ADAPTATION FUND

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Government of the People's Republic of Bangladesh
United Nations Development Programme
Project Document

Project title: Adaptation Initiative for Climate Vulnerable Offshore Small Islands and Riverine Charland in Bangladesh		
Country: Bangladesh	**National Executing Agency (NEA):** Department of Environment (DoE), Ministry of Environment, Forest and Climate Change (MoEFCC)	**Execution Modality :** National Implementation Modality (NIM)
Contributing Outcome (UNDAF): *No 3. Enhance effective management of the natural and man-made environment focusing on improved sustainability and increased resilience of vulnerable individuals and groups.*		
UNDP Social and Environmental Screening Category: *Moderate*	**UNDP Gender Marker:** *2*	
Atlas Award ID (formerly Award ID): 00093848	**Atlas Output ID (formerly Project ID):** 00098085	
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LPAC meeting date: *10 May 2020*		
Planned start date: *[AF project's starting date would be the singing date of the Project Document]*	**Planned end date:** *September 2026*	
Expected date of posting of Mid-Term Review to ERC: June 2023	**Expected date of posting Terminal evaluation report to ERC: December 2026**	

Brief project description:

Bangladesh has a low-lying topography extremely exposed to sea level rise (SLR), cyclones, tidal surges, salinity intrusion, erratic rainfall, drought and floods, causing it to be one of the world's most vulnerable countries to climate change. The vulnerable communities who live on chars — small alluvial islands in rivers and the Bay of Bengal are particularly at risk from climate change. These communities have already experienced a number of climate change impacts including frequent tidal surges, increasingly intense cyclones and salt water intrusion into fresh water and soil. Furthermore, climate change is projected to have an adverse impact on agriculture and other local livelihoods; fragile houses, access to drinking water and rural infrastructure, which includes existing cyclone protection embankments. The impacts of climate change also disproportionately affect the poor and are especially severe for women and children, who are forced to spend a greater portion of their time on livelihood and domestic activities. Current projections indicate, with a 2°C increase in global temperatures, 50-year floods in the country's three main river basins will become 40% more likely by 2025. The impacts of climate change on these islands are exacerbated by several baseline factors, including geographic remoteness, topographic position near sea-level, limited public and private infrastructure to withstand climate impacts, poverty of local communities and livelihood practices that are dependent on the availability of fresh water. On coastal chars (small offshore islands), the houses and livelihoods of communities are damaged by the increasingly frequent and intense cyclones, tidal

floods and saline intrusion from climate change, with inadequate protection from the fragile embankment system. On the inland riverine islands (riverine *charland*), communities are experiencing increasingly erratic rainfall as a result of climate change, leading to changes in both floods and droughts that their current houses and livelihood practices are unable to withstand.

Resources sought from the Adaptation Fund (AF) will be invested in four components. Firstly, it will assist households to enhance the resilience of their houses and livelihoods to climate change-induced flooding, cyclones, saline intrusion and droughts. Secondly, it will improve community-level infrastructure, including embankments with modern climate-resilient technology and effective local management practices. Thirdly, it will assist the Bangladesh Cyclone Preparedness Programme (CPP)[1] under Disaster Management Department, to enhance its activities in the remote coastal char targeted by the project, in order to provide timely early warnings and effective emergency response. This will be done by expanding the programme's coverage in the area, modernising its equipment, and making it fully gender sensitive. Finally, the technology, approaches and knowledge generated by the project will be used to build the capacity of the local and national government; and communities to make climate-resilient investments and policies.

The US$ 9.21 million sought from the Adaptation Fund (AF) will address the knowledge technical, financial and institutional barriers to climate-resilient housing, infrastructure and livelihoods. The project interventions will benefit an estimated ~341,000 people (~31,000 direct beneficiaries[2] and 310,000 indirect beneficiaries) living on chars in the districts of Rangpur and Bhola. Spanning over five years, the project will be implemented by the Ministry of Environment, Forest and Climate Change following UNDP's National Implementation Modality.

