;

(i) "**Co-financing Agreement(s)**" means the legal agreement(s) and/or arrangements under which the Co-financiers will provide their Co-financing to assist in the Project implementation;

(j) "**Completion Date**" means the date which is no later than six (6) months after the Closing Date (except if otherwise agreed with the Fund);

(k) "**Disbursement(s)**" means a disbursement of all or part of the Grant made, or to be made, available by the Fund to the Accredited Entity, upon receipt of a Request for Disbursement and pursuant to the terms and conditions set out in this Agreement;

(l) "**Disbursement Plan**" means the disbursement plan included in Part B of Schedule 2;

(m) "**Disbursement Schedule**" means the disbursement schedule to be provided in accordance with Clause 7.01(c);

(n) "**Effective Date**" shall have the meaning ascribed to it in Clause 7.01 of this Agreement;

(o) "**Eligible Expenditures**" means any reasonable costs of Goods, Services or Civil Works required for the implementation of the Funded Activity to be financed with the GCF Proceeds, in accordance with this Agreement, the AMA and the Funding Proposal;

(p) "**Event of Default**" means, in addition to those set forth in clause 19.01 of the AMA, any event or circumstance set forth in Clause 11.01 of this Agreement;

(q) "**Executing Entity**" means the entity specified in Clause 2.02 of this Agreement;

(r) "**Funded Activity**" or "**Project**" shall have the meaning ascribed thereto in Recital (B) of this Agreement;

(s) "**Funding Proposal**" shall have the meaning ascribed thereto in Recital (B) of this Agreement;

(t) "**Gender Action Plan**" means the project-level gender action plan prepared by the Accredited Entity for the Project, which was provided by the Accredited Entity as part of the Funding Proposal approved by the Fund;

(u) "**Grant**" means the GCF Proceeds in the amount specified in Clause 3.01 of this Agreement, as approved by the Board, which the Fund has decided to make available for the financing of the Funded Activity, which shall be exclusive of the Accredited Entity Fee;

(v) "**Host Country**" means the Kingdom of Thailand;

(w) "**Implementation Arrangements**" means the contractual arrangement(s) to be entered into and/or the administrative arrangement(s) to be established by the different parties involved in the implementation of the Funded Activity as set out in Schedule 3;

(x) "**Implementation Plan**" means the calendar for the implementation of the Funded Activity set forth in Schedule 5;

(y) "**Indigenous Peoples Policy**" means the Fund's indigenous peoples policy adopted in Decision B.19/11;

(z) "**Notice of Payment**" means a written notice to be provided by the Accredited Entity to the GCF, substantially in the form set forth in Schedule 7, for the transfer of any unused funds or Investment Income, by the Accredited Entity to the Fund;

(aa) "**Output(s)**" shall have the meaning ascribed to it in Schedule 1;

(bb) "**Project Document**" means a document that the Accredited Entity enters into with the Host Country in accordance with the Special Fund defining the detailed financial, procurement and implementation plans, and the respective responsibilities of the parties thereto in respect of the Funded Activity. For the avoidance of doubt, the Project Document shall serve as the Subsidiary Agreement and shall reflect the requirements of this Agreement and the AMA, as applicable;

(cc) "**Request for Disbursement**" means a request for disbursement substantially in the form set forth in Schedule 6;

(dd) "**Responsible Parties**" means the parties to be engaged by the Executing Entity, either directly or through the Accredited Entity, in accordance with the rules, policies and procedures of the Accredited Entity for the provision of Services during Project implementation, as described in Schedule 3;

(ee) "**RID**" shall have the meaning ascribed thereto at Schedule 3 of this Agreement;

(ff) "**RTG**" shall have meaning ascribed thereto at Schedule 3 of this Agreement;

(gg) "**Special Fund**" shall have the meaning ascribed to it at Schedule 3 of this Agreement;

(hh) "**Tax(es)**" means any tax, levy, impost, fee, duty or other charge or withholding of a similar nature (including any penalty or interest payable in connection with a failure to pay or any delay in the payment of any such amounts), whether in effect at the date of execution of this Agreement or imposed thereafter); and

(ii) "**Updated Gender Policy**" means the Fund's updated gender policy adopted in Decision B.24/12, as contained in annex XXIII to that Decision.

Clause 2. The Funded Activity

2.01 The Executing Entity will carry out the Funded Activity, with due diligence and efficiency and in conformity with appropriate financial, economic, social, environmental and administrative practices, and shall provide, promptly as needed, the funds, facilities, services and other resources required for the Funded Activity.

2.03 The Accredited Entity shall ensure that the obligations set out in this Agreement are observed and carried out by the Executing Entity pursuant to the Subsidiary Agreement, in accordance with the relevant provisions of the AMA.

2.04 The Funded Activity shall be carried out in accordance with the Implementation Arrangements and within the timeframe set out in the Implementation Plan set forth in Schedule 5.

2.05 The implementation of all the Activities of the Funded Activity shall be completed no later than the Completion Date and shall be subject to confirmation by the Fund based on the completion report (final APR) to be provided in accordance with Schedule 4.

Clause 3. The Grant; Disbursements

3.05.1 (a) the Grant will be used by the Executing Entity exclusively to finance the Eligible Expenditures, in accordance with the AMA and this Agreement, as set out in the Funding Proposal, and as further specified in the Budget; and (b) all the Eligible Expenditures shall be accrued by the Executing Entity before the Completion Date.

3.06 Retroactive Financing. The Grant shall not be used to finance any costs incurred prior to the Effective Date.

3.07 The financial reporting and accounting currency for the Funded Activity shall be USD.

3.08 Any Investment Income as well as any other income or gains earned on other balances held in the GCF Account shall be transferred, together with any unused funds, on an annual basis to the GCF to the account notified to the Accredited Entity following the Effective Date.

Clause 5. Funded Activity Implementation

5.01 Modifications to the Funded Activity. For the purposes of clause 11.03 of the AMA, the Accredited Entity shall inform the Fund as soon as possible of any proposed modification to the Funded Activity which could reasonably constitute a Major Change, and seek the Fund's instructions on the necessary steps to be taken to address such event or to effect such proposed modification, which may involve seeking a new No-Objection Letter and/or new Board approval.

5.02 For purposes of Clause 5.01 above, a Major Change may include:

(a) A change in the scope of the Funded Activity or use of the GCF Proceeds which would result in a substantial deviation from the intended outcomes that the Accredited Entity seeks to achieve from the implementation of the Funded Activity, including its climate and/or environmental impacts;
(b) An adverse impact on the ability of the Executing Entity to operate the Funded Activity;
(c) The requirement for an additional financial commitment from the Fund;
(d) A change in the Executing Entity or an adverse change in the legal status of the Executing Entity or any third party involved in the implementation of the Funded Activity that materially and adversely impacts implementation of the Funded Activity; and
(e) A material shortfall resulting from the suspension, cancellation, termination or not coming into effect, in whole or in part, of any Co-financing or a Co-financing Agreement, unless adequate funds for the Project are available from other sources on terms and conditions consistent with the affected Co-financing or Co-financing Agreement.

5.03 The Accredited Entity shall, promptly, inform the Fund of any credible risks of money laundering and/or financing of terrorism in relation to a Funded Activity and promptly take steps recommended by the Fund in consultation with the Accredited Entity to address such identified risks. In those cases, the Fund may

suspend the Disbursements to the Accredited Entity under this Agreement until such risks have ceased or are reduced to the level satisfactory to the Fund.

Clause 6. Administration of Grant by the Accredited Entity

6.01 ***Permitted Reallocation.*** Any reallocation of the GCF Proceeds among the Funded Activity Outputs described in Part A of Schedule 2 resulting in a variation of more than ten per cent (10%) of the previously agreed Budget for the Output from which and to which the funds are to be reallocated must be approved in writing by the Fund in advance. Notwithstanding the above, any increase in the amount allocated to project management costs in Part A of Schedule 2 must be communicated by the Accredited Entity to the Fund and approved in writing by the Fund in advance.

6.02 ***Taxation***. The tax exemptions accorded under the SBAA shall apply to Eligible Expenditures procured with the GCF Proceeds. The Accredited Entity will not withhold any amount for Taxes from any Investment Income, unused funds or any assets held in the GCF Account, to be transferred from the Accredited Entity to the Fund. The Fund shall not pay any funds in addition to the amount specified in Clause 3.01 above, including for the payment of Taxes, for and during the implementation of the Project.

Clause 9. Conditions Precedent to Disbursement

9.01 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) *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 Disbursement is requested to be made, which shall not be later than the Closing Date;
   (iv) Delivery to the Fund by the Accredited Entity of evidence indicating the status and the amount of the Co-financing disbursed and applied to the implementation of the Funded Activity up to the date of the request for funds made by the Accredited Entity;
   (v) Confirmation to the Fund by the Accredited Entity that there is no Event of Default occurring with respect to this Agreement or the Subsidiary Agreement.

(b) *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 Subsidiary Agreement, in the form of a Project Document, between the Accredited Entity and the Executing Entity; and
   (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 and the authenticated specimen signature of each such person.
   (iv) Delivery to the Fund by the Accredited Entity, of (1) a feasibility assessment (based on existing case-studies and platforms in South East Asia) on the implementation of the Project's proposed utilization of an Internet of Things ("**IoT**") irrigation system for rice cultivation; this should include a costing analysis, review of technical requirements, review of equipment

suppliers, plan for development of a Thai version of an IoT irrigation software platform; and (2) a plan for development and scaling up such IoT irrigation systems by the government of the Host Country as part of its plans for digital transformation and sustainability.

9.02 If within one ninety (90) calendar days from the Effective Date, or such longer period established by the Fund in writing, the Accredited Entity has not requested the first Disbursement or 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.

9.03 If at the Closing Date, the Accredited Entity has not requested the Disbursement of the full amount of the GCF Proceeds with at least thirty (30) calendar days prior to such date, or the Fund has not otherwise disbursed the full amount of the GCF Proceeds, the undisbursed portion of the GCF Proceeds shall automatically be cancelled and no longer available for Disbursement.

Clause 10. Additional Representations, Warranties and Covenants of the Accredited Entity

10.01 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 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;
(b) On the date of the first Disbursement by the Fund under this Agreement and throughout the term of this Agreement, the Subsidiary Agreement remains in effect;
(c) On the dates of each Disbursement by the Fund under this Agreement, no Event of Default has occurred and is continuing under this Agreement and no event of default or equivalent event has occurred and is continuing under the Subsidiary Agreement;
(d) On the date of execution and the Effective Date of this Agreement and the date of each Disbursement made by the Fund under this Agreement, the policies of the Accredited Entity addressing AML/CFT are substantially consistent with the principles of the AML/CFT Policy; and
(e) 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 and indigenous peoples policy, which are equivalent to the Updated Gender Policy and Indigenous Peoples Policy.

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

(a) Ensure that no GCF Proceeds are transferred to the Executing Entity if a default has occurred under the Subsidiary Agreement;
(b) 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 Project Activities;
(c) Confirm to the Fund, in the APRs to be submitted to the Fund, that the 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;
(d) Take appropriate measures to ensure that the Co-financing and the GCF Proceeds are disbursed and/or applied proportionally and simultaneously for the implementation of the Funded Activity;

(e) 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

(f) 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 the recommendations, requirements and procedures set forth in the ESMF, which was provided by the Accredited Entity to the Fund before the Approval Decision and which shall not be amended, abrogated or waived without prior written approval of the Fund;

(g) 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 3 to be conducted as part of the Project;

(h) Obtain, or ensure that the Executing Entity 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;

(i) Ensure that the 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;

(j) Prior to commencing any construction works or activities for the implementation of the Project, the Accredited Entity shall submit to the Fund the detailed Environmental and Social Management Plan related to the relevant construction works or activities to be executed, in a form and substance satisfactory to the GCF;

(k) 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, 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 Gender Action Plan shall not be amended, abrogated or waived without prior written approval of the Fund;

(l) In case any amendment or modification is entered into or otherwise agreed by the Accredited Entity with respect to the Subsidiary Agreement, 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 in this Agreement and the AMA;

(m) 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;

(n) In case of a change of the authorized representative to sign the Request for Disbursement, provide, together with the Request for Disbursement, evidence, satisfactory to the Fund, of the authority of such person to sign the Request for Disbursement and the relevant authenticated specimen signature of such person;

(o) 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;

(p) In case of any material amendment to the eligibility criteria set out in section B.3 of the Funding Proposal, immediately inform the GCF and seek the GCF's approval of such amendment or modification; and

(q) Not, and does not, tolerate harassment, sexual harassment, discrimination, and abuse of authority in any form. In connection with a Funded Activity, it shall not directly or indirectly condone, encourage, or tolerate participation, or engagement in:

    (i) The actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions;

(ii) Any actual or attempted abuse of a position of vulnerability, differential power, or trust, for sexual purposes, including, but not limited to, threatening or profiting monetarily, socially, or politically from the sexual exploitation of another; or

(iii) Any unwelcome sexual advances, requests for sexual favours, and other verbal, non-verbal or physical conduct of a sexual nature, that interferes with work, is made a condition of employment, or creates an intimidating, hostile or offensive environment, and, for the avoidance of doubt, such forms of sexual harassment may occur between or amongst persons of different sexes or genders or of the same sex or gender, and may be initiated by any gender or sex

10.03 Pursuant to clause 23.04 of the AMA, the Accredited Entity shall inform the Fund, in the final 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.

Clause 15. Miscellaneous

15.06 **Modification or Amendment.** No modification or amendment of this Agreement shall be valid unless in writing and signed by an authorized representative of the Fund and an authorized representative of the Accredited Entity.

Schedule 3. Implementation Arrangement

The Implementation Arrangement for the Funded Activity, as further elaborated in the Funding Proposal, as attached at Annex 1, is:

1. The Accredited Entity will implement the Project following UNDP's National Implementation Modality ("**NIM**") and in accordance with the Financial Regulations and Rules ("**FRR**") of UNDP, the terms of the Special Fund to Thailand ("**Special Fund**")[14] entered into between the United Nations Special Fund and the Royal Thai Government ("**RTG**"), dated 4 June 1960, and in accordance with the policies and procedures outlined in the UNDP Project and Operations Policies and Procedures ("**POPP**").

2. The Project will be implemented over a five-year period, and the RTG acting through the Ministry of Agriculture and Cooperatives (the Implementing Partner in UNDP's terminology) will act as the Executing Entity (the "**Executing Entity**").

3. The Accredited Entity shall sign a Subsidiary Agreement, in the form of a project document with the Executing Entity, acting on behalf of RTG, in accordance with the AMA and this Agreement (the "**Project Document**"). The Project Document will be legally binding and outline the detailed financial, procurement and implementation plan of the Project, as well as contain the relevant provisions for the compliance by the Executing Entity and Responsible Parties (as defined in paragraph 4(d) below) with the requirements from the AMA and this Agreement.

4. The Project Document shall reflect the following implementation arrangements:

[14] The Government and UNDP have entered into an agreement to govern UNDP's assistance to the country (Agreement between the United Nations Special Fund and the RTG concerning Assistance from the Special Fund), which was signed by both parties on 4 June 1960. Based on such Agreement, UNDP's assistance to the RTG shall be made available to the RTG 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. The Agreement on Special Fund to Thailand is in lieu of the Standard Basic Assistance Agreements that UNDP entered into with the governments of other countries.

(a) The Project will be executed through the Executing Entity.
(b) The Executing Entity will be required to establish a Project Board for making management decisions, overseeing implementation and reviewing compliance with applicable requirements for the Project;
(c) The Executing Entity (Implementing Partner in UNDP terminology) will designate a National Project Director, responsible for the overall direction, strategic guidance and timely delivery of the Project. The Executing Entity will also recruit a Project Manager responsible for the day to day operation of the Project to be supported by a national Project Management Unit ("**PMU**");
(d) The Executing Entity will enter into or put in place legal arrangements and/or agreements, either directly or through the Accredited Entity, with the Responsible Parties (in UNDP Terminology) for the implementation of the Activities set out in Table 1 of this Schedule 3 below:
    (i) King Mongkut's University of Technology North Bangkok ("**KMUTNB**"); and
    (ii) Deutsche Gesellschaft fuer Internationale Zusammenarbeit GmbH ("**GIZ**"); and
    (together, the "**Responsible Parties**").[15]
(e) These legal agreements and /or arrangements referred to in paragraph 4(d) above shall reflect all the applicable provisions for the implementation of the Activities set out in the table below and all the requirements for the flow of GCF Proceeds in accordance with the AMA and this Agreement. These legal arrangements will be legally binding and will detail the different roles and responsibilities of the Executing Entity and the Responsible Parties, as well as the budgets, the expected activities to be implemented by each of these entities, targets and deliverables, the timeline for implementation, and the compliance with the obligations of the AMA and this Agreement.

5. **Co-financing**. The following Co-financing will be provided for Project implementation, as further described in the Funding Proposal (the "**Co-financing**"):
(a) RTG, through the Royal Irrigation Department ("RID") under the Executing Entity, for a total amount of USD16,263,940 (sixteen million two hundred sixty-three thousand nine hundred forty United States Dollars) in the form of in-kind contribution, for the financing of Activities 1.1, 2.1, 3.1 and 3.2 of the Funded Activity and the project management costs; and
(b) Krungsri Bank for the total amount of USD113,883 (one hundred thirteen thousand eight hundred eighty-three United States Dollars) in the form of in-kind contribution for the financing of Activity 3.3 of the Funded Activity.

6. The Co-financing from RTG, through RID, will be a Budget allocation, which will take the form of an in-kind contribution for the implementation of the Activities referred to above. With respect to the Co-financing to be provided by Krungsri Bank, the arrangement shall be formalized through a memorandum of understanding and work plan. The commitment and application of Co-financing will be monitored and reported by the Accredited entity in line with the representations and covenants set out in the AMA and this Agreement.

Table 1:

Outputs	Activity	Executing Entity	Responsible Parties / Executing Entity
Output 1: Enhance climate and risk informed planning in the water and agricultural sectors through improved climate	Activity 1.1. Strengthening capacity to generate tailored climate information to inform water management and agriculture planning	RTG acting through the Ministry of Agriculture and Cooperatives	KMUTNB (RP) and RID (EE)

[15] As indicated in the Funding Proposal, the legal arrangement may be through a direct contracting by the Executing Entity with the Responsible Party (as will be the case for the engagement of RID, which is part of the Executing Entity) or through an indirect contracting through UNDP where funds will be directly transferred by UNDP to the Responsible Parties (as will be the case for the engagement of KMUTNB and GIZ).

Outputs	Activity	Executing Entity	Responsible Parties / Executing Entity
information and cross sectoral coordination	Activity 1.2. Facilitating inter-ministerial coordination for climate-informed and integrated planning		KMUTNB (RP)
	Activity 1.3. Expanding access to climate information for application at the household level		KMUTNB (RP)
Output 2: Improve water Management through strengthened infrastructure complemented by EbA measures, for greater resilience to climate change impacts	Activity 2.1. Climate-informed engineering designs for the 13 schemes of the Yom-Nan river basin and upgrade of 2 water infrastructure		RID (EE)
	Activity 2.2. Complementing of grey infrastructure with EbA of EbA approaches into water management policy and planning		GIZ (RP) and RID (EE)
Output 3: Reduce volatility of agriculture livelihoods in drought and flood prone areas through strengthened extension support and local planning, investment in on-farm adaptation measures and greater access to finance and markets	Activity 3.1. Application of climate information in household agriculture planning and strengthening of related support through extension services		RID (EE)
	Activity 3.2. Implementation of on-farm climate resilient measures to improve drought and improved access to finance for sustainable agriculture		RID (EE)
	Activity 3.3. Capacity building for farmers to support market access for climate resilient agriculture products		RID (EE)

Schedule 4. Reporting

A. **Reporting Period**

The Reporting Period is from the Effective Date (as defined below in Section B of this Schedule 4) to the Completion Date (as defined below in Section B of this Schedule 4) which covers the duration of implementation of the Project of five (5) years as specified in the Funding Proposal.

Further to Section B of this Schedule 4, the reports stated in the calendar for the Project are due to be submitted as per the timing stated therein.

B. **Project Calendar/Milestones**

The approximate timeline for achievement of key milestones is subject to the Effectiveness Date. The Annual Performance Reports ("**APRs**"), Financial Information, audited and unaudited financial statements shall be submitted as set out in the AMA.

Milestones	Expected Dates
Start of Project Implementation	FAA Effectiveness date (the "**Effective Date**")
Inception Report	Within six (6) months after Effective Date
Baseline Assessments	Within one (1) year after Effective Date
Independent Interim Evaluation Report	Within nine (9) months after Year two (2)
End of Project Implementation	Five (5) years after Effective Date ("**Completion Date**")
Project Completion Report (Final APR)	Within three (3) months after the Completion Date
Independent Terminal Evaluation Report	Within six (6) months after submission of Project Completion Report

Annex B: GCF Board-approved Funding Proposal

Please access the Funding Proposal here: https://www.greenclimate.fund/project/fp170

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

As per the intended Letter of Agreement (LoA), Responsible Party Agreements will be signed between UNDP and: i) King Mongkut's University of Technology North of Bangkok (KMUTNB); and ii) Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH.

Annex D: Co-financing commitment letters

(1) Royal Irrigation Department

(2) Krungsri Bank



No. 0927/6672

Royal Irrigation Department
Samsen Road, Dusit
Bangkok 10300
Tel. 66-2667-0981
Fax. 66-2241-4421

October B.E. 2561 (2018)

Dear Ms. Deirdre Boyd,

Subject : GCF Grant and Co-financing for GCF project

With reference to the Royal Irrigation Department (RID)'s letter on co-financing of the "Enhancing climate resilience in Thailand through effective water management and sustainable agriculture" project proposal dated 23 January 2018 and the UNDP's letter regarding the decrease in the total grant amount and the infrastructure intervention of the subject proposal dated 5 March 2018 (See attachments).

The RID has acknowledged the suggested amount in the financial proposal to the GCF. According to the revised proposal, the financial support from GCF will be reduced form USD 39 million to USD 15 million. Accordingly, the co-financing budget from the RID will be USD 16.26 million during the 5-year implementation period. In addition, RID has allocated USD 17.26 million for the operations and maintenance cost beyond the GCF- funded project period.

We look forward to receiving UNDP Thailand's support in accessing GCF funding for this project which will work to enhance Thailand's capacity to efficiently manage water resources in response to climate change impacts.

The RID would like to reaffirm our support and cooperation in developing and taking this project forward.

Yours sincerely,

(Mr. Thongplew Kongjun)
Director General

Ms. Deirdre Boyd,
UNDP Resident Representative
United Nations Development Programme
12 th Floor,United Nations Building
Rajdamnern Nok Avenue,Bangkok 10200, Thailand

April 17, 2019

No. CSR 52/2019

Subject Krungsri contribution to Thailand GCF Project

To Mr. Renaud Meyer
Resident Representative, UNDP Thailand

With reference to the Thailand GCF Project proposal (Enhancing climate resilience in Thailand through effective water management and sustainable agriculture)("Project") submitted by UNDP Thailand dated January 8, 2019 (see the attachments herewith), considering its goals and objectives, Krungsri deems that the proposed Project will create positive impacts for the community earmarked, as well as socio-economic improvement in the region as a whole.

Additionally, as the key activities initiated by the Project are also in line with Krungsri's core sustainability mandates, Krungsri therefore would like to collaborate with the UNDP with in-kind contributions to the Project. Subject to the Project detail finalization, Krungsri's contributions could include the conduct of "Financial Literacy" training for farmers. We also plan to contribute at the working level in sharing our expertise.

Subject to the detail finalization and budget approval, as well as, non-binding nature, our in-kind support for the period up to 5 years could be offered with the estimated value of THB 3,758,150 (Three Million Seven Hundred Fifty-Eight Thousand One Hundred and Fifty Baht) (see the attachments herewith).

We look forward to positively contributing to the Project for the socio-economic development of the people and community in these areas.

Yours sincerely,

P. Wongthawatchai

(Mr. Poonsit Wongthawatchai)
Executive Vice President, Head of Division
Environmental, Social and Governance Division

Annex E: Timetable of project implementation

COMPONENTS/ OUTPUTS	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Output 1. Enhance climate and risk informed planning in the water and agricultural sectors through improved climate information and cross sectoral coordination																						
1.1. Strengthening capacity to generate tailored climate information to inform water management and agriculture planning			x	x	Daily recommended release from Sirikit and Naraesuan Dam a week ahead cfor RID staffs in water allocation pre-planning.	Mobile Application via iOS or android available for farmers to access water forecast information data in weekly updated																
1.2. Facilitating inter-ministerial coordination for climate-informed and integrated planning						x	x	Computer program installed at Regional Irrigation Office 3 and Yom Nan Operation and Maintenance Project for weekly water forecasting and management plan.													
1.3. Expanding access to climate information for application at the household level							x	x	Training of computer program and mobile application for RID staffs in implementing water forecasted data for weekly water management plan and training a mobile application to farmers.													
Output 2. Improve water management through strengthened infrastructure complemented by EbA measures, for greater resilience to climate change impacts																						

COMPONENTS/ OUTPUTS	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
2.1. Climate-informed engineering designs for the 13 schemes of the Yom-Nan river basin and upgrade of 2 water infrastructure			x	x	x	x	x	x	x	x	x	x	x	x	Klong Muang Chang improvement including appurtenance (two flood gates 2-6×5m)	x	x	x	Co-financing Budget 1. Klong Muang Chang Improvement, including appurtenance (dam construction on the left and right-side, total distance of 23km) 2. Klong Ta Kae Improvement (1 flood gate 4-6×5m)			

COMPONENTS/ OUTPUTS	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
2.2 Complementing of grey infrastructure with EbA measures and integration of EbA approaches into water management policy and planning			x	x	x	Vulnerability and risk assessment, modelling, cause-impact chains and economic evaluation	x	x	x	Prioritization of EbA solutions; finalization of design for three selected EbA measures	x	x	x	Basic/foundation training on climate-sensitive IWRM and EbA as well as advanced technical training on climate-sensitive IWRM and EbA Design based on EbA guidebook and on-the job training series for relevant officials to be able to design specific EbA measures for sustainable integration of EbA in water management policies and plans	x	Documentation of lessons learned in terms of linking local (river basin) level EbA planning and implementation experience with national level policy developments	Establish impact M&E mechanism to capture and monitor quantitative and qualitative changes at river basin scale					
Output 3. Reduce volatility of agriculture livelihoods in drought and flood prone areas through strengthened extension support and local planning, investment in on-farm adaptation measures and greater access to finance and markets																						

COMPONENTS/ OUTPUTS	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
3.1. Application of climate information in household agriculture planning and strengthening of related support through extension services			x	Communication materials/tools for raising awareness on climate adaptation needed, informed adaptation measures and training to communities	x	x	x	Training programme on conservation agriculture, on-farm water storage and aquaculture, linkages to market for diversified crop options	Agriculture practices and agriculture crops or technologies which are less water-intensive (e.g. precision farming, application of Unmanned Aerial Vehicle (UAV)).	Demonstration of the precision agriculture in the selected sites (e.g. Internet of Thing (IoT) sensors will be installed at the farm, drones with multispectral camera will be used for agricultural area survey.)	Training delivery to farmers in 22 sub-districts on using and applying the information from the app developed under Output 1, including the changes to crop choice and crop calendar that may be required due to changing climatic conditions	x	Informed by vulnerability and risk assessment under Output 2 and the climate information of Output 1, district level action plans	x	x	The action plans will also provide a basis for the type of support households in the project area will require. For instance, where assessments indicate water scarcity issues for the village regions of the project target area, action plans may include the constructing of on-farm ponds. Agriculture extension officers will receive training to support the changing needs of farmers in the area.	x	x	x			

COMPONENTS/ OUTPUTS	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
3.2. Implementation of on-farm climate resilient measures to improve drought and flood resilience and improved access to finance for sustainable agriculture													On-farm EbA guidelines for application by farmers				x	Small scale equipment to farmers to support water conservation and soil management				
														x	x	on-farm water storage and aquaculture, linkage to market for diversified crop options, artificial groundwater recharge, underground water traps, enhancing on-farm measures to protect irrigation channels (e.g. vegetating on farm canal buffer zones, planting shade cover areas to minimise evaporation of water along canal ways, and vegetating irrigation infrastructure for flood protection)		Community nurseries to provide alternative livelihood income generation during drought-flood/non-farming periods, and to cultivate and supply climate smart crops, vegetables, and vegetation species for EbA measures implemented in Output 2			

COMPONENTS/ OUTPUTS	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
3.3. Capacity building for farmers to support market access for climate resilient agriculture products											Knowledge products on climate change resilient agriculture-market access, training and access support for farmers	x	x	x	x	Linkages to buyers and markets, requirements for contract farming (incl. hospitals, schools, restaurants)	x	Linkages through rice cooperatives, linkages to local gatherer and processors	Linkages to private sector and community support agriculture (CSA) for larger markets at Phitsanulok province, and comprising of larger market buyers, processor, cooperative			
Project Monitoring*		Inception Report			APR				APR		Interim Evaluation		APR				APR				Project Completion Report	Terminal Evaluation

APR = Annual Performance Report.

* In addition to this monitoring requirements, the Funded Activity is also subject to financial reporting per the AMA/FAA, such as Unaudited/Audited Financial Statements, Financial information reports, and other reports as defined in this Agreement.

The first 2 quarters will mostly be for project start up and establishment of PMU. Starting from Q3, some of project activities are expected to start and x means an activity will start and/or take place in the correlated quarters.

Annex F: Procurement and HR plans

1. Estimated Goods and Works Contracts

The following table lists goods and works contracts for which procurement activity is either ongoing or expected to commence within the **first 12 months**.

Procurement Category	General Description	Estimated Contract Total (USD)	Procurement Method	Prequalification of Bidders	Start of Procurement Process	Type of assignment	Type of Competition
Supplies	Stationary and other office supplies	10,000	Request for Quotation	No	Y1-Q1	National	Limited international or national
Information Technology Equipment	Office equipment - 5 laptops and 1 printer	15,000	Request for Quotation	No	Y1-Q1	National	Limited international or national
Rental & Maintenance of Other Equip	Project vehicle rental for project activities in the river basin $80 day*400 days	32,000	Request for Quotation	No	Y1-Q1	National	Limited international or national
Contractual services - companies	Construction company hired for the improvement of Khlong Muang Chang canal regulator and appurtenant (located in Kong Krai Lat district, Sukhothai province). This would include water diversion activities during the construction, two flood gates (6.00x5.00m); four drainages; and two power distribution system expansions	5,000,000	Invitation to Bid	No	Y1-Q1	National	Open international or national

2. Estimated Consulting and Services Contracts

The following table lists consulting and services contracts for which procurement activity is either ongoing or expected to commence within the first 12 months.

Procurement Category	General Description	Estimated Contract Total (USD)	Procurement Method	Start of Procurement Process	Type of assignment	Type of Competition
Audio Visual & Print Prod Costs	Printing costs of training materials including mobile app manual on climate decision on water forecast, SOP on climate data sharing, communications materials and reports, etc. – for activity 1.2	10,000	Request for quotation / LTA	Y1-Q1	National	Limited international or national
Training, Workshops and Conference	Organization of committee meetings for information sharing across government stakeholders established under the TMD mechanism/forum (@USD3,000/time, 2 times/year over 5 years)	30,000	Request for quotation / LTA	Y1-Q3	National	Limited international or national
	Organization of existing inter- ministerial stakeholder committee meetings (@USD 3,000/time, 2 times/year over 5 years)	30,000	Request for quotation / LTA	Y1-Q3	National	Limited international or national
	Organization of foundation trainings / workshops on the concept of climate sensitive IWRM and EbA. (12 meetings with 20 to 25 pax; app. $1,300 for one workshop)	15,600	Request for quotation/LTA	Y1-Q2	National	Limited international or national

Procurement Category	General Description	Estimated Contract Total (USD)	Procurement Method	Start of Procurement Process	Type of assignment	Type of Competition
	Organization of a 3-4 days training / role play for members of the RBC, the RBC secretariat and representatives of the community in the selected sub-river basins on multi-stakeholder dialog processes, dealing with conflicting stakeholder interests and result- based design and monitoring of project activities - app. 16 participants / potential change agents (GIZ training package of app. $1,250/pax)	20,000	Request for quotation/LTA	Y1-Q2	National	Limited international or national
	Inception workshop	9,600	Request for quotation/LTA	Y1-Q1	National	Limited international or national
	Boarding meeting (2 times/year - $1,500/time) over 5 years	15,000	Request for quotation/LTA	Y1-Q3	National	Limited international or national
Contractual services - companies	Consultancy company or institution to review existing practices for dissemination climate data, develop SOPs for developing and sharing information for public planning as well as household application, developing and sharing information, and capacity building (6 months)	200,000	Request for proposal	Y1-Q1	National	Open international
	Consultancy company hired to prepare information brief and reports for circulation in local and social media as well as develop complementary website for interactive information dissemination in line with climate information application (3 months)	100,000	Request for quotation	Y1-Q1	National	Limited international or national
	Consultancy company hired to develop smartphone and Line application for household as well as conduct capacity building (3 months)	100,000	Request for quotation	Y1-Q1	National	Limited international or national
	Consultancy company for ESMF related activities including updating and auditing ESMF ($10,000), general ESMF expenses ($20,000), ecological monitoring ($120,000), water quality monitoring ($150,000), water quality sample laboratory ($60,000), sediment sample field testing ($90,000), sediment sample laboratory analysis ($90,000), erosion, drainage and sediment control ($75,000), stakeholder engagement workshops for ESMF ($100,000), grievance redress mechanism ($50,000)	765,000	Request for proposal	Y1-Q1	National	Open international
	Consultancy company hired for installation of local climate and water monitoring equipment in the project sites. The installation will include that of the following: Server, Flow Radar, Meteorological Station, CCTV, Drone, Water level measurement in the Lake, Groundwater measurement, Water level measurement in a cropping plot, Soil moisture meter, Maintenance fee for telemetry system, Spare parts for small telemetry system. (6 months)	778,000	Request for proposal	Y1-Q1	National	Open international
	Consultancy company to develop the full scope and details for the climate information processing unit mandate, including training the model (usage), piloting (validation), training mobile app usage (6 months)	76,600	Request for quotation	Y1-Q1	National	Limited international or national
	Consultancies for risk identification, cause-effect analysis to identify the root-causes of issue ex. floods or water scarcity due to negative impact of Climate	132,000	Request for quotation	Y1-Q1	International	Limited international or national