The project will contribute towards the achievement of the Government of Bangladesh's national priorities as outlined in the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) and Nationally Determined Contribution (NDC). Six of the ten near-term areas of intervention identified by the first NDC will be addressed by the project, namely: i) food security, livelihood and health protection, including water security; ii) comprehensive disaster management; iii) coastal zone management, including saline intrusion control; iv) flood control and erosion protection; v) climate-resilient infrastructure; and vi) increased rural electrification. Furthermore, the project is directly aligned with seven of the fourteen broad adaptation actions prioritised by the first NDC, namely: i) improved early warning systems; ii) disaster preparedness and shelters; iii) protection against tropical cyclones and storm surges; iv) provision of climate-resilient infrastructure and communication; v) provision of climate-resilient housing; vi) stress-tolerant crop variety improvement and cultivation; and vii) capacity building at individual and institutional level to plan and implement adaptation programmes and projects.

This project has been developed through extensive stakeholder consultations, including with communities in the selected islands, civil society and with the GoB (see Appendix A). The design of the project has been reviewed as per the Government of Bangladesh's internal process, led by the Adaptation Fund Designated Authority and involving relevant government ministries.

(1) FINANCING PLAN	
Adaptation Fund	USD 9,212,322
(1)Total Budget administered by UNDP	**USD 9,212,322**
(2) PARALLEL CO-FINANCING	
N/A	

[1]The Bangladesh Cyclone Preparedness Programme is the world's largest volunteer-based early warning dissemination and emergency response organisation.

[2]31,000 is 100% of the population at the project's target sites.

SIGNATURES		
Signature: Fatima Yasmin Secretary Economic Relations Division Ministry of Finance Bangladesh Secretariat, Dhaka	**Agreed by Government Development Coordination Authority**	**Date/Month/Year:** 24.06.2021
Signature: Ziaul Hasan ndc Secretary Ministry of Environment, Forest and Climate Change Bangladesh Secretariat, Dhaka	**Agreed by Sponsoring Ministry**	**Date/Month/Year:** 09-June-2021
Signature: Sudipto Mukerjee Resident Representative UNDP Bangladesh	**Agreed by UNDP**	**Date/Month/Year:** 08-Jun-2021

Contents

I. DEVELOPMENT CHALLENGE AND BARRIERS

Development Challenges

Bangladesh is a small and densely populated country with an extensive coastline of ~720 km to the south. Its land area is ~147,570km^2, consisting largely of flat, low-lying deltaic terrain. There are discrete elevated regions in the northwest and southeast, but approximately two-thirds of the country is less than 6m above mean sea level. The deltaic terrain of Bangladesh has been formed by the deposition of alluvial discharges from the Ganges (also known locally as the Padma), Brahmaputra (also known as the Jamuna), and Meghna Rivers (GBM)[3]; map in Figure 1 below. This depositional process has created an extensive network of islands and bars. These islands and bars are referred to locally as small coastal islands (coastal chars) or riverine char islands (riverine chars), depending on their proximity to the Indian Ocean[4][5].

Bangladesh is rated as one of the most susceptible nations to the impacts of both slow- and rapid-onset natural disasters because of its geographical location, major rivers and low-lying topography. These include climate-related disasters such as cyclones, storm surges, floods, extreme heat and droughts, as well as other disasters such as earthquakes. Climate-related disasters have accounted for ~95% of all major disasters in Bangladesh since 1990[6], and are becoming both more frequent and intense. This is because of increased ocean temperatures as well as a more variable and intense seasonal precipitation.

Socio-economic context

With a population of ~160 million, the small country of Bangladesh is one of the most densely populated nations in the world. The majority of this population is rural (~64%), but there is a strong urbanising trend and the rate of change from rural to urban is approximately 3% annually. Urbanisation has supported the rapid development of Bangladesh's economy, which has grown at ~6% per year since 2008. In line with this rapid economic growth, Bangladesh has made concurrent improvements in its Human Development Index score. These improvements are evident in the country's reduction in poverty from 48% of the population in 2000 to only24% in 2016[7]. The development of industry as a result of urbanisation has also shifted the country away from its past economic reliance on agriculture. Major sectors currently contributing to GDP include services (~56%), industry (~29%) and agriculture (~14%). Despite no longer being the dominant sector in terms of GDP, agriculture in Bangladesh still provides employment to over 43% of the country's workforce and 60% of all employed women. Furthermore, rural communities, who are disproportionately affected by poverty, still rely on agriculture as a primary livelihood[8].