Procurement Category	General Description	Estimated Contract Total (USD)	Procurement Method	Start of Procurement Process	Type of assignment	Type of Competition
	Change. Propose and prioritize suitable EbA measures to RBC (could be 1-3 contracts for the 3 locations) - (6 months per contract)				/National	
	Consultancies for the economic evaluation for proposed EbA measures - The economic analysis of the proposed EbA measures is linked with an on-the-job training session at 3 locations (could be 1-3 contracts for the 3 locations) - (6 months per contract)	132,000	Request for quotation	Y1-Q1	International/ National	Limited international or national
	Consultancies for the final design of selected EbA measures - Collaboration of international expertise and local wisdom, in order to design the most beneficial and sustainable EbA measures (could be 1-3 contracts for the 3 locations) - (3 months per contract)	192,000	Request for proposal	Y1-Q1	International	Open international
Individuals to be hired via Contractual services - company	Project Manager (5 years)	276,000	Request for proposal	Y1-Q1	National	Open international
	Project Coordinator (5 years)	150,000	Request for proposal	Y1-Q1	National	Open international
	Field Coordinator (5 years)	96,000	Request for proposal	Y1-Q1	National	Open international
	Senior Finance Advisor (5 years)	150,000	Request for proposal	Y1-Q1	National	Open international
	Finance and Admin Officer (5 years)	96,000	Request for proposal	Y1-Q1	National	Open international
	National consultant - Agricultural specialist (1 person, 6 months/year for 5 years)	120,000	Request for proposal	Y1-Q1	National	Open international
	National consultant – Agricultural Marketing expert (1 person, 6 months/year for 5 years)	78,000	Request for proposal	Y1-Q1	National	Open international
	National consultant - Economics and finance specialist (1 person, 6 months/year for 5 years)	96,000	Request for proposal	Y1-Q1	National	Open international
	National consultant - Community relations and public participation specialist (1 person, 6 months/year for 5 years)	78,000	Request for proposal	Y1-Q1	National	Open international
	National consultants - Assistant specialists to provide coordination support on farm activities in 22-sub districts of the project area as well as to assist in developing the on- farm adaptation measures. (2 persons, 12 months/year for 5 years)	111,000	Request for proposal	Y1-Q1	National	Open international
	National consultants - Desk assistants to support survey data processing in 3 provinces of the project area and assist the national consultants in communication, economic, and agricultural marketing as well as assist in logistic arrangement for local events with farmers (2 persons, 12 months/year for 5 years)	45,000	Request for proposal	Y1-Q1	National	Open international
Consultants	International consultants to provide technical guidance and advise on the intended change processes at institutional and technical as well as at policy and planning levels. The team will consist of a team leader and a senior IWRM and EBA specialist (rounded average daily rate of $960*740 days)	710,400	Request for proposal	Y1-Q1	International	Open international
Travels	Travels for consultants for implementation of project activities over 5 years	139,000	Request for quotation / LTA	Y1-Q1	National	Limited international or national

Procurement Category	General Description	Estimated Contract Total (USD)	Procurement Method	Start of Procurement Process	Type of assignment	Type of Competition
	Travels for PMU for programme and site monitoring visits over 5 years	150,000	Request for quotation / LTA	Y1-Q1	National	Limited international or national

3. Indicative List of Packages Required Under the Project

The following table provides an indicative list of all procurement (goods and works, consulting services and Human Resources i.e. Project staff) over the life of the project.

GOOD &WORKS

PROCUREMENT METHOD 1: MICRO-PURCHASING

N/A

PROCUREMENT METHOD 2: REQUEST FOR QUOTATION

General Description	Estimated Value (Cumulative)	Estimated Number of Contracts	Type of competition
Project vehicle rental for project activities in the river basin $80 day*400 days	32,000	1	Limited international or national
On-farm water resources development (100 on farm ponds in Yr1-Yr3; USD 1,000/pond)	100,000	1	Limited international or national
Stationery and other office supplies	10,000	1	Limited international or national
Office equipment – 5 laptops and 1 printer	15,000	1	Limited international or national

PROCUREMENT METHOD 3: INVITATION TO BID

General Description	Estimated Value (Cumulative)	Estimated Number of Contracts	Type of competition
Consultancy company hired for installation of local climate and water monitoring equipment in the project sites. The installation will include that of the following: Server, Flow Radar, Meteorological Station, CCTV, Drone, Water level measurement in the Lake, Groundwater measurement, Water level measurement in a cropping plot, Soil moisture meter, Maintenance fee for telemetry system, Spare parts for small telemetry system. (6 months)	778,000	1	Open international
Construction company hired for the improvement of Khlong Muang Chang canal regulator and appurtenant (located in Kong Krai Lat district, Sukhothai province). This would include water diversion activities during the construction, two flood gates (6.00x5.00m); four drainages; and two power distribution system expansions (12 months)	5,000,000	1	Open international
Consultancies to carry out the selected EBA measures in the 3 locations. The number of contracts is to be determined later, based on the selection of EBA measures. Note: This total amount is estimated based on previous pilot EbA demonstration project funded by the Department of Water Resources, under the Ministry of Natural Resources and Environment. It costs about 413,000 USD per each EbA measure. The final suitable selected EbA measures will be determined after the site survey and study and stakeholders consultation in Year 1-3. (6 months)	1,240,300	1-3	Open international
Community nurseries and supply crops, vegetables, vegetable species for 22 sub-districts for 4 years ($3,000/sub-district)	264,000	1	Open international

General Description	Estimated Value (Cumulative)	Estimated Number of Contracts	Type of competition
Soil conservation management practices integrated with FFS education on soil conservation - with incentives for farmer startups for 22 sub-districts (10 times/sub-district/4 years, @$1,600/time)	352,000	1	Open international
Small equipment for adaptation action with farmers such as water pump for rainy and dry seasons, small cultivators, rotary weeders, on-farm water level measurement (tube gauges), etc.	682,557	1	Open international

SERVICES & CONSULTANCIES

PROCUREMENT METHOD 1: MICRO-PURCHASING

General Description	Estimated Value (Cumulative)	Estimated Number of Contracts	Type of competition
Inception Workshop	9,600	1	Limited international or national
Travel costs for consultants to conduct independent and external mid-term and terminal evaluations	9,600	1	Limited international or national

PROCUREMENT METHOD 2: REQUEST FOR QUOTATION

General Description	Estimated Value (Cumulative)	Estimated Number of Contracts	Type of competition
International consultant to co-design financial credit with BAAC (approx. $800 for 20 days)	16,000	1	Limited international or national
National consultant to co-design financial credit with BAAC (approx. $800 for 20 days)	20,000	1	Limited international or national
Organization of 2-day staff capacity building training workshops (30 pax from TMD, RID, others at USD 5,000/time, 2 times/year starting in Year 3) – for activity 1.1	30,000	4-6	Limited international or national
Consultancy company to develop the full scope and details for the climate information processing unit mandate, including training the model (usage), piloting (validation), training mobile app usage (6 months)	76,600	1	Limited international or national
Printing costs of training materials including mobile app manual on climate decision on water forecast, SOP on climate data sharing, communications materials and reports, etc. – for activity 1.2	10,000	1	Limited international or national
Organization of committee meetings for information sharing across government stakeholders established under the TMD mechanism/forum (@USD 3,000/time, 2 times/year over 5 years)	30,000	5-7	Limited international or national
Organization of existing inter-ministerial stakeholder committee meetings (@USD 3,000/time, 2 times/year over 5 years)	30,000	5-7	Limited international or national
Consultancy company hired to prepare information brief and reports for circulation in local and social media as well as develop complementary website for interactive information dissemination in line with climate information application (3 months)	100,000	1	Limited international or national
Consultancy company hired to develop smartphone and Line application for household as well as conduct capacity building (3 months)	100,000	1	Limited international or national
Travels and DSA for international and national consultants under activity 2.2 for 5 years.	71,000	1	Limited international or national

General Description	Estimated Value (Cumulative)	Estimated Number of Contracts	Type of competition
Digital solution-based M&E mechanism to capture and monitor quantitative and qualitative changes at river basin scale is established in collaboration with academia and linked to local and national monitoring system(s) of partners like HII for the documentation of and reporting on (nature/ecosystem based) adaptation actions in the water sector. The M&E is focused on the impact evaluation of the EbA measures.	50,000	1	Limited international or national
Organization of foundation trainings/workshops on the concept of climate sensitive IWRM and EbA. (12 meetings with 20 to 25 pax; app. $1,300 for one workshop)	15,600	1	Limited international or national
Organization of advanced technical on-the job training / objective-based learning at river-basin scale in line with the consultancy missions (7 sessions during a 3 year period with 12-15 selected participants of local government agencies - 3 teams 4-5 pax ($14,000); plus one learning, dissemination, exchange, and training visit to a selected country in Southeast Asia (South-South knowledge exchange) in year 2, a 5-day exposure visit for the three teams, (app. $18,750 for regional travel and DSA for 15 people); plus an international study trip for the best team in combination with the participation at a related international seminar / workshop for the presentation of the project results (award for the best team + lead change agents; app. $21,250 for international travel and DSA)	54,000	1	Limited international or national
Organization of a 3-4 days training / role play for members of the RBC, the RBC secretariat and representatives of the community in the selected sub-river basins on multi-stakeholder dialog processes, dealing with conflicting stakeholder interests and result-based design and monitoring of project activities - app. 16 participants / potential change agents (GIZ training package of app. $1,250/pax)	20,000	1	Limited international or national
Consultancies for risk identification, cause-effect analysis to identify the root-causes of issue ex. floods or water scarcity due to negative impact of Climate Change. Propose and prioritize suitable EbA measures to RBC (could be 1-3 contracts for the 3 locations) - (6 months per contract)	132,000	1	Limited international or national
Consultancies for the economic evaluation for proposed EbA measures - The economic analysis of the proposed EbA measures is linked with an on-the-job training session at 3 locations (could be 1-3 contracts for the 3 locations) – (6 months per contract)	132,000	1-3	Limited international or national
Organization of Training of Trainers (TOTs): extension officers (one time/year for 4 years, @ $4,300/time). 35 pax expected – activity 3.1	17,200	4	Limited international or national
Organization of training of agricultural extension and LD officers (one time/year for 4 years, @ $4,300/time). 35 pax expected – activity 3.1	17,200	4	Limited international or national
Organization of workshops to provide technical support to farmers to apply vulnerability assessment and climate information to agricultural decisions in 22 sub-districts (@$25,000/year, a total of 60 workshops approx. in 4 years)	100,000	4	Limited international or national
Establishment of FFS to complement and support the activities of agricultural services in 22 sub-districts (4 times/sub-districts/4 years, @$1,700/time)	149,600	4	Limited international or national
Travels and DSA for national consultants for Output 3 (Approximately USD$1,000 for 4 nights DSA + ticket x 18 trips per year for national consultants and 9 trips for CTA, M&E Officer, and Gender Responsive Climate Data Officer	139,000	1	Limited international or national
Communications and printing costs e.g. outreach communication materials including fact sheets, roll up, posters and reports	30,000	1	Limited international or national
Audit costs	27,341	1	Limited international or national

General Description	Estimated Value (Cumulative)	Estimated Number of Contracts	Type of competition
Organization of board meetings (2 time/year for 5 years)	15,000	1	Limited international or national
National consultant - Agricultural specialist (1 person, 6 months/year for 5 years)	120,000	1	Limited international or national
National consultant - Agricultural Marketing expert (1 person, 6 months/year for 5 years)	78,000	1	Limited international or national
National consultant - Economics and finance specialist (1 person, 6 months/year for 5 years)	96,000	1	Limited international or national
National consultant - Community relations and public participation specialist (1 person, 6 months/year for 5 years)	78,000	1	Limited international or national
National consultants - Assistant specialists to provide coordination support on farm activities in 22-sub districts of the project area as well as to assist in developing the on-farm adaptation measures. (2 persons, 12 months/year for 5 years)	111,000	2	Limited international or national
National consultants - Desk assistants to support survey data processing in 3 provinces of the project area and assist the national consultants in communication, economic, and agricultural marketing as well as assist in logistic arrangement for local events with farmers (2 persons, 12 months/year for 5 years)	45,000	2	Limited international or national
Travel costs for PMU for programme implementation and site visits (transportation, fuel, per diem, etc.) over 5 years	150,000	1	Limited international or national
International consultants to conduct independent and external mid-term and terminal evaluations ($18,000 each) – 30 days during 3 month-period	36,000	2	Limited international or national
National consultants to conduct independent and external mid-term and terminal evaluations ($15,000 each) - – 30 days during 3 month- period	30,000	2	Limited international or national
National technical consultants for specific technical designs, development of guidebooks and technical trainings as well as training support (195 days*$400)	78,000	1	Limited international or national

PROCUREMENT METHOD 3: REQUEST FOR PROPOSAL

General Description	Estimated Value (Cumulative)	Estimated Number of Contracts	Type of competition
Consultancy company or institution to review existing practices for dissemination climate data, develop SOPs for developing and sharing Consultancy company or institution to review existing practices for dissemination climate data, develop SOPs for developing and sharing information for public planning as well as household application, developing and sharing information, and capacity building (6 months)	200,000	1	Open international
Consultancies for the final design of selected EbA measures - Collaboration of international expertise and local wisdom, in order to design the most beneficial and sustainable EbA measures (could be 1-3 contracts for the 3 locations) – (3 months per contract)	192,000	1-3	Open international
Organization of farmer to farmer knowledge sharing through FFS, e.g. site visit for FFS at Jom Thong sub-district as well as provision of support on market access for farmers (10 times/sub-district/4 years, @$2,000/time)	440,000	4	Open international
Climate Resilience and Smart Farming – The Internet of Things (IoT) 1 platform for each district	1,347,500	1	Open international

General Description	Estimated Value (Cumulative)	Estimated Number of Contracts	Type of competition
Detailed breakdown provided below: - Drone kit for Multispectral Camera (for Vegetation indices NDVI) including camera - 28,000 - Drone kit for spaying liquids - 15 liters - 20,000 - On ground IoT sensor node (Smart Agriculture Solution Kit including battery and solar panel) for monitoring soil and surface temperature, electrical conductivity, water content, and etc. - 3,500x20 - 70,000 - Others including tablet, IoT gateway, data server and cloud storage, data communicaiton - 26,500 - On cloud based Application/Agricultural Software / Precision Agriculture / Management / Monitoring - 20,000 - Technical Support for setting the platform and Training and misc - 105,000 Total: $269,500/ platform			
Consultancy company for ESMF related activities including updating and auditing ESMF ($10,000), general ESMF expenses ($20,000), ecological monitoring ($120,000), water quality monitoring ($150,000), water quality sample laboratory ($60,000), sediment sample field testing ($90,000), sediment sample laboratory analysis ($90,000), erosion, drainage and sediment control ($75,000), stakeholder engagement workshops for ESMF ($100,000), grievance redress mechanism ($50,000)	765,000	1	Open international
Company hired to develop an online market platform for farming products - to be operated mainly by local women - including salaries (Administrator, Content and Branding Creator, and Packing & Stock Control), office rental fee, furnishing expense, and office equipment, utility expenses, shipping fee, packing cost	464,000	1	Open international
Project staff contracts to be hired through a company:			Open international
- Project Manager (5 years)	276,000	1	
- Project Coordinator (5 years)	150,000	1	
- Senior Finance Advisor (5 years)	150,000	1	
- Field Coordinator (5 years)	96,000	1	
- Finance and Admin Officer (5 years)	96,000	1	
International consultants to provide technical guidance and advise on the intended change processes at institutional and technical as well as at policy and planning levels. The team will consist of a team leader and a senior IWRM and EBA specialist (rounded average daily rate of $960*740 days)	710,400	2	Open international
National consultants (x3) to provide technical advice, facilitation of capacity development measures and management of multi-governance and multi-stakeholder dialog processes at river basin scale as well as M&E; link to river basin committee (RBC) and national policy level (ONWR + ONEP) for reflection of standards and contributions to NDC adaptation priorities and NAP reporting. The team will consist of a senior advisor and community development specialist, IWRM & EBA specialist, and training officer (rounded average daily rate of $450*1,840 days)	828,000	3	Open international

HUMAN RESOURCES PLAN

General Description	Estimated Value (Cumulative) (USD)	Recruitment Method	Start of Recruitment process	Type of Competition
Chief Technical Advisor (5 years)	252,000	HR Recruitment	Y1-Q1	Open international
M&E Officer (5 years)	228,000	HR Recruitment	Y1-Q1	Open international
Gender Responsive Climate Data Officer (5 years)	66,000	HR Recruitment	Y1-Q1	Open international

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

Project Board: The Project Board (also called the Project Steering Committee) is the most senior, dedicated oversight body for a project. The two prominent (mandatory) roles of the project board are: a) High-level oversight of the execution of the project by the Implementing Partner; and b) Approval of strategic project execution decisions of the Implementing Partner.

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 once.
- 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 logs 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 manager's tolerances as required, within the parameters outlined in the project document, and provide direction and advice for exceptional situations when the project manager'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 manager 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/NCE 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.

Key Project Staff

Project Manager :

The Project Management Unit (PMU) will be established, composing of five staff, including: Project Manager, Project Coordinator, Field Coordinator, Senior Fiance Advisor and Finance and Admin Officer. The PMU is under direct supervsion of the National Project Director and under technical guidance and support of UNDP, the Chief Technical Advisor, M&E Officer and Gender Responsive Climate Data Officer.

The Project Manager (PM) will be responsible for the overall management of the Project, including mobilisation of all project inputs, supervision of PMU project staff, consultants and sub-contractors.

Duties and Responsibilities

- Manage the overall conduct of the project.
- Plan the activities of the project and monitor progress against the approved workplan.
- Execute activities by managing personnel, goods and services, training and low-value grants, including drafting terms of reference and work specifications, and overseeing all contractors' work.
- Monitor events as determined in the project monitoring plan, and update the plan as required.
- Provide support for completion of assessments required by UNDP, spot checks and audits.
- Manage requests for the provision of UNDP financial resources through funding advances, direct payments or reimbursement using the FACE form.
- Monitor financial resources and accounting to ensure the accuracy and reliability of financial reports.
- Monitor progress, watch for plan deviations and make course corrections when needed within project board-agreed tolerances to achieve results.
- Monitor project progress and participate in the production of progress reports ensuring that they meet the necessary reporting requirements and standards;
- Ensure that changes are controlled, and problems addressed.
- Perform regular progress reporting to the project board as agreed with the board, including measures to address challenges and opportunities.
- Prepare and submit financial reports to UNDP on a quarterly basis.
- Manage and monitor the project risks – including social and environmental risks - initially identified and submit new risks to the Project Board for consideration and decision on possible actions if required; update the status of these risks by maintaining the project risks log;
- Capture lessons learned during project implementation.
- Prepare revisions to the multi-year workplan, as needed, as well as annual and quarterly plans if required.
- Prepare the inception report no later than one month after the inception workshop.
- Ensure that the indicators included in the project results framework are monitored annually in advance of the GCF APR submission deadline so that progress can be reported in the GCF APR.

- Prepare the GCF APR;
- Assess major and minor amendments to the project within the parameters set by UNDP-BPPS/NCE;
- Monitor implementation plans including the gender action plan, stakeholder engagement plan, and any environmental and social management plans;
- Monitor and track progress against the GCF Core indicators.
- Support the Mid-term review and Terminal Evaluation process.

Required skills and expertise

- A university degree (MSc or PhD) in a subject related to natural resource management, environmental sciences, environmental engineering, public administration, political science, law or relevant discipline for sustainable development.
- At least 10 years of demonstrable project/programme management experience, with competency in result-based management and logical framework
- At least 10 years of experience working with ministries, national or provincial institutions that are concerned with natural resource and/or environmental management, agriculture
- A minimum of 7 years experience in leading and managing team for sustainable development related projects/programmes, with government, international organization or private sector.

Competencies

- Strong leadership, managerial and coordination skills, with a demonstrated ability to effectively coordinate the implementation of large multi-stakeholder projects, including financial and technical aspects.
- Ability to effectively manage technical and administrative teams, work with a wide range of stakeholders across various sectors and at all levels, to develop durable partnerships with collaborating agencies.
- Ability to administer budgets, train and work effectively with counterpart staff at all levels and with all groups involved in the project.
- Ability to coordinate and supervise multiple Project Implementation Units in their implementation of technical activities in partnership with a variety of subnational stakeholder groups, including community and government.
- Strong drafting, presentation and reporting skills.
- Strong communication skills, especially in timely and accurate responses to emails.
- Strong computer skills, in particular mastery of all applications of the MS Office package and internet search.
- Strong knowledge about the political and socio-economic context related to the Thailand protected area system, biodiversity conservation and law enforcement at national and subnational levels.
- Excellent command of English and Thai, both verbal and written.

Project Coordinator

Under the supervision on the Project Manager, the Project Coordinator will manage day-to-day project management and oversee regular monitoring of project results and risks, including social and environmental risks. To ensure engagement of all direct stakeholders and delivery of project objective, he/she will facilitate coordination with the Ministries, Government agencies and UNDP. The National Project Coordinator will develop annual work plans to support the efficient implementation of the project. The Project Coordinator will ensure that the standard UNDP and GCF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for evidence-based reporting in the Annual Project Report, and that the monitoring of risks and the various plans/strategies developed to support project implementation (e.g. Environmental and social management plan, gender action plan etc.) occur on a regular basis.

Duties and Responsibilities

- Support Ministry of Environment, ONEP, RID and UNDP for implementation of project in consultation with State Governments.
- Support development of strategies for sustainability and upscaling the project activities.
- Any other responsibility related to the project portfolio assigned by the supervisors.
- Provide direction and guidance to project team/ responsible parties.
- Liaise with the Project Board to assure the overall direction and integrity of the project.
- Identify and obtain any support and advice required for the management, planning and control of the project;
- Responsible for project administration; plan the activities of the project and monitor progress against the project results framework and the approved annual workplan.
- Mobilize personnel, goods and services, training and micro-capital grants to initiative activities, including drafting terms of reference and work specifications, and overseeing all contractors' work.
- Monitor events as determined in the project monitoring schedule plan/timetable, and update the plan as required.
- Collect both qualitative and quantitative data from all project sites for feeding to project indicators and keep track of project performance indicators progress based on donor requirements.
- Consolidate data from each output in order to reporting the project indicators.
- Be responsible for preparing and submitting financial reports to UNDP on a quarterly basis;
- Monitor project activities progress per output from all project sites.
- Visit project sites to appraise project progress on the ground and written progress reports.
- Manage requests for the provision of financial resources by UNDP, through advance of funds, direct payments or reimbursement using the fund authorization and certificate of expenditures.
- Monitor financial resources and accounting to ensure the accuracy and reliability of financial reports.
- Manage and monitor the project risks initially identified and submit new risks to the project board for consideration and decision on possible actions if required; update the status of these risks by maintaining the project risks log.
- Capture lessons learned during project implementation.
- Prepare the annual workplan for the following year; and update the Atlas Project Management module if external access is made available.
- Prepare the Annual Project Report and submit the final report to the Project Board.
- Based on the Annual Project Report and the Project Board review, prepare the AWP for the following year.
- Ensure the interim evaluation process is undertaken as per the UNDP guidance, and submit the interim evaluation report to the Project Board.
- Identify follow-on actions and submit them for consideration to the Project Board.

Required skills and experience

- Master's degree (or higher academic qualification) from a recognised institution in Environmental Sciences/ Environment Management/ Sustainable development /Social science / public policy.
- At least 7 years of programme / project management experience. Experience on working with large, multi-scale projects and organisations is preferable.
- At least 7 years of relevant post Master experience at the national level on climate change and relevant development programmes and projects.
- Outstanding communication, project management and organisation skills
- Experience of working with Central and / or State Governments on similar assignments will be preferred.
- Familiarity with the working environment and professional standards of international organisations and national and state governments.
- Experience in the usage of computers and office software packages, experience in handling of web-based management systems is essential.

- Excellent command of English and Thai, both verbal and written.

Competencies

- Demonstrates integrity and ethical standards;
- Promotes the vision, mission, and strategic goals of the organization
- Ability to effectively manage technical and administrative teams, work with a wide range of stakeholders across various sectors and at all levels, to develop durable partnerships with collaborating agencies.
- Ability to administer budgets, train and work effectively with counterpart staff at all levels and with all groups involved in the project.
- Strong communication skills, especially in timely and accurate responses to emails.
- Excellent command of English and Thai, both verbal and written.

Senior Finance Advisor

Duties and Responsibilities

Under the overall guidance and supervision of the Project Manager, the incumbent is responsible for the financial management of the project including the overall budget and expenditures according to the Project Document, advising the Government, Project Management Unit and the UNDP on the need for budget revision and/or off-track activities, and presenting financial analysis at Project Board meetings.

Duties and responsibilities

1.Administration and implementation of operational and financial services for the project

- Assist the Project Manager with planning, formulating, tracking of the project budget;
- Ensure full compliance of the project with UNDP and GCF rules and regulations on financial processes, financial records, reports and audit as well as effective and the internal controls frameworks;
- Maintain an Activity-based expenditure table to monitor expenditure on a real-time basis; ensure that the expenditures are in line with the approved Annual Work Plan;
- Carry out an analysis, as needed, on the expenditure projection based on the deviation of the actual expenditures from the AWP and keep the members of the PMU, Government and UNDP informed of the risk of under-delivery;
- Provide the information/reports on the financial/accounting situation of the project and propose solutions to improve the situation;
- Oversee that the financial/accounting data is accurate in Atlas and take timely corrective actions on erroneous data;
- Accurate verification of Combined Delivery Reports;
- Provision of necessary financial reports and analyses for donor reporting;
- Verification and reconciliation of various expenditure reports from the Responsible Party(ies);
- Preparing and process payment requests as requested by the Project Director and Project Manager

2. Administrative support to the PMU

- Maintain PMU documentation in electronic and/or hard copy format (including financial records such as supporting documents for vouchers and POs), according to UNDP policies and guidelines;
- Maintains and regularly updates project counterpart contacts database;
- Review and compile necessary documentations during procurement process;
- Review and verifies invoices and common services expenses charged to the PMU budget (rent, utilities, phone, miscellaneous);

3.Facilitation of knowledge building and knowledge sharing

- Advice to Project staff on UNDP administrative and reporting, in particular, on budgetary issues;
- Organize trainings for the project staff on financial management;
- Synthesize lessons learned and best practices in programme and project finance;
- Sound contributions to knowledge networks and communities of practice.

Required skills and experience

- Secondary Education, with specialized certification in Accounting and Finance. University Degree in Finance, Business or Public Administration desirable.
- Part-qualified accountants from a nationally recognized institute of accountancy will have a distinct advantage.
- At least 5 years of budgeting, planning and reporting on foreign funded projects; and experience with international auditing requirements;
- Strong organizational skills and understanding of administrative procedures; Knowledge in administrative procedures of the Government is an advantage;
- Strong analytical and practical problem-solving skills, good inter-personal and team building skills, inter-personal communications and coordination skills;
- Knowledge and accounting experience with organizations is an advantage; Knowledge and working experience in similar position for UN agencies or UNDP projects with good reference would be an asset.
- Good knowledge of a computer-based accounting software; Advance computer skill, with high proficiency in the use of standard office software applications (e.g. Microsoft Word, Excel and PowerPoint).
- Good command of English and Thai, both verbal and written.

Competencies

- Demonstrate corporate knowledge and sound judgment
- Self-development, initiative-taking
- Acting as a team player and facilitating team work
- Facilitating and encouraging open communication in the team, communicating effectively
- Creating synergies through self-control
- Managing conflict
  Learning and sharing knowledge and encourage the learning of others. Promoting learning and knowledge management/sharing is the responsibility of each staff member

National Field Coordinator

The National Field Coordinators will complete below task at PMU.

Duties and Responsibilities

Project Management at municipal level

- Coordinate/liaise with municipal level partners and stakeholders as well as municipal authorities to ensure attainment of project outputs by assuming overall responsibility for the management and coordination of project activities at the target municipality.
- Support the quality and timely preparation of the work plan and project progress reports including financial report as required by major stakeholders and the country office on a regular and demand driven base.
- Ensure that project activities are selected and designed in gender-responsive manner, ensure voice and participation of women in the process of project implementation.
- Ensure that the implementation of the project activities at municipal level is carried out in the most effective and expeditious manner.
- Carry out regular monitoring to ensure measurement of project achievement against expected outcomes and outputs.
- Prepare reports and lessons learnt and send to the Project Manager and CTA for further compilation and dissemination
- Support in evaluating completed project activities with the special emphasis on the result of UNDP's contributions in order to assess the effectiveness and impact of UNDP assistance.

Project Coordination and Partnership Building

- Identify key partners at the target municipality for achieving the objectives of the project
- Undertake wide consultations with local communities, local authorities, local experts, and other stakeholders to facilitate consensus building, conflict resolution and cooperation and synergy
- Coordinate the preparation, revision and update of a baseline assessment (BA), conceptual model and indicators for monitoring project progress and evaluating its impact, including the collection of information
- Coordinate project activities implementation at the target municipality
- Maintain strong working partnerships with relevant local authorities and the UNDP Country Office (UNDP CO) and ensure they are kept well informed of all relevant project activities
- Foster, establish and maintain links with other related projects and collaborative actors in municipality
- Liaise and coordinate with UN agencies, NGOs and other agencies involved in support of the local community

Operations and Financial Management

- Prepare action plans, analyze strategic and efficient utilization of resources/budget, as well as work plans in consultation with the appropriate local stakeholders
- Ensure that UNDP rules and procedures are dully applied in all areas of project interventions including procurement of goods and services
- Maintain the financial integrity of the project and reporting on all financial issues to Project Manager, UNDP at agreed upon times
- Provide relevant logistical and information support for UNDP team and consultants in relation to their field work, monitoring and evaluation

Capacity Building and knowledge Management

- Identify capacity building and training needs of communities and identifying the human and institutional resources to meet those needs
- Provide technical assistance and support to the community, CBOs and NGOs for project development, including design and application of indicators and grants monitoring activities

- Locate technical and other assistance from local and national NGOs, and agencies that can be channeled to project proponents for project preparation and/or implementation
- Assist in the organization of training for local experts and community as required.
- Synthesis lessons learnt and best practices in project
- Organize experience exchange workshops with stakeholders as well as field visits to facilitate lesson learning and enhance communication among different community
- Participate in the preparation of analytical case studies on project activities and issues, and disseminate knowledge products and communication materials
- Provide continuous information updates for the country office database, as well periodic progress reports
- Disseminate guidelines and information material to CBOs and NGOs seeking financial and technical support under the project
- Provide input in development of communication materials such as success stories and news articles to communicate project activities and results/impact
- Assume any other function as requested by the Chief Technical Advisor/ Project Manager

Required skills and experience

- University Degree in **environmental management, local development, agriculture/forestry, development studies, project management, or any relevant field**
- **4 years of relevant experience in coordinating/managing environmental/agriculture/natural resource management project at municipal level**
- **Use of computer (e.g., MS Project and Excel).**
- **Experience working with/in collaboration the Ministry of State Administration – PDIM/PNDS process and/or Ministry of Agriculture on water management/climate resilient**
- **Previous experience working in the UN system is an advantage**
- Proficiency in spoken and written English

Competencies

- **Self-development, initiative-taking;**
- **Managing conflict;**
- **Learning and sharing knowledge and encourage the learning of others;**
- **Informed and transparent decision making.**
- Demonstrates commitment to UNDP's mission, vision and values
- Displays cultural, gender, region, race, nationality and age sensitivity and adaptability

Project Finance and Admin Officer

The Project Finance and Admin Officer will have the following specific responsibilities:

Duties and Responsibilities

- Assistance in preparation of documents, guidelines, presentation and follow up on finance related matters with partners
- Maintain financial records, petty cash and monitor systems to record and reconcile expenditures, balances, payments, statements and other data for day-to day transactions and reports.

- Draft reports and other routine correspondence, collation, compilation and organization of data and information.
- Prepare monthly, quarterly and annual expenditure statement, FACE form, Utilization certificate as per General Financial Rules 2012, bank reconciliation certificate and other financial reports as and when required.
- Assist in preparation of legal documents for contracting and procurement of goods and services, including maintenance and physical verification of assets.
- Regularly monitor and provide updates to the supervisor on utilization of funds under various activities as per the Annual Work Plan.
- Maintain office archives and other documentation, including proper maintenance and update of leave records, stationery stock etc.
- Assist in all financial reporting functions to the National Project Steering Committee (NPSC), Technical Committee and the State Project Steering Committee (SPSC)
- Coordinate with banks, other vendors and other government departments/ institutions on financial information;
- Maintain a roster of files on project activities, project reports, vehicle log book, project assets, etc.;
- Ensure timely payments of vendors, travel and other claims
- Assist in the budget component of the annual work plan for the following year, as well as quarterly plans;
- Uploading important documents like BTORs, minutes etc. in PIMS;
- Assist in convening meetings, preparation of agenda notes, minutes of the meeting and follow-up action on the decisions taken with the concerned agencies for effective implementation.
- Provide back-up support for all project related activities.
- Logistic and administrative support for organizing events, meetings, workshops, team visits etc.
- Updating the existing data and information in the online contact database
- Documentation, internet search, formatting documents/printing
- Perform any other duties as assigned by the Supervisor

Required skills and experience

- Bachelor's degree in commerce, financial management, or related field.
- 3-4 years of relevant experience in financial management and general administration, programme support service.
- Experience of working with state government on Administration and Finance related matters will be highly desirable.
- Experience in the usage of computers and office software packages (MS Word, Excel, etc.). Experience in handling of web-based management systems.