Bangladesh has also made significant strides in reducing inequality[9] and promoting gender equality, however, gender disparities continue to exist as a result of: i) traditional gender norms; ii) patrilineal and patriarchal kinship systems; iii) adherence to personal (religious) law; and iv) weak enforcement of laws protecting women[10]. One domain where women have substantial representation in Bangladesh is in politics[11]. Outside of politics, however, women are generally afforded lower access to healthcare, lower wages and fewer employment opportunities than men[12].

[3] Together these three rivers are referred to as the GBM system

[4]Sarker, M. H., Huque, I., Alam, M., &Koudstaal, R. (2003). Rivers, chars and char dwellers of Bangladesh. International Journal of River Basin Management, 1(1), 61-80.

[5] (EGIS, 2000)

[6]EM-DAT: The OFDA/CRED - International Disaster Database www.emdat.be Universitécatholique de Louvain Brussels - Belgium.

[7] Asian Development Bank, 2018. Available at: https://www.adb.org/countries/bangladesh/poverty

[8] IFAD, 2018

[9] Inequality in Bangladesh, as defined by the Gini coefficient, has remained constant at ~32 since 2000.

[10]UNICEF. (2011). A perspective on gender equality in Bangladesh. *From young girl to adolescent: What is lost in transition*.

[11] The last two prime ministers in Bangladesh have been women, and one sixth of all parliamentary seats are reserved for women.

[12]UNICEF. (2011). A perspective on gender equality in Bangladesh. *From young girl to adolescent: What is lost in transition*.

Figure 1. Map of Bangladesh, with the capitals of project target areas circled[13].

Climate profile

Bangladesh has a subtropical monsoon climate, with high levels of humidity and moderately warm temperatures ranging between 18°C and 28°C. The country experiences wide seasonal variations in precipitation, which can exceed 2000mm annually in most parts of the country. There are four meteorologically recognisable seasons, namely the: i) hot and humid pre-monsoon between March and May; ii) rainy and humid monsoon between June and September; iii) hot and dry post-monsoon between October and November; and iv) cool and dry winter between December and February. The monsoon season is the dominant climatic feature in Bangladesh and accounts for ~75% of the annual precipitation. Thereis also significant variability in the onset, amount and duration of precipitation during the monsoon season. This variability has profound impacts on water resources, electricity generation, agriculture, economics, ecosystems, and livelihoods in Bangladesh.

Current climate change vulnerability and impacts

Bangladesh is among the countries most vulnerable to future climate change[14]. This extreme vulnerability is a result of: i) the country's exposure to current and predicted climate change; ii) the economic impacts of

[13]United Nations Map of Bangladesh. Source: https://en.wikipedia.org/wiki/Portal:Bangladesh/Map

[14]Maplecroft, V. (2013). Climate Change Vulnerability Index 2014. Climate Change and Environmental Risk Atlas.

climate-related natural disasters; iii) local dependency on agricultural livelihoods; and iv) low adaptive capacity within the government and population[15]. These aspects of the country's vulnerability are discussed in more detail below. For current climate change impacts, Bangladesh has been ranked as the fifth most affected country in the world when incorporating the impacts of slow and rapid onset climate-related natural disasters[16]. These slow and rapid onset disasters[17] are becoming both more frequent and more intense as a result of increased oceanic temperatures and greater variability and intensity of seasonal precipitation.

On average, climate-related natural disasters affect 5 million people annually in Bangladesh through loss of life, loss of livelihood, displacement and damage to property[18]. Between 2006 and 2016 there were over 54 disaster-level events in the country (Figure 3). Combined, these events claimed more than 7,000 lives (Figure 2) and caused more than US$ 29 billion in damages[19]. The most destructive single event during this period was Cyclone Sidr in 2007, which claimed an estimated 3,500 lives, negatively impacted more than 2.5 million households and caused damage to property and assets in excess of US$ 1.7 billion[20].Historically, the deadliest tropical cyclone disaster ever recorded occurred in Bangladesh – the Bhola cyclone of 1970. At least 500,000 people lost their lives in this storm, primarily as a result of the storm surge that flooded much of the low-lying islands of the Ganges Delta[21].