Competencies

- Understanding all aspects of project management.
- Experience of working with Central and/or State Governments/UN and international agencies/ NGOs/ Civil Society on similar assignments will be preferred.
- Good understanding of financial, administrative and procurement processes.
- Possess very good skills for documentation, review documentation
- Good communication and interpersonal skills
- Fully proficient computer skills with good knowledge of MS Office, and internet
- Good written and verbal communication skills in English
- Ability to maintain effective partnerships and working relations with people in a multi-cultural, multi-ethnic environment with sensitivity and respect for diversity
- Keeps abreast of new developments in the area of professional discipline and job knowledge and seeks to develop him/herself professionally; Generates new ideas and approaches, researches best practices and proposes new, more effective ways of doing things

- Builds and maintains constructive relationships with colleagues (and reports where appropriate); treats people with respect, is co-operative, supportive and helpful with a positive contribution to the working environment.
- Ability to work independently and under pressure.
- Establishes priorities for self, schedules activities to ensure optimum use of time and resources;
- Approaches work with energy and a positive, constructive attitude;
- Fluency in English and Thai is essential

Human Resources not part of PMU: Chief Technical Advisor / M&E Officer / Gender Responsive Climate Data Officer

Chief Technical Advisor

Under the direct supervision of the Deputy Resident Representative of UNDP, the Chief Technical Advisor (CTA) is responsible for, jointly with the Project Manager, the implementation and project management of the project. In so doing, the Chief Technical Advisor is expected to provide technical guidance and direct contribution, based on international best practices, to the implementation of the project and train the technical personnel in the Project Management Unit (PMU) and teams of technical experts. While the Chief Technical Advisor will be based in Bangkok, he/she is expected to travel to and spend time in the 3 target provinces.

Duties and Responsibilities

- Technical oversight of project activities
- Policy advice and capacity building
- Support to project management
- Knowledge management
- Partnership development and advocacy

Technical Expertise:

- Provide technical inputs across all project activities; control and coordinate all technical inputs and their delivery in a timely manner in close collaboration with the Project Manager (PM)
- Provision of guidance and coordination of all technical inputs by the project consultants, including development of detailed Terms of References for national and international consultants and contractors in collaboration with the Project Manager
- Serve as the chief technical advisor on adaptation solutions outlined in the project document, particularly in the implementation of climate resilient small-scale infrastructure, related capacity needs and policy change. In relation to this, identify needs for external technical support for effective implementation
- Be responsible, jointly with the PM, for the implementation and monitoring of all risk mitigation measures during all project phases such as inception, implementation / construction and operation
- Carry out assessments of the technical, financial, socio-political, operational and management situations on the ground that affect the project implementation and keep the UNDP CO and UNDP Regional Hub in Bangkok abreast of the changes in circumstances, and provide solutions to addressing existing risks arising out of these assessments
- Undertake a comprehensive overview of good international practices in the area of climate proofing of small-scale infrastructures and role of public finance in influencing public and private investment in climate resilient infrastructure development at the municipal level
- Review all technical reports produced by national and international consultants and ensure adequate consultations with government and non-government stakeholders to maximize stakeholder buy-in and ownership of both process and deliverables

- Draft methodologies for technical activities of the project and prepare outline structure of technical reports
- In coordination with the PM, supervise national and international consultants to undertake respective specialized studies and ensure timely sequencing of these deliverables to enable smooth implementation of the project activities and meeting the set targets
- Develop model designs for key climate resilient infrastructure of all categories (water supply, irrigation, roads & bridges and flood defense) for standardization and further replication across municipalities in the project sites.
- Develop systems, standards and procedures for district officials to apply in developing and reviewing detailed budgets for climate resilient infrastructure planning, and apply in technical review of sub-projects against climate resilience criteria.
- Integrate standard clauses, criteria and guidance into tender documentation and procedures for district level contracting.
- Develop climate resilient construction standards and guidelines based on a review of existing sectoral guidelines for key rural infrastructure sectors
- Provide training in the application of climate resilient rural infrastructure standards, with a focus on local contractors.
- In close collaboration with Project Manager and UNDP CO and consultation with safeguards specialist ensure timely implementation of project ESMP.

Policy advice and capacity building:

- In close colaboration with RID, PMU and UNDP, directly contribute to annual work plan and budget revisions as to fully capture the sequencing of all technical deliverables during the project implementation.
- Identify strategic opportunities for the project to achieve greater development impact through partnerships building and adaptive management
- Strengthen capacities of the PMU and the Government of Thailand to plan, budget and deliver climate risk information and development of cliamte resilient infrastructure
- Build technical and managerial capacities within the PMU, including the introduction of management tools and templates that enable effective planning, implementation and monitoring
- In line with project activities and targets, as outlined in project document, develop a comprehensive training and capacity development plan for the implementation.
- Provide advice and support through technical assistance to the national counterparts, as required and relevant to the scope of the project;
- Provision of other advice as needed to UNDP concerning the evolution and role of the relevant Ministries/stakeholders within the scope of the project;
- Participate and actively contribute to the PMU in coordination with the RID

Effective Project Management in coordination with the RID

- Strongly support project implementation and management under the overall guidance of the RID
- Provide strategic input to technical, financial and managerial aspects of the project to ensure that activities are in accordance with the Project Document
- Provide input in joint collaboration with the PM and other members of the PMU on the following elements of project management to ensure achievement of targets and results
    - Annual work planning and budgeting
    - Procurement of goods and services
    - Budget and expenditure analysis
    - Contractual management
    - Quarterly and annual progress reporting
    - Quarterly operational reporting

    - Monitoring of project risk log
- Support the PM in preparing/organizing the technical materials used in the Project Board Meeting
- Provide technical and advisory support to ensure proper and timely implementation and reporting of activities implemented by the respective responsible parties;
- Assist PM and other project staff in coordinated, streamlined and timely implementation of Project Work Plan, Gender Action Plan, Stakeholder engagement Plan and ESMP;
- Provide advice for the annual financial audit
- Monitoring and Evaluation of project activities, and identify and implement solutions to bring the project back on track, as needed
- Planning and providing strategic inputs into all aspects of project activities
- Perform other duties as necessary to ensure effective and efficient implementation of the project

Knowledge management;

- Identify, analyse and communicate lessons learned that may be useful in design and implementation of similar projects. The duty of identifying and analyzing lessons learned is an on-going one, and the duty to communicate those lessons is on an as-needed basis;
- Share knowledge on the Project and its achievements. Promote identification and synthesis of best practices and lessons learned from Project implementation, for organizational sharing and learning. Promote a knowledge sharing and learning culture
- Produce materials with lessons learnt and best practices and participate in knowledge based tools
- Contribute to the analytical work of UNDP and ensure high quality knowledge products.
- Promote the substantive quality of all knowledge products, reports and services, and ensures effective integration thereof with other pillars

Project Monitoring and Evaluation Officer

Under the overall supervision and guidance of Chief Technical Advisor, the M&E Officer will have the responsibility for project monitoring and evaluation. The M&E Officer will work closely with the Communications Officer on knowledge management aspects of the project. Specific responsibilities will include:

- Monitor project progress and participate in the production of progress reports ensuring that they meet the necessary reporting requirements and standards;
- Ensure project's M&E meets the requirements of the Government, the UNDP Country Office, and UNDP-BPPS/NCE; develop project-specific M&E tools as necessary;
- Oversee and ensure the implementation of the project's M&E plan, including periodic appraisal of the Project's Theory of Change and Results Framework with reference to actual and potential project progress and results;
- Oversee/develop/coordinate the implementation of the stakeholder engagement plan;
- Oversee and guide the design of surveys/ assessments commissioned for monitoring and evaluating project results;
- Facilitate mid-term and terminal evaluations of the project; including management responses;
- Facilitate annual reviews of the project and produce analytical reports from these annual reviews, including learning and other knowledge management products;
- Support project site M&E and learning missions;
- Visit project sites as and when required to appraise project progress on the ground and validate written progress reports.

The Project M& E Officer will be recruited based on the following qualifications

- Masters degree, preferably in the field of environmental or natural resources management;

- At least five years of relevant work experience preferably in a project management setting involving multi-lateral/ international funding agency. Previous experience with UN project will be a definite asset;
- Significant experience in collating, analyzing and writing up results for reporting purposes;
- Very good knowledge of results-based management and project cycle management, particularly with regards to M&E approach and methods. Formal training in RBM/ PCM will be a definite asset;
- Knowledge and working experience of the application of gender mainstreaming in international projects;
- Understanding of biodiversity conservation, law enforcement, sustainable livelihoods and associated issues;
- Very good inter-personal skills;
- Proficiency in computer application and information technology.
- Excellent language skills in English (writing, speaking and reading) and in local languages.

Gender Responsive Data Officer

Under the overall supervision and guidance of the Chief Technical Advisor, the Gender Responsive Data Officer will have the responsibility for the implementation of the Gender Action Plan. the Gender Responsive Data Officer will work closely with the M&E Officer, Safeguards Officer and Communications Officers on related aspects of project implementation, reporting, monitoring, evaluation and communication. Specific responsibilities will include:

- Monitor progress in implementation of the project Gender Action Plan ensuring that targets are fully met, and the reporting requirements are fulfilled;
- Oversee/develop/coordinate implementation of all gender-related work;
- Review the Gender Action Plan annually, and update and revise corresponding management plans as necessary;
- Work with the M&E officer and Safeguards Officer to ensure reporting, monitoring and evaluation fully address the gender issues of the project;

The Gender Responsive Data Officer will be recruited based on the following qualifications:

- Master's degree in gender studies, gender and development, environment, sustainable development or closely related area.
- Demonstrated understanding of issues related to gender and sustainable development; at least 5 years of practical working experience in gender mainstreaming, women's empowerment and sustainable development in relevant Country/Region/Area of Work;
- Proven experience in gender issues in Country/Region/Area of Work
- Previous experience with UN projects will be a definite asset;
- Demonstrated understanding of the links between sustainable development, social and gender issues;
- Experience in gender responsive capacity building;
- Experience with project development and results-based management methodologies is highly desired/required;
- Excellent analytical, writing, advocacy, presentation, and communications skills.
- Excellent language skills in English (writing, speaking and reading) and in local languages.

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Annex H: UNDP Social and Environmental and Safeguards screening procedure (SESP)

Social and Environmental Screening Template (2021 SESP Template)

Project Information

Project Information	
1. Project Title	Enhancing climate resilience in Thailand through effective water management and sustainable agriculture
2. Project Number (i.e. Atlas project ID, PIMS+)	5923
3. Location (Global/Region/Country)	Thailand
4. Project stage (Design or Implementation)	Implementation
5. Date	Updated 15 June 2022

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

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The project will support smallholder farming communities and dispersed households/farmsteads in the Yom and Nan River Basins in Phitsanulok, Sukothai and Uttaradit provinces, which are part of the middle-upper catchments of the Chao Phraya River Basin area. Undertaking comprehensive climate change adaptation actions in the Yom and Nan River basin is of critical importance to a very large area of Thailand, and about 25 million people. The Yom and Nan River basins need to have effective water management to mitigate flooding and provide buffering against drought. Such actions will in turn have co-benefits further downstream reducing flood impacts in the greater Chao Phraya River and the downstream urban areas that include metropolitan Bangkok which suffered significantly in the 2011 floods. The provision of improved climate change data information, dissemination, management and accessibility are much needed for informing these responses to mitigate loss and damage related to flooding and drought, as well as to strengthen the long-term resilience of vulnerable agricultural-livelihood dependent households to climate impacts.

The project proposes to improve substantially the decision making capacities and reduce barriers of access for these dispersed rural communities and farmers through targeted actions enhancing food and water security, related associative capacity and related rural extension services. This will result in them becoming more active stakeholders. Their capacity will be improved through training and engaging in implementing project activities for service provision and private sector for value chain and market access improvements. Further, the project will promote social cohesiveness within communities through water supply management. By promoting collective decision making and establishing protocols for wetland restoration reconditioning and use of natural wetland channels at the landscape level and territorial level, the project will advance social and inter-community harmony.

The project also promotes safety, well-being, and decision-making among farmers through the benefits of new irrigation technologies, early warning systems and climate information. Communities will benefit from the timely early warnings and reduced disruption to educational activities (access and commuting to schools), issues with health, family and community structures, and as well as access and communication. The ability to adjust seasonal cultivation practices and crops according to tailored seasonal forecasting impacts and the use of climate adapted seeds/plants grown in local nurseries will positively impact on producers' ability to rationalize their inputs and assess their cultivation options for the coming months, preventing undue losses of crops and inputs.

Briefly describe in the space below how the project is likely to improve gender equality and women's empowerment

The project will target farmers directly (62,000 people, of which 32,104 are women) affected by the impacts of climate change; and millions of indirect beneficiaries of the lower Chao Phraya River Basin area. The project has a gender focus that will deliver project assistance to women to enhance their opportunities for employment, in a social structure where they are generally marginalized. The leading role assigned to women and specific actions and awareness raising components would work to remove many gender specific disadvantages such as poor health, lack of income and unjust and violent social practices that work against women and girls. The enhanced level of economic and non-economic entitlements and skills supported by the project will ensure a visible change towards equality and women's empowerment. Enhancing income-generating activities and economic opportunities in risk-prone environments, the ability to combine adaptive livelihood, food and water security and disaster risk reduction activities which makes women and girls more resilient to external shocks.

The project will yield positive outcomes related to health and well-being, decision making, access to resources, livelihoods, and income generation for women through the project interventions. The time saved through an improved, and in the case of rural disperse households, direct access to water supply will facilitate the participation of women in other economic activities. The governance structures created and the

role of community leaders will in turn expand women's sphere in decision-making. Women through their involvement in project actions will benefit from knowledge management activities and exchanges related to climate change, adaptation and water management. This in turn will serve to empower them within the community.
Briefly describe in the space below how the project mainstreams sustainability and resilience
The project will scale up successful approaches at the watershed level. This will include the introduction of climate-smart practices; and increase in soil conservation, reduced chemical use, reduction in water pollution, and improved irrigation and drainage. The project is expected to have some short-term medium scale environmental impacts but significant environmental and social benefits. Accordingly, the project will ensure risk assessments are undertaken for all works where sediment is being disturbed, ensure waste is managed properly; and results and mitigation measures integrated into final design. By increasing the areas of wetlands and water retention, this can maintain water during a flood and post the event, which will improve the health of these ecosystems and provide better flood protection. This will allow for the protection of communities on the flood plain. The project will yield environmental benefits through strengthened ecosystem resilience, increase biodiversity and improved water quality. Through bioengineering to regenerate vegetation cover and around wetlands, the project seeks to curb environmental degradation and promote long-term sustainability for the region. Additionally, the strengthening of habitat will also be invaluable to all users.
Briefly describe in the space below how the project strengthens accountability to stakeholders
The project allows those that have a complaint or that feel aggrieved by the project to be able to communicate their concern, complaints and/or grievances through an appropriate process. The Complaints Register and Grievance Redress Mechanism set out in the project's ESMP are to be used as part of the project and will provide an accessible, rapid, fair and effective response to concerned stakeholders, especially any vulnerable group who often lack access to formal legal regimes. MOAC and RID have an existing process for where an individual is not satisfied with the RID and/or wishing to express an opinion, they can do so through RID's complaint management services. A party can submit his/her complaints to three public agencies; these being MOAC, the Damrongdhama Centre of Ministry of Interior, and Office of the Permanent Secretary under the Prime's Minister Office.

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*	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

responding to Question 2.				
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: Potential for mass sediment movement during rehabilitation of the water storages and monkey cheeks to be undertaken as Activities 2.1 and 2.2. *Standard 1: 1.1, 1.11* *Standard 3: 3.1, 3.2*	I = 3 L =3	**Moderate**	During the rehabilitation of the water storages and monkey cheeks (under Output 2), it will be necessary to undertake earth works to remove sediment from water holding locations and then undertake the redesign existing infrastructure. The earth works will move sediment that, if not properly contained, may be removed either as air pollution or through overland flow during a rain event and/or downstream.	Activities proposed as part of the project build on experiences from a number of ongoing efforts. Past activities have been successfully undertaken and the effective methodologies used for water storages and monkey cheeks rehabilitation as part of those projects will be replicated (modified spatially as required). By following a proven practice, the project will result in reduced impacts. To ensure that the sediment is not mobilised through current movement that will result in any significant impacts, the erosion control sediment plan and install silt curtains to restrict sediment movement from the site will be discussed and prepared during the Inception Phase before the project's activities commence. Further, any earthworks should be undertaken during the dry season and compacted sufficiently to reduce sediment movement. The plan should contain aspects including but not limited to the installation of sediment curtains to reduce sediment movement and the

				quick placement of footing material. These impacts will be spatially and temporally restricted to rehabilitation periods
Risk 2: During the rehabilitation of the monkey cheeks and existing water storage systems, it is possible that associated construction/civil works could lead to contamination of waterways and groundwater systems *Standard 3: 3.1, 3.2* *Standard 8: 8.1*	I = 3 L = 2	**Moderate**	During the rehabilitation of the existing water storages and monkey cheeks, it may be necessary to undertake small scale earth works to redesign and/or replace existing infrastructure. There is the potential for the release of chemicals, nutrients, heavy metals and other material from the sediment and for these to enter waterways and groundwater systems during the works.	As with the above (i.e. Risk 1), to ensure contaminants do not enter waterways and groundwater systems, a water quality monitoring plan and management framework will be developed to ensure chemicals are not released. This will involve testing sediment prior to movement and planning so that the works are not undertaken during rain events. Where rainfall is anticipated, appropriate material should be placed under the sediment prior to excavation to ensure there is no seepage into groundwater systems. The water quality monitoring for the sources will be designed to identify potential impacts so that management measures can be proactively rather than reactively enacted upon.
Risk 3: Sediment movement during ecosystem-based adaptation works. If not managed properly, such sediment movement could adversely impact the local receptor environment and important ecosystems. *Standard 1: 1.1* *Standard 8: 8.1*	I= 3 L= 2	**Moderate**	During ecosystem-based adaptation works, it may be necessary to undertake earth works to restabilise areas. River restoration and establishment of fish passages etc will move sediment.	There is the potential for sediment movement during ecosystem-based adaptation works. To ensure that the sediment is not mobilised through either wind or more specifically water movement, it will be necessary to prepare an erosion control sediment plan and install silt curtains to restrict sediment movement. The plan shall contain aspects including but not limited to the installation of sediment curtains to reduce sediment movement and the covering of sediment where practicable.
Risk 4: Civil works/construction contractors will be required	I= 2 L= 2	**Low**	Noise will occur through the use of construction equipment. This can impact	The construction contractor should consider any sensitive receptors including communities. Noise will be limited to machinery undertaking construction works and ecosystem-

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for several elements of the project, (most notably Activities 2.1 and 2.2). During the construction work associated with said activities, there is the potential for noise pollution to occur as a result of using said equipment. *Standard 3: 3.1, 3.2*			on local communities using the adjacent area.	based adaptation activities. It is likely that more noise will be generated through the use of excavators and trucks moving sediment from the water storages and monkey cheeks. Where necessary, noise shields should be constructed to reduce the potential for noise to reach these communities if an impact occurs. The noise will have very limited temporal scales.
Risk 5: Given the scale and scope of earth works associated with certain project activities/output areas (Activity 2.1 and 2.2), there is a potential for chance finds/impacts on Archaeological Heritage to occur during civil works/irrigation rehabilitation activities. *Standard 4: 4.1, 4.2, 4.3, 4.4, 4.5*	I= 3 L= 3	**Moderate**	There is the potential for the project to impact on cultural heritage when works are being undertaken. There are 51 historical sites (47 temples and 4 religious places), three ancient places and three archaeological remains in proximity of the project area. Specifically, there are three sites within the overall project footprint.	There are no specific/known cultural heritage sites within the immediate proximity of project activities. Notwithstanding, there is the potential through flooding, for sites to be impacted. The project will ensure that the sites are considering in the structural design of project components. Given the nature of the project, and the associated earth works, there is a potential for chance finds to be uncovered during project implementation. Site specific EIMPs (that may be required under national Thai regulation for irrigation upgrading under Activities 2.1 and 2.2) shall include chance find procedures consistent with UNDP SES4 requirements.
Risk 6: There is the potential for conflict amongst community groups and individuals concerning the access to water that may	I= 3 L= 2	**Moderate**	There is the potential for community members to feel aggrieved where individuals get access to water etc that they may not have access to. This could	The Implementing Agency (RID) shall develop a model for the use of a community supply committee to ensure all users get access to equal water. Requirements and procedures for this have been outlined further in the project's ESMF.

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occur as a result of the project. *Principle 1: P.1. P.2,P.6, P.7*			lead to conflict among users.	
Risk 7: During the rehabilitation and construction of new water storage/infrastructure, it Is possible that wastes (including sediment, concrete and miscellaneous construction wastes) may be released at construction sites , which could affect the project sites and the surrounding environs. *Standard 8: 8.1, 8.2*	I= 3 L= 3	**Moderate**	The rehabilitation and construction of new water infrastructure will likely cause waste including but not limited to sediment and concrete.	Given that much of the infrastructure will be prefabricated and delivered to site, the impact of waste is likely to be minimal. Where possible, all materials from existing infrastructure should be reused or recycled.
Risk 8: The rehabilitation of water storage systems/monkey cheeks may result in an increase in still water areas, which may serve as a temporary breeding habitat for certain vectors /water-borne disease.	I= 3 L= 2	**Moderate**		The project will not create temporary and/or permanent habitats for mosquito breeding and/or any other pests. In selecting and developing project activities relating to water storage rehabilitation and construction, the design plans shall consider the potential for creating temporary habitats for waterborne pests and disease. The Water Quality Monitoring Plan shall include indicators and constant monitoring of the potential creation of mosquito breeding habitats.

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Standard 3: 3.4				
Risk 9: Restrictions to access of lands and resources could inadvertently occur during the upgrading/rehabilitation works to irrigation sites (i.e. Activity 2.1) and/or during the implementation of EbA activities/measures for grey infrastructure (Activity 2.2). Without adequate support, oversight and commitments, the activity proponent may fail to meet the requirements of UNDP SES5. *Standard 5: 5.2, 5.4*	I = 3 L= 1	**Low**	At this point in project inception, no activities will be undertaken on private property. If the need is foreseen for this during project implementation, no activities will take place without the express approval of any landholder/user. The potential likelihood of the risk occurrence has been assessed as 'not likely', as indicated in supporting documentation and commitments made by the project proponent. This is because the upgrading/rehabilitation works will be undertaken within the boundaries of existing public irrigation channels, with no expansion or encroachment on nearby land (public or private), In addition, existing access roads will be used.	While land acquisition /displacement is not foreseen at project inception, as prescribed in the project's ESMF, the following control measures will be put in place to ensure that the potential for risks is properly monitored: continuous risk screening; engagement with affected people; and, potentially affected people to be included in any site assessments. While it is not likely, the project may potentially lead to temporary access restrictions (via both river construction works and EbA interventions) the following points will be adhered to throughout the project's timeline: (i) where there is the need for access to land for any project activity, the land will be returned in the same condition as it was prior to any access; (ii) in the case of ecosystem-based adaptation interventions, all land needs will ensure beneficial use by existing land holders; (iii) ecosystem based adaptation activities will only be undertaken following the signing of a voluntary agreement; (iv) in the case of the need to access land for the purposes of undertaking water infrastructure works (which is currently not envisaged at any of the 13 irrigation sites), access will only be undertaken through voluntary agreements with landholders. Where a voluntary agreement cannot be established, the land will not be used, and construction will be halted until the plans have been adequately redesigned).

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			With regard to the potential impact of the risk occurring ... given that it is not possible to entirely rule out the potential for S5 impacts to occur, the impact of potential risk occurrence has been assessed as 'intermediate'. This is because only 9 private landholders, constituting 28 individuals, (in the areas surrounding the proposed works at KMC 1 and 2) would be affected, in the unlikely event that access restriction would occur. These landholders are the only ones whose land abuts the irrigation channel buffer zones. More information regarding the details of potentially affected individuals is included as Annex 7 of the ESMF.	In addition to the above, the activity proponent (RID) has committed to no encroachment on private lands during the construction/irrigation works at the 13 irrigation sites. This commitment has been established in the form of a formal letter submitted to UNDP. RID has provided supporting documentation (including design/site plans) that support this commitment. RID has also committed to using existing public roadways for transporting construction equipment to avoid any impacts to land owners/users. The commitment letter from RID also states that 'in any case of private land acquisition, or access restrictions to public roads (whether it is part of the primary construction, associated access ways, or implementation of project activities) consideration of suspension of given construction/operation site' shall be undertaken. Should the risk need to be upgraded to Moderate or higher during project implementation, relevant activities will be put on hold until required management plans (in line with SES 5 requirements) are developed, consulted, and disclosed. The Project Board will need to be notified as early as possible, as would the GCF, in line with the FAA. Concerning any economic displacement/livelihoods impacts that may occur as a consequence of temporary access restrictions, the project will develop a Livelihood Restoration Plan (within the first year of project implementation) which shall be followed by the project proponent.

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				With respect to the EbA activities, there is the potential for cumulative impacts through the loss of usable land. However, the potential impact is considered to both very small in spatial scale and temporal in nature. Landholders will gain long term benefits from the restoration activities. As prescribed in the ESMF, following the collection of baseline data, a subsequent analysis and then cumulative impact assessment of the impacts of the EbAs will be undertaken. During project inception, RID has held several meetings/calls with an international SES expert consultant (hired by UNDP CO) to better understand their obligations and requirements as per UNDP SES 5.
Risk 10: Ethnic Minorities/Indigenous Peoples (i.e. Tai Khrang) are present within the project's areas of influence. The project could result in adverse indirect impacts to the rights, resources or practices of traditional Tai Khrang villages if the project is not managed adequately. The RID will extend knowledge on EbA and Smart Farming to the Tai Khrang groups, which could	I=3 L=2	**Moderate**	There are no indigenous peoples and/or ethnic minorities within the direct project area/site. Thai Khrang communities/villages in Phichit, Phisanulok, Sukhothai live in highland areas outside of the direct project sites. Research undertaken by Naresuan University in Phisanulok province, surveyed "Tai Khrang" communities/villages and to help identify the	Tracing back the history of the Tai Khrang, it has been established that they originated in Thailand after migrating from Luang Prabang and Vientiane in Lao PDR from about 200 years ago, The Tai Khrang possess a different tonal system then the majority population. Although this ethnic group is not in the project site, the RID will extend knowledge on EbA and smart farming to this group. Where possible, these people will be involved in project design and implementation particularly with respect to the ecosystem-based adaptation activities. Entry points for engagement and benefit sharing with Tai Khrang are not yet specified. Any such involvement with Tai Khrang communities would follow UNDP S6 requirements, including FPIC if required under the SES. The need for continuous risk

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impact traditional knowledge/resources. *Standard 6: 6.1, 6.3, 6.9*			presenece of "Tai Khrang" ethnic villages in the lower northern region (i.e. within the general project's area of influence). Data was collected by surveying, interviewing, eliciting, participating and observing, as well as from local documents and social media. The results indicated that there are, at a minimum, 171 communities/villages located in six (6) provinces, these being Kamphaeng Phet, Uthai Thani, Nakhon Sawan, Phichit, Phisanulok and Sukhothai	screening and monitoring for Standard 6 related potential impacts is specified in the project's ESMF.
Risk 11: Given the relationship between women and agricultural practices in the project area, any temporary adverse impacts to water access during project construction could impact women's ability to use the river way/water sources. *Principle 1: P.11*	I=3 L=1	**Low**		The project shall undertake an assessment of sex-disaggregated data and the gender analysis. In addition, the project shall ensure women's participation in identifying best practices in agro-productive and ecosystem-based adaptation activities and stimulate non-traditional occupations through the work programme. This should also include undertaking an assessment of the involvement of women within agricultural systems, prior to planning measures. Compliance with the Livelihood Restoration Plan will ensure any adverse gender-related livelihood impacts are mitigated.

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Risk 12: River/water storage rehabilitation construction works (activities under Output 2) will require the contracting of a specialist local construction firm. OHS impacts (to project workers)could occur during the use of heavy machinery. *Standard 7: 7.6*	I=3 L=2	**Moderate**		The project shall ensure compliance with Thai labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labor Organisation fundamental conventions, including freedom of association, elimination of discrimination in employment and occupation, elimination of forced or compulsory labour. The successful contractor will be required to develop, and adhere to, a site specific OHS management plan. The contractor shall also ensure; (i) workers' health and safety is protected; (ii) workers are trained in occupational health and safety;(iii) workers are provided appropriate personal protective equipment suitable for their duties; and (iv) workplace complaint and grievance mechanisms are put in place and proactively managed.
Risk 13: Given the nature and scope of the project (i.e. effective water management), several key result areas for the project (most notably those under Output 2) could potentially be impacted by extreme climatic events (i.e. such as flooding, drought etc). *Standard 2: 2.2*	I=3 L=1	**Low**	Flood and drought events have become more severe, causing losses and damages to crop production and farmers' income. These impacts are felt more by those with higher levels of poverty, predominately due to the high level of dependence on natural resources, and in general, a limited capacity in terms of access to resources for responding to climate	The selection of specific sites will be based on a climate vulnerability analysis (though prioritisation) that includes interviews with the potential beneficiaries. In the case of ecosystem-based adaptation activities, the analysis includes documentation of livelihoods and climate vulnerability, and soil quality and cover etc. Access to and storage of water will be a factor in determining sites. Further, ecological and physical environmental benefits will also be a factor in determining sites.

			vulnerability and extremes. Higher levels of poverty for the Northern-Central region in turn, means that this area also has an increased level of vulnerability to climate change impacts, with lower levels of access to resources for adaptation strategies and in which to build climate resilience. In the Chao Phraya River basin region, climate projections show trends of increasing temperature with fluctuating precipitation. Calculations for the region, found that on average (with variations between the provinces) during 2040 - 2049, farmland values per rai, are projected to decrease from $2,703 to $2,068 and $2,538 per rai.	

QUESTION 4: What is the overall project risk categorization?

Low Risk	☐	
Moderate Risk	X	13 risks identified. 9 categorized as 'Moderate', 4 'Low'.
Substantial Risk	☐	

	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)	**Completed:** Gender Assessment and Action Plan Stakeholder Analysis (as part of Stakeholder Engagement Plan)
			☐	ESIA (Environmental and Social Impact Assessment)	
			☐	SESA (Strategic Environmental and Social Assessment)	
	Are management plans required? (check if "yes)	☐			
	If yes, indicate overall type		X	Targeted management plans: - Water Quality Monitoring Plan - Livelihood Restoration Plan - Site Specific OHS management Plan	Planned

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				- Site-specific Environmental Impact Mitigation Plans (EIMPs) (as required by host country law/regulation)	
			X	ESMP (Site-specific Environmental and Social Management Plans)	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	Risk 6		
	Gender Equality and Women's Empowerment	☐			
	Accountability	☐			
	1. Biodiversity Conservation and Sustainable Natural Resource Management	X	Risk 1 Risk 3		
	2. Climate Change and Disaster Risks	X			

	3. Community Health, Safety and Security	X	Risk 1 Risk 2 Risk 4 Risk 8
	4. Cultural Heritage	X	Risk 5
	5. Displacement and Resettlement	☐	
	6. Indigenous Peoples	X	Risk 10
	7. Labour and Working Conditions	X	Risk 12
	8. Pollution Prevention and Resource Efficiency	X	Risk 2 Risk 3 Risk 7

Final Sign Off

Final Screening at the design-stage is not complete until the following signatures are included

Signature	***Date***	***Description***
QA Assessor DocuSigned by: Sukanya Thongthumrong F8A786BCC18A46F... Sukanya Thongthumrong, Integrated Programme Analyst	17-Mar-2023	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.

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QA Approver DocuSigned by: Lovita Ramguttee AF0B3B1C1262481... Lovita Ramguttee, Deputy Resident Representative	17-Mar-2023	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 DocuSigned by: Lovita Ramguttee AF0B3B1C1262481... Lovita Ramguttee, Deputy Resident Representative	17-Mar-2023	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.

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1. 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)?	*Yes*
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?	*No*
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? [1]	No
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?	Yes
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)?	No

[1] 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.

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Would the project potentially involve or lead to:	
P.9 adverse impacts on gender equality and/or the situation of women and girls?	*No*
P.10 reproducing discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	No
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*	Yes
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.*	No
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?	No
P.14 grievances or objections from potentially affected stakeholders?	No
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?	No
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?	No

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)?	No
1.5	exacerbation of illegal wildlife trade?	No
1.6	introduction of invasive alien species?	No
1.7	adverse impacts on soils?	No
1.8	harvesting of natural forests, plantation development, or reforestation?	No
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?[2]	No
1.13	utilization of genetic resources? (e.g. collection and/or harvesting, commercial development)[3]	No
1.14	adverse transboundary or global environmental concerns?	No
Standard 2: Climate Change and Disaster Risks		
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?	No
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] See the Convention on Biological Diversity and its Cartagena Protocol on Biosafety.
[3] See the Convention on Biological Diversity and its Nagoya Protocol on access and benefit sharing from use of genetic resources.

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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)?	No
3.4	risks of water-borne or other vector-borne diseases (e.g. temporary breeding habitats), communicable and noncommunicable diseases, nutritional disorders, mental health?	Yes
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)?	No
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?	No
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?	Yes
Standard 5: Displacement and Resettlement		
Would the project potentially involve or lead to:		

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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)?	Yes
5.3	risk of forced evictions?[4]	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?	No
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?	No
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

[4] 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.

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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.*	Yes
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?	No
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
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?	Yee
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?	No

Annex I: Environmental and Social Management Plan or Framework (ESMP or ESMF) as relevant

The Environmental and Social Management Framework (ESMF) | UNDP in Thailand

Annex J: Stakeholder Engagement Plan

The proposed GCF project has been developed in close discussion and participation among a range of stakeholder groups. The Royal Irrigation Department (RID) has played a vital role in leading the discussions on the proposal identification and formulation process with the engagement and guidance of the Office of Natural Resources and Environmental Policy and Planning (ONEP)/GCF National Designated Authority, Office of National Water Resources (ONWR), Thai Meteorological Department (TMD), Land Development Department (LDD), Department of Agricultural Extension (DOAE), Office of the National Economic and Social Development Board (NESDB), and other stakeholder ministries and agencies. Key stakeholders to be involved in the project implementation were identified during the process consistent with government mandates related to areas of work, as well as stakeholder expertise and comparative advantage. Private sector and civil society organizations were also engaged in the process, in line with shared objectives of stakeholders/partners and co-benefits of collaboration.