The impacts of increasingly severe climate-related disasters are already affecting the livelihoods and health of the population of Bangladesh. For example, the drought in 2014 in northern Bangladesh and record flooding in 2017[22] both resulted in decreased food production across the country[23]. These events significantly impacted the livelihoods of rural communities who depend on agriculture by increasing: i) costs of staple foods such as rice and wheat; ii) strain on the government grain surplus; and iii) migration out of affected areas[24] as households that lost their land could no service their existing debts.

Women and children are disproportionately affected by climate-related disasters[25]. For example, during the 1991 cyclone[26] in Bangladesh, 90% of the 140,000 fatalities were women, and during Cyclone Sidr in 2007, women still accounted for more than 80% of all fatalities[27]. The effects of food shortages and disruptions in food production brought about by these events are also most keenly felt by young children and rural women. This is because women are the primary caregivers in Bangladesh and a significant proportion of Bangladeshi women rely exclusively on agriculture for their livelihoods[28]. Overall, the increased vulnerability of women to natural disasters in Bangladesh is attributed to multiple factors including: i)family responsibilities – such as caring for children and the elderly; ii) less inclusion in decision-making practices; iii) lower levels of education and iv) a prevailing fear of harassment in storm shelters, which leads many women to avoid seeking shelter during disaster events[29,30]. Furthermore, women who are displaced or lose family members during natural disasters experience a much greater risk of abuse, harassment, trafficking or indentureship as they seek to recover or re-establish themselves in post-disaster settings[31].

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[15] Ibid.

[16] (IFRC, 2016.).

[17] E.g. floods, river bank erosion, erratic precipitation, cyclones, heat waves, waterlogging, drought and salinity intrusion

[18]Jahan, S., *et al.* (2015). Human development report 2015: Work for human development. UNDP: New York, USA.

[19] EM-DAT. 2016. Country Profile. EM-DAT: The International Disaster Database. Available at:http://www.emdat.be/country_profile/index.html

[20]Dastagir, M. R. (2015). Modeling recent climate change induced extreme events in Bangladesh: a review. Weather ClimExtrem 7: 49–60.

[21] Ganges-Brahmaputra delta cyclone. Available at: https://www.britannica.com/event/Ganges-Brahmaputra-delta-cyclone

[22]Reliefweb. 2014. Drought, food insecurity and radicalism in Northern Bangladesh. Available at: https://reliefweb.int/report/bangladesh/drought-food-insecurity-and-radicalism-northern-bangladesh

[23]Reliefweb. 2017. Bangladesh: Flood situation. Available at: https://reliefweb.int/report/bangladesh/bangladesh-flood-situation-august-22-2017

[24] Displacement is the single greatest impact of climate change in Bangladesh and will affect 1 out of every 7 people (~15% of the population), according to Comprehensive Disaster Management Programme's 2012 mid-term review.

[25]Neumayer, E., &Plümper, T. 2007. The gendered nature of natural disasters: The impact of catastrophic events on the gender gap in life expectancy, 1981–2002. *Annals of the Association of American Geographers*, *97*(3), 551-566.

[26] Until 2004, tropical cyclones were not named in the north Indian Ocean.IMD designation: BOB 01.

[27]Ikeda, K. 1995. Gender differences in human loss and vulnerability in natural disasters: A case study from Bangladesh. *Bulletin (Centre for Women's Development Studies)*, *2*(2), 171-193.

[28] agriculture accounts for over 60% of female employment in Bangladesh

[29] Bureau for Crisis Prevention and Recovery. 2010. Gender and Disasters. United Nations Development Programme

[30]Neumayer, E., &Plümper, T. 2007. The gendered nature of natural disasters: The impact of catastrophic events on the gender gap in life expectancy, 1981–2002. *Annals of the Association of American Geographers*, *97*(3), 551-566.