Stakeholders contributed to the design of the project, across three project outputs: 1) Enhance climate and risk informed planning in the water and agricultural sectors through improved climate information and cross sectoral coordination, 2) Improve water management through strengthened infrastructure complemented by EbA measures, for greater resilience to climate change impacts, and 3) Reduce volatility of agriculture livelihoods in drought and flood prone areas through strengthened extension support and local planning, investment in on-farm adaptation measures and greater access to finance and markets.

Engagement with stakeholders will occur through various means – through the regular consultations and engagement planned during implementation of project activities, as well as through formal mechanisms related to the project's organizational structure. During project inception, Working Groups will be established to support implementation across the 3 Outputs based on roles and responsibilities: Output 1 - KMUTNB and RID; Output 2 – RID, GIZ, provincial offices; Output 3 – RID, DoA, CPD, DoAE, DoF, LDD, Sub-district Administrative Offices. Further a Technical Advisory Group will be established that will include technical expertise from government, as well as representation of private/finance sector and CSOs.

The following Stakeholder Engagement Plan provides an indicative list of stakeholders for the Outputs and Activities for the lifetime of this project. The plan will be reviewed and updated as necessary during the project inception period, as well as regularly throughout implementation as additional stakeholders (particularly private sector and CSOs) are identified.

Outputs	Activity	Stakeholders
Output 1: Enhance climate and risk informed planning in the water and agricultural sectors through improved climate information and cross sectoral coordination	Activity 1.1. Strengthening capacity to generate tailored climate information to inform water management and agriculture planning	Royal Irrigation Department (RID) Office of National Water Resources (ONWR) Ministry of Natural Resources and Environment (MONRE) Thai Meteorological Department (TMD) Hydro and Agro Informatics Institute (HAII) <u>Responsible party</u>: King Mongkut's University of Technology North Bangkok (KMUTNB) KMUTNB is a current partner of RID. They have developed the information system of water management (macro scale) for farmers funded by national research center. Hence, RID has selected KMUTNB to tailor the climate change and water management

Outputs	Activity	Stakeholders
		information in the project area (Yom and Nan River Basin) and assume role in upgrading the national water irrigation management system.
	Activity 1.2. Facilitating inter-ministerial coordination for climate-informed and integrated planning	Royal Irrigation Department (RID) Office of National Water Resources (ONWR) Ministry of Natural Resources and Environment (MONRE) Thai Meteorological Department (TMD) Hydro and Agro Informatics Institute (HAII) King Mongkut's University of Technology North Bangkok (KMUTNB)
	Activity 1.3. Expanding access to climate information for application at the household level	Royal Irrigation Department (RID) Ministry of Natural Resources and Environment (MONRE) Water User Groups (WUG) Disaster of Disaster Prevention and Mitigation, Ministry of Interior Ministry of Public Health Ministry of Agriculture and Cooperatives (MOAC)
Output 2: Improve water Management through strengthened infrastructure complemented by EbA measures, for greater resilience to climate change impacts	Activity 2.1. Climate-informed engineering designs for the 13 schemes of the Yom-Nan river basin and upgrade of 2 water infrastructure	Royal Irrigation Department (RID) Office of National Water Resources (ONWR) Ministry of Natural Resources and Environment (MONRE) Thai Army Local Administrative Organization, Ministry of Interior (MOI) Water User Groups (WUG) Communities Local communities in the Yom-Nan river basin will be engaged according to the existing ministerial regulations issued by the Prime

Outputs	Activity	Stakeholders
		Minister Office. The focal agency is the Office of National Water Resources (ONWR). Regulations apply for the 25 river basins nationwide to facilitate enhancement of cooperation in water resource management as well as flood and drought preparedness sand response. The RID local offices are members of the river basin committee, and will help coordinate the project team, RPs in their engagement with committee members, including the representatives from villages/water users. Further, several of the 11 regulations address selection of river basin committee members, setting up of water user organizations and their roles and responsibilities. This involves rules and guidelines for state measures to compensate people affected floods and water shortages. ONWR will also help to involve the civil sector in water resource management, enhance cooperation across government agencies and help authorities better manage floods and/or droughts.
	Activity 2.2. Complementing of grey infrastructure with EbA of EbA approaches into water management policy and planning	Royal Irrigation Department (RID) Office of National Water Resources (ONWR) Ministry of Natural Resources and Environment (MONRE) GIZ Communities in the Yom, Nan River Basins (See comment above on engagement with communities) Responsible party: Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH As a partner for sustainable development with worldwide operations, the German government owned Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH operates on behalf of German Ministries, the governments of other countries and international clients. With support from the German Federal Ministry for Environment, Nature Conservation and Nuclear Safety (BMU), Thai-German Climate Programme (TGCP),

Outputs	Activity	Stakeholders
		and implementation by GIZ from 2018-2021 is promoting an EbA roadmap in Thailand (from policy to action). Engagement with GIZ ensures complementarity and cost-efficiencies.
Output 3: Reduce volatility of agriculture livelihoods in drought and flood prone areas through strengthened extension support and local planning, investment in on-farm adaptation measures and greater access to finance and markets	Activity 3.1. Application of climate information in household agriculture planning and strengthening of related support through extension services	Royal Irrigation Department (RID) Ministry of Natural Resources and Environment (MONRE) Ministry of Agriculture and Cooperatives (MOAC): Land Development Department (LDD), Department of Fisheries (DOF), Department of Agricultural Extension (DOAE), Department of Agriculture (DOA), Rice Department, Office of Agricultural Economics (OAE), Department of Livestock Development (DLD) Ministry of Public Health (MOPH) Local Administrative Organization, Ministry of Interior (MOI)
	Activity 3.2. Implementation of on-farm climate resilient measures to improve drought and improved access to finance for sustainable agriculture	Royal Irrigation Department (RID) Ministry of Natural Resources and Environment (MONRE) Ministry of Agriculture and Cooperatives (MOAC): Land Development Department (LDD), Department of Fisheries (DOF), Department of Agricultural Extension (DOAE), Department of Agriculture (DOA), Rice Department, Office of Agricultural Economics (OAE), Department of Livestock Development (DLD) Local Administrative Organization, Ministry of Interior (MOI)
	Activity 3.3. Capacity building for farmers to support market access for climate resilient agriculture products	Royal Irrigation Department (RID) Ministry of Natural Resources and Environment (MONRE) Ministry of Agriculture and Cooperatives (MOAC): Land Development Department (LDD), Department of Fisheries (DOF), Department of Agricultural Extension (DOAE), Department of Agriculture (DOA), Rice Department, Office of Agricultural

Outputs	Activity	Stakeholders
		Economics (OAE), Department of Livestock Development (DLD) Ministry of Commerce (MOC) Local Administrative Organization, Ministry of Interior (MOI) Krungsri Bank Bank for Agriculture and Agriculture Cooperatives (BAAC) Finance/Private sector partners CSOs and social enterprise Note: Krungsri Bank is an important partner for Output 3, providing financial literacy training to project beneficiaries. Krungsri Bank has offered an in-kind contribution to the project. Through parallel finance, BAAC will make USD 16 million credit available to farmers seeking to invest in climate resilient, sustainable agriculture and adaptation measures.

Annex K: Gender Analysis and Action Plan

Please access the document via this link:
https://undpgefpims.org/attachments/5923/215475/1726784/1779404/FP-UNDP-210521-5923-Annex%208%20GAAP.pdf

Annex L: UNDP Risk Log

#		Description	Date Identified	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner	Status
	GUIDANCE:	Enter a brief description of the risk. Risk description should include future event and cause. Risks identified through HACT, SES, Private Sector Due Diligence, and other assessments should be included. *(In Atlas, use the Description field. **Note: This field cannot be modified after first data entry)***	Enter date	Social and Environmental Financial Operational Organizational Political Regulatory Strategic Other Subcategories for each risk type should be consulted to understand each risk type (see Deliverable Description for more information) *(In Atlas, select from list)*	Describe the potential **effect** on the project if the future event were to occur. Enter **probability** based on 1-5 scale (1 = Not likely; 5 = Expected) Enter **impact** based on 1-5 scale (1 = Low; 5 = Critical) *(in Atlas, use the Management Response box. This field can be modified at any time. Create separate boxes as necessary using "+", for instance to record updates at different times. Check "critical" if P x I = 20 or above)*	What actions have been taken/will be taken to manage this risk. *(in Atlas, use the Management Response box)*	The person or entity with the responsibility to manage the risk. *(in Atlas, use the Management Response box)*	Status and effectiveness of management measures. *(in Atlas, use the Management Response box to describe status of management measures. Update Probability and Impact as needed)*
1		HACT MA – RID Lack of a timesheet system. UN is therefore funding staff to carry out work on other activities not related to the UN-funded project	20 June 2017	Operational	Potential effect on performance P = 2 I = 2-	Recommendation from HACT MA shared to RID The organization should establish a system to record the time spent by its staff on various activities.	RID	Ongoing

#		Description	Date Identified	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner	Status
2		HACT MA – GIZ There is currently no unified requirement to perform background checks of GIZ employees.	April 2020	Organizational	Potential effect on the performance P = 2 I = 2	It is recommended to implement a unified standard in regard to background check requirements, considering positions with relevant risk exposure and (local) legal requirements. GIZ agrees and will consider internally whether and how to take into account the proposed remediatons.	GIZ	Ongoing
3		HACT MA – GIZ Changes to master data are only validated by the person entering the data. No plausibility checks or checks on sample basis are carried out by an independent individual.	April 2020	Financial Operational	Potential effect on performance P = 2 I = 2-	It is recommended to implement a regularly performed (eg. Monthly) control by an independent person to verify relevant changes to HR master data by change log analysis and sample checks. GIZ agrees and will consider internally whether an how to take into account the proposed remediaitons.	GIZ	Ongoing
		SES Risk 1 Sediment movement during the rehabilitation of the water storages and monkey cheeks	June 2019	Social and Environmental	I = 3 P = 3	Activities proposed as part of the project build on experiences from a number of ongoing efforts. Past activities have been successfully undertaken and the effective methodologies used for water storages and monkey cheeks rehabilitation as part of those projects will be replicated (modified spatially as required). By following a proven practice, the project	RID	Ongoing

#		Description	Date Identified	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner	Status
						will result in reduced impacts. To ensure that the sediment is not mobilised through current movement that will result in any significant impacts, the erosion control sediment plan and install silt curtains to restrict sediment movement from the site will be discussed and prepared during the Inception Phase before the project's activities commence. Further, any earthworks should be undertaken during the dry season and compacted sufficiently to reduce sediment movement. The plan should contain aspects including but not limited to the installation of sediment curtains to reduce sediment movement and the quick placement of footing material. These impacts will be spatially and temporally restricted to rehabilitation periods		
		SES Risk 2 Contamination of existing water sources	June 2019	Social and Environmental	I = 3 P = 2	As with the above, to ensure contaminants do not enter waterways and groundwater systems, a water quality monitoring plan and management framework will be developed to ensure chemicals	RID	Ongoing

#		Description	Date Identified	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner	Status
						are not released. This will involve testing sediment prior to movement and planning so that the works are not undertaken during rain events. Where rainfall is anticipated, appropriate material should be placed under the sediment prior to excavation to ensure there is no seepage into groundwater systems. The water quality monitoring for the sources will be designed to identify potential impacts so that management measures can be proactively rather than reactively enacted upon.		
		SES Risk 3 Sediment movement during ecosystem based adaptation works	June 2019	Social and Environmental	I = 2 P = 2	There is the potential for sediment movement during ecosystem based adaptation works. To ensure that the sediment is not mobilised through either wind or more specifically water movement, it will be necessary to prepare an erosion control sediment plan and install silt curtains to restrict sediment movement. The plan shall contain aspects including but not limited to the installation of sediment curtains to reduce sediment movement and the covering of sediment where practicable.	RID	Ongoing

#		Description	Date Identified	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner	Status
		SES Risk 4 Construction Noise	June 2019	Social and Environmental	I = 2 P = 2	The construction contractor should consider any sensitive receptors including communities. Noise will be limited to machinery undertaking construction works and ecosystem based adaptation activities. It is likely that more noise will be generated through the use of excavators and trucks moving sediment from the water storages and monkey cheeks. Where necessary, noise shields should be constructed to reduce the potential for noise to reach these communities if an impact occurs. The noise will have very limited temporal scales	RID	Ongoing
		SES Risk 5 Impacts on Archaeological Heritage	June 2019	Social and Environmental	I = 2 P = 2	There are no specific sites within the immediate proximity of the project activities. Notwithstanding, there is the potential through flooding, for sites to be impacted. The project will ensure that the sites are considering in the structural design of project components.	RID	Ongoing
		SES Risk 6 Beneficiary Conflict	June 2019	Social and Environmental	I = 3 P = 2	The Implementing Agency should develop a model for the use of a community supply committee to ensure all users get access to equal water.	RID	Ongoing
		SES Risk 7	June 2019	Social and Environmental	I = 3	Given that much of the infrastructure	RID	Ongoing

#		Description	Date Identified	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner	Status
		Production of waste			P = 2	will be prefabricated and delivered to site, the impact of waste is likely to be minimal. Where possible, all materials from existing infrastructure should be reused or recycled.		
		Infrastructure investments (i.e. flood gates) are not maintained and do not serve intended purpose		Project sustainability, Social and Environmental	P - 1 I- 3	Maintenance of the investments fall under the mandate of the executing entity, RID. Under its mandate, RID is responsible for maintaining water infrastructure. Co-financing from RID includes O&M during project implementation, and RID has committed resources for post-project O&M. The risk is therefore considered low probability.	RID	Ongoing
		Environmental risks associated with water infrastructure investments		Project sustainability, Social and Environmental	P - 1 I - 3	Measures will be taken to minimize any sediment entering waterways as a result of earthworks (e.g. bioengineering around the canals, upgrading of flood gates). Risks are expected to be 'moderate', a safeguards plan has been developed and related costs have been integrated into the project budget.	RID	Ongoing
		Project interventions do not have intended impacts, because behavior that is not conducive to the project		Project sustainability, Social and Environmental	P - 2 I-2	Project interventions are expected to reduce volatility of agriculture in the project area, through improved water management	RID/UNDP	Ongoing

#		Description	Date Identified	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner	Status
		objective continues (e.g. crop choice/calendar or related water use not informed by climate change, extraction of groundwater continues, etc.)				and the provision of climate information, related support to apply that information in planning, and support to beneficiaries through capacity building and sensitization to support transformational change. Climate data will be integrated into water planning and management, and related training provided to government staff, ensuring informed adaptation to changing climatic conditions and increasing climate risks in Thailand. Communities will be engaged throughout project implementation. Technical expertise will be provided through the project to ensure communities and district government staff have access to technical advice. Through regular monitoring, success of interventions will be measured and communicated to communities to provide assurance		
		Staff turnover or lack of technical capacity within executing entity		Project sustainability, Social and Environmental	P – 1 I-2	A capacity needs assessment has been undertaken, and RID was assessed as low risk across major categories. RID has capacity to	RID/UNDP	Ongoing

#		Description	Date Identified	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner	Status
						implement the project. The project follows UNDP's National Implementation Modality (NIM), with support provided by UNDP for specific activities agreed between UNDP and RID.		
		Extreme event disrupts implementation or damages investments, resulting in delays and/or additional costs. COVID-19 and COVID-19 related restrictions delay implementation		Project sustainability, Social and Environmental	P - I - 2	Related to extreme events, timing of activities during implementation will be scheduled to minimize risk particularly around the rainy season. The project team, with support from UNDP Thailand and national partners, will also ensure implementation follows national instructions related to containing the spread of COVID-19. Where possible the project will employ virtual methods to conduct consultations and training. Where necessary, timing of activities particularly if in a vulnerable area, may have to be reviewed and the timing adjusted to ensure compliance to government restrictions, and the safety of beneficiaries, partners and the project team.	RID/UNDP	Ongoing
		Implementation of Construction Activity by IP	8 August 2022	Implementation and operational	P = 2 I = 2	Even though IP will be implementing the construction activity, UNDP will support and monitor the progress of project implementation closely through	UNDP	On-going

#		Description	Date Identified	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner	Status
						PMU. Chief Technical Advisor (CTA) will work jointly with the Project Manager to provide technical oversight of project activities, support project management, and implement the project's activities.		

Annex M: Letter of Agreement with the government in case UNDP Support Service Costs are applied

Letter of Agreement between UNDP and Royal Irrigation Department for the provision of support services under Project titled:

Enhancing Climate Resilience in Thailand through Effective Water Management and Sustainable Agriculture

Dear Director General,

1. Reference is made to consultations between officials of the Royal Irrigation Department under the Ministry of Agriculture and Cooperatives (hereinafter referred to as "Implementing Partner") and officials of UNDP with respect to the provision of support services by the UNDP Country Office for nationally managed project titled "Enhancing climate resilience in Thailand through effective water management and sustainable agriculture". UNDP and Implementing Partner hereby agree that the UNDP Country Office may provide such support services at the request of the Implementing Partner in Project Document as described below.