[31]Fisher, S. (2010). Violence against women and natural disasters: Findings from post-tsunami Sri Lanka. *Violence Against*

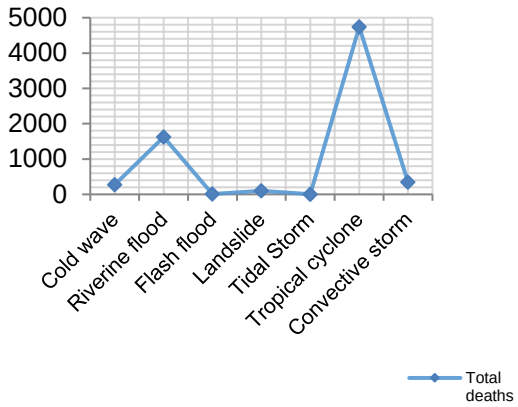


Figure 2. Total deaths due to climate-related natural disasters in Bangladesh between 2006 and 2016.

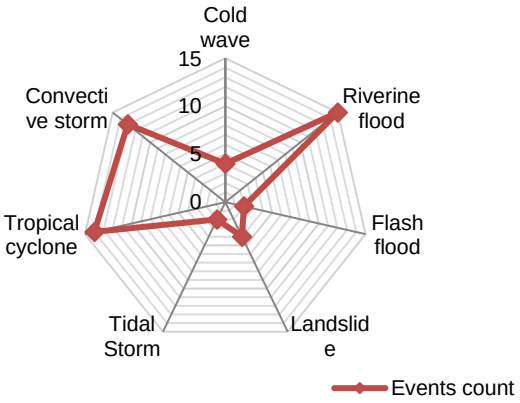


Figure 3. Frequency of climate-related natural disasters in Bangladesh from 2006 to 2016.

Climate change projections

South Asia will experience significant climate change in the next century under all emissions scenarios[32]. The expected climate change for the region is outlined in Table 1 below. In Bangladesh, increasing trends in precipitation and temperature are projected. The occurrence and severity of extreme precipitation events and extreme temperatures are also predicted to increase[33].

Table 1. Future Climate Trends for South Asia[34]

Precipitation	Temperature	Sea Level Rise
Increased rainfall under high emissions scenario by 2050	Increase by >2°C by 2050 under high emission scenario	26–55 cm globally under low-emissions scenario by 2080–2100
Increased rainfall at high latitudes under low emissions scenario by 2050, but no significant changes at low latitudes	Increase by >3°C by 2100 under high emissions scenario	45–82 cm globally under high-emissions scenario by 2080–2100
Increased extreme rainfall events associated with monsoons	Increase by >2°C by 2100 under low emissions scenario	
Increased extreme rainfall associated with cyclones making landfall	Increased frequency of hot days	

Future climate change impacts and vulnerability

Future climate change scenarios project that Bangladesh will be exposed to a wide range of impacts by 2050, including increased: i) sea level rise and shoreline/soil salinity; ii) variability of seasonal precipitation; and iii) frequency and severity of cyclones that make landfall.

Floods, land loss, salinity and droughts

Women, *16*(8), 902-918.

[32] Field, C. B., *et al*. (2014). Summary for policymakers. In Climate change 2014: impacts, adaptation, and vulnerability. Part A: global and sectoral aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (pp. 1-32). Cambridge University Press

[33]Dastagir, M. R. (2015). Modeling recent climate change induced extreme events in Bangladesh: a review. Weather ClimExtrem 7: 49–60.

[34] IPCC, 2014. Fifth assessment report, South Asia summary. Available at: https://cdkn.org/wp-content/uploads/2014/04/CDKN-IPCC-Whats-in-it-for-South-Asia-AR5.pdf

Flooding within the Bangladesh delta is predicted to increase in frequency because of climate change[35]. Modelling of precipitation patterns and peak flow periods in the Ganges, Brahmaputra and Meghna rivers indicates that, with a 2°C increase in global temperatures, the current 20-year floods will likely occur at intervals of 13, 15 and 5.5 years respectively[36,37]. Similarly, the extreme 50-year floods are also likely to increase in frequency, with the recurrence interval for these floods decreasing to 30 years by 2025 and to 15 years by 2050[38].