2. The UNDP Country Office shall provide support services for assistance with reporting requirements and direct payment. In providing such support services, the UNDP Country Office shall ensure that the capacity of the Implementing Partner will be strengthened to enable it to carry out such activities directly. The costs incurred by the UNDP Country Office in providing such support services shall be recovered from the budget of the Project (Attachment).

3. The UNDP Country Office may provide, at the request of the Implementing Partner, the following support services for the activities of the project:

(a) UNDP's technical assistance for implementation of project activities
(b) Assistance in relation to financial services and procurement of goods and services.

4. The procurement of goods and services and the recruitment of project personnel by the UNDP Country Office shall be in accordance with the UNDP regulations, rules, policies and procedures. Support services described in paragraph 3 above shall be in the form provided in the Attachment hereto. If the requirements for support services by the Country Office change during the life of a project, the annex to the project document will be revised with the mutual agreement of the UNDP Resident Representative and the Implementing Partner.

5. The relevant provisions of the **Special Fund to Thailand**[1] which was signed between the Royal Thai Government and the United Nations Special Fund, on 4 June 1960, including the provisions on liability and privileges and immunities, shall apply to the provision of such support services. The Implementing Partner shall retain overall responsibility for the nationally managed project through its designated institution. The responsibility of the UNDP Country Office for the provision of the support services described herein shall be limited to the provision of such support services detailed in the attachment.

6. Any claim or dispute arising under or in connection with the provision of support services by the UNDP country office in accordance with this letter shall be handled pursuant to the relevant provisions of the Special Fund to Thailand.

7. The manner and method of cost-recovery by the UNDP Country Office in providing the support services described in paragraph 3 above shall be specified in the attachment.

8. The UNDP Country Office shall submit progress reports on the support services provided and shall report on the costs reimbursed in providing such services, as may be required.

9. Any modification of the present arrangements shall be effected by mutual written agreement of the parties hereto.

10. If you are in agreement with the provisions set forth above, please sign and return to this office two signed copies of this letter. Upon your signature, this letter shall constitute an agreement between Implementing Partner and

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[1] The Government and UNDP have entered into an agreement to govern UNDP's assistance to the country (Agreement between the United Nations Special Fund and the Government of Thailand concerning Assistance from the Special Fund), which was signed by both parties on 4 June 1960. Based on the Agreement, 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

UNDP on the terms and conditions for the provision of support services by the UNDP Country Office for nationally managed projects.

Yours sincerely,

Signed on behalf of UNDP
Mr. Renaud Meyer
Resident Representative

[*Date*]: 22/03/2023

For Implementing Partner
Mr. Praphit Chanma
Director-General
Royal Irrigation Department
Ministry of Agriculture and Cooperatives

[*Date*]: 22/03/2023

Attachment

DESCRIPTION OF UNDP COUNTRY OFFICE SUPPORT SERVICES

1. Reference is made to the consultation between officials of the Royal Irrigation Department under the Ministry of Agriculture and Cooperatives (Implementing Partner), and officials of UNDP with respect to the provision of support services by the UNDP Country Office for the nationally managed project "Enhancing climate resilience in Thailand through effective water management and sustainable agriculture", funded by the Green Climate Fund (GCF).

2. In accordance with the provisions of the Letter of Agreement signed on TBC and the Project Document, the UNDP Country Office shall provide support services for the Project as described below.

3. Support services to be provided:

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)**
The technical services and assistance will be provided directly to Implementing Partner (IP) and Responsible Parties (RPs): King Mongkut's University of Technology North Bangkok (KMUTNB) and Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ), who are implementing the activities across the three project outputs, including but not limited to: • Substantive technical analysis on issues related to the project interventions, strategic support, scoping of ToRs across all Outputs • Policy analysis and technical support towards project's alignment and coordination with other adaptation initiatives supported by UNDP, other UN Agencies and the World Bank including facilitating synergies post-implementation • Regular facilitation and dialogue with development partners in aligning the project results with SDGs and other international frameworks Paris agreement and Sendai Framework for Disaster Risk Reduction (DRR) • Provide direct technical inputs in all project training materials; act as resource person/training facilitator in relevant training programmes under the project. • Substantive technical analysis on issues related to the review of 13 schemes planning and improvement related to Ecosystem-based Adaptation approach and review of ToR for contractual service company for ESMF. • Provide direct technical inputs to the project to ensure effective coordination with the national counterparts under the National Water Management Committee and contributing to ongoing policies and programmes	Throughout project implementation when applicable	As per percentage of pro-forma costs, basing on an agreed actual working days for the project and time-sheet records: • Part-time Technical support on climate change policies, SDGs target measurement, south-south exchange, and institutional coordination; and technical and strategic guidance on result-based management (15% Programme Specialist, 25% Programme Analyst, over 5 years) • Part-time International Economic specialist (5% time over 5 years) • Part-time Programme associate staff (20% over 5 years) **Estimated subtotal:**	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)
• Technical inputs to develop the adaptive livelihood approach informed by lessons learned from previous adaptation projects, including enabling scale and replication beyond the project • Synthesis of lessons learned and provision of substantive guidance and support to develop knowledge products in the project training materials; act as resource persons/training facilitators in relevant training programmes under the project • Technical inputs to develop women centered social enterprises around the project area that adapt to Ecosystem-based Adaptation (EbA) • Technical Analysis and inputs on options, strategic approach, and action plan, based on best practices, to replicate and scale up the project approaches • Facilitation of international and regional knowledge building, South-South cooperation on topics related to the project, including but not limited to, climate change adaptation, climate change data system, gender and climate change, climate change and sustainable livelihoods development, social innovation for development. • Peer reviews of inception/final project deliverables and technical reports produced by Chief Technical Advisor, Monitoring and Donor Requirement Support and project teams. • Review lessons learned and provision of substantive guidance and support to develop knowledge products from the project. <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> • Support the Royal Thai Government in formulating new climate resilience-related programmes and/or projects for the Ministry of Agriculture and Cooperatives for further resource mobilization and linkages with the Green Climate Fund or other international financing windows in addressing Climate Change.		**US$ 502,038**	

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)
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 • Short-listing & selection • Contract issuance Administration services • Payments • Creation of vendor profile • Issuing cheques	Ongoing throughout implementation where applicable	As per attached price list. **Estimated DPC cost: US$ 77,564**	UNDP will directly charge as per UNDP's Universal Price List for Thailand.
Average Direct Project Costs/year over 5 years			**US$ 579,602**

Indicative Direct Project Costs Schedule				
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
$ 115,920.40	$ 115,920.40	$ 115,920.40	$ 115,920.40	$ 115,920.40

4. The Integrated Programme 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 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 analysed 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.

Annex N: HACT micro assessment and Partner Capacity Assessment

Please access HACT Micro Assessment Reports and PCAT reports for the following entities via the links provided

- The Royal Irrigation Department of Thailand (RID) - **PCAT**; **HACT Micro Assessment**
- King Mongkut's University of Technology North Bangkok (KMUTNB) - **PCAT**; **HACT Micro Assessment**
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) - **PCAT**; **HACT Micro Assessment**

Annex O: Additional agreements

N/A

Annex P: UNDP Project Quality Assurance Report (to be completed in UNDP online corporate planning system, does not need to be attached as separate document)

This report has been completed and approved via UNDP corporate planning system. The report can be accessed via this link: https://pims.undp.org/attachments/5923/215475/1751578/1793051/QA%20-%20CO%20Thailand%20PIMS%205923%20GCF.pdf

Annex Q: Monitoring and evaluation plans

Please fill in this Monitoring Plan and attach here also the M&E Plan from the project design stage (i.e. one submitted to the GCF prior to approval by its Board.) These plans will guide monitoring and evaluation at the project level for the duration of project implementation.

Monitoring	Indicators	Targets		Description of indicators and targets	Data source/Collection Methods[21]	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		Mid-term	Final						
Fund Level Impact from the results framework	***Indicator 1*** Change in expected losses of lives and economic assets (US$) due to the impact of extreme climate related disasters in the geographic area of the GCF intervention	USD 0.03 million reduction in losses	USD 2 million reduction in losses	Change in expected losses of lives and economic assets (US$) due to the impact of extreme climate-related disasters in the geographic area of the GCF intervention	Annual agriculture report (e.g. OAE's Agricultural Statistics of Thailand)	Midterm and end of term	UNDP, PMU, RID	Annual agriculture report Mid term report Terminal Evaluation report	Estimated flood damage cost reduction at each return period in case without and with project Annex 3b_Econ Analysis
	Indicator 2 Number of males and females benefiting from the adoption of diversified, climate resilient livelihood options (including fisheries, agriculture, tourism, etc.)	Male = 7,750 Female = 7,750	Male =29,896 Female = 32,104	Number of males and females benefiting from the adoption of diversified, climate resilient livelihood options (including fisheries, agriculture, tourism, etc.)	OAE's Agricultural Statistics of Thailand	Midterm and end of term	UNDP, PMU, RID	Annual agriculture report Mid term report	Training and capacity building measures will result in change responses for agricultural activities and practices. Provision of climate information tailored to stakeholders' needs will result in

[21] 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	Indicators	Targets		Description of indicators and targets	Data source/Collection Methods[21]	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		Mid-term	Final						
								Terminal Evaluation report	climate information being integrated into planning and decision-making of farmers and government stakeholders, and which is climate-risk responsive.
	Indicator 3 Number of males and females with yearround access to reliable and safe water supply despite climate shocks and stresses	Male = 7,750 Female = 7,750	Male =29,896 Female = 32,104	Number of males and females with yearround access to reliable and safe water supply despite climate shocks and stresses* *Beneficiaries are expected to benefit from above indicators. Water supply in this case refers to water for agriculture purposes. Precision agriculture supported by the project will define minimum amounts to support productivity	OAE's Agricultural Statistics of Thailand	Midterm and end of term	UNDP, PMU, RID	Annual agriculture report Mid term report Terminal Evaluation report	Water infrastructure completion and ongoing maintenance retained to effectively continue supply of water. Water access and climate smart agricultural measures will improve food security outcomes.
	Indicator 4 Number of physical assests made more resilient to climate variablility and change,	0 USD 0	2 USD 5 million	Number of physical assests made more resilient to climate variablility and change, considering human benefits	RID reports - water flows, water retention	Midterm and end of term	UNDP, PMU, RID	Site visits Annual agriculture report	Extreme weather does not damage infrastructure works.

Monitoring	Indicators	Targets		Description of indicators and targets	Data source/Collection Methods[21]	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		Mid-term	Final						
	considering human benefits				data at monitoring stations both in targeted area and in downstream areas for changes in flood impacts			Mid term report Terminal Evaluation report	
	Indicator 5 Coverage/scale of ecosystems protected and strengthened in response to climate variability and change	120 km^2	200 km^2	Coverage/scale of ecosystems protected and strengthened in response to climate variability and change	ONWR RBC Secretariat	Midterm and end of term	UNDP, PMU, RID	Site visits River Basin Master Plan (ONWR) River Basin Committee meeting report (RBC Secretariat) Annual agriculture report	Assessment identified suitable locations for EbA measures to complement water infrastructure

Monitoring	Indicators	Targets		Description of indicators and targets	Data source/Collection Methods[21]	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		Mid-term	Final						
								Mid term report Terminal Evaluation report	

Monitoring	Indicators	Targets		Description of indicators and targets	Data source/Collection Methods[21]	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		Mid-term	Final						
Project Outcome	***Indicator 6*** *Use by vulnerable households, communities, businesses and public-sector services of Fund-supported tools instruments, strategies and activities to respond to climate change and variability*	Household Level = 2 USD 0 Credit available to farmers practicing climate resilient farming (co0designed by project)	Household Level = 4 USD16 million	*Use by vulnerable households, communities, businesses and public-sector services of Fund-supported tools instruments, strategies and activities to respond to climate change and variability*		Midterm and end of term	UNDP, PMU, RID	Mid term report Terminal Evaluation report	Climate-information and guidance on on-farm measures and/or crop alternatives are adopted by beneficiary households BAAC commitment to parallel finance through financial product
	Indicator 7	Level = 2	Level = 4						

Monitoring	Indicators	Targets		Description of indicators and targets	Data source/Collection Methods[21]	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		Mid-term	Final						
Project Results (Outputs) 1	Level[22] of integration of climate related information into water and agriculture planning			Enhance climate and risk informed planning in the water and agricultural sectors through improved climate information and cross sectoral coordination				Reports, integration into policy, planning and programming documents MTR TE PMVs Progress Report Minutes of PB	Government commitment to climate-informed planning
	Indicator 8 Number of people trained on integrating climate information into planning	*15 (30% women)*	*30 (30% women)*						
Project Results (Outputs) 2	***Indicator 9*** Climate risk informed upgrades and enhancements to the Yom and Nan river basin area, updating the canal and regulator network to effectively manage water for both flood and drought periods for efficient use	3 flood gates covering water distribution area of 120km^2	5 upgrades/modifications, complemented by EbA, covering water distribution area of 200km^2	Climate risk informed upgrades and enhancements to the Yom and Nan river basin area, updating the canal and regulator network to effectively manage water for both flood and drought periods for efficient use				*Total number of assets constructed and/or modified, according to type or upgrade/strengthening*	*Co-financing by RID to support infrastructure investment (3 flood gates) and other works* *Extreme weather does not damage infrastructure works.* *Climate information integration into upgrade designs will mitigate potential damage to infrastructure works from flood.*

[22] Level of integration is based on a scale where 1 = limited to no integration; Level 2 = climate information included in planning processes for water or agriculture planning; Level 3 = climate information included in planning processes for both sectors; Level 4 = evidence of collaborative and climate informed planning between water and agriculture sectors

Monitoring	Indicators	Targets		Description of indicators and targets	Data source/Collection Methods[21]	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		Mid-term	Final						
									Assessment identified suitable locations for EbA measures
Project Results (Outputs) 3	***Indicator 10*** Level of action and application of climate information towards climate resilient practices by beneficiary households	*0 farm ponds* *0 community nurseries in subdistricts* *0 Online market platform to increase visibility and marketability of farmers' products*	*100 farm ponds* *22 community nurseries in subdistricts* *1 Online market platform to increase visibility and marketability of farmers' products*	Level of action and application of climate information towards climate resilient practices by beneficiary households				*Gender-disaggregated household surveys (project randomized control trials); site visits; reports; project monitoring;*	*Climate-information is tailored and disseminated for use by farmers* *Guidance on on-farm measures and/or crop alternatives is provided to farmer through extension services, and is adopted by beneficiary households*
	Indicator 11 Number of households with access to finance for climate resilient farming investment	10,000	20,000					*Gender-disaggregated household surveys (project randomized control trials);*	*BAAC commitment to parallel finance through financial product*

Monitoring	Indicators	Targets		Description of indicators and targets	Data source/Collection Methods[21]	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
		Mid-term	Final						
								Annual BAAC reports	
	Number of listed companies contributing to climate resilient agriculture through contracts to purchase sustainably produced products or investment to support climate resilient agriculture (in-kind/cash contributions)	70	210					*Project reports, annual co-financing reporting; company reports and PR materials*	*Continued UNDP support to companies for integration of SDG impact measurement and management into business operations and strategy. UNDP has network of 700 listed companies of the Thailand stock market*

Monitoring and Evaluation Plan from the project design stage

Annex R: Project-specific Annexes (from Funding Proposal)

- Annex R-1 Feasibility Study: https://pims.undp.org/attachments/5923/215475/1726769/1783306/FP-UNDP-210721-5923-Annex%202%20Feasibility%20Study.pdf

- Annex R-2 Econ analysis: https://pims.undp.org/attachments/5923/215475/1726779/1778759/FP-UNDP-110521-5923-Annex%203_a_%20Econ%20Analysis.pdf

- Annex R-3 Financial Analysis: https://pims.undp.org/attachments/5923/215475/1726770/1783304/FP-UNDP-210721-5923-Annex%203_c_%20Financial%20Analysis.pdf

- Annex R-4 Operations and Maintenance Plan: https://pims.undp.org/attachments/5923/215475/1726783/1786000/FP-UNDP-020921-5923-Annex%2021%20O_M%20Plan%20.pdf

- Annex R-5 Yom-Nan operation maintenance project: https://pims.undp.org/attachments/5923/215475/1726788/1739990/FP-UNDP-140619-5923-Annex%2022%20Yom-Nan%20Operation%20_%20Maintenance%20Project.pdf

- Annex R-6 Survey of Climate impact: https://pims.undp.org/attachments/5923/215475/1726788/1739990/FP-UNDP-140619-5923-Annex%2023%20Survey%20of%20Climate%20Change%20Impacts.pdf

- Annex R-7 Climate Change in Chao Phraya: https://pims.undp.org/attachments/5923/215475/1726788/1739990/FP-UNDP-171220-5923-Annex%2026%20Climate%20Change%20in%20Chao%20Phraya%20Basin.pdf