The frequency of droughts in the southwest and northwest regions of Bangladesh is predicted to increase under climate change. In particular the western parts of the country will be at greater risk of droughts during the pre-Kharif and Kharif seasons (July – October)[39]. This is expected to result in a decline in rice production by ~27% and wheat production by ~39%[40] under a moderate climate change scenario. Under a severe climate change scenario, the area severely affected by drought in the Rabi season (October – March)[41] is predicted to increase from 4,000 km^2 to 12,000 km^2, or approximately 15% of Bangladesh's total arable land[42].

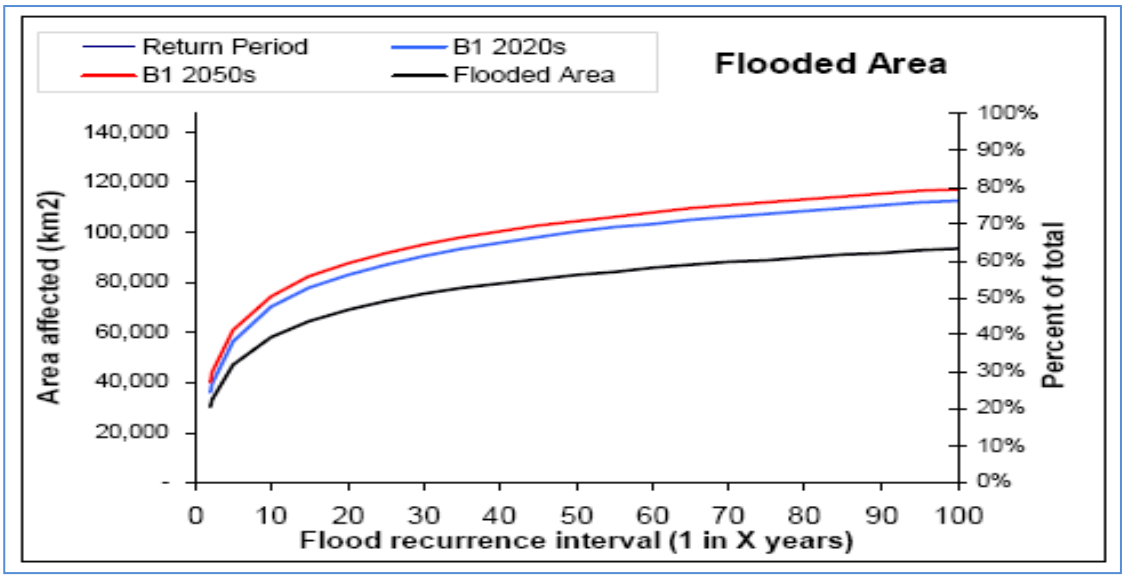


Figure 4. Increase in area and percentage of Bangladesh affected by floods. Black line = current situation, blue line = 2020s and red line = 2050s.

[35] Mirza, M. M. Q., *et al*. (2001). Are floods getting worse in the Ganges, Brahmaputra and Meghna basins? Global Environmental Change Part B: Environmental Hazards, 3(2), 37-48.

[36]The range of flooded area is predicted to be between 50,000 and 57,000 km^2 and result in inundation of 34% – 38.5% of the total area of Bangladesh, as classified by Mirza (2001)

[37] For the A2 scenario (temperature increase of 6ºC), the return period of the same frequency flood event will decrease ~3.4 times, ~2.3 times and ~8.5timesfor the three rivers respectively.

[38] Mirza, M. M. Q., *et al*. (2001). Are floods getting worse in the Ganges, Brahmaputra and Meghna basins? Global Environmental Change Part B: Environmental Hazards, 3(2), 37-48.

[39]Dastagir, M. R. (2015). Modeling recent climate change induced extreme events in Bangladesh: a review. Weather ClimExtrem 7: 49–60.

[40]Karim, Z., Hussain, S. G., & Ahmed, A. U. (1999). Climate change vulnerability of crop agriculture. In Vulnerability and adaptation to climate change for Bangladesh (pp. 39-54). Springer Netherlands.

[41]The Rabi season is the normal 'dry season' in Bangladesh.

[42]Huq, S. U., Ahmed, A. U., & Koudstaal, R. (1996). Vulnerability of Bangladesh to climate change and sea level rise. In Climate change and world food security (pp. 347-379). Springer Berlin Heidelberg.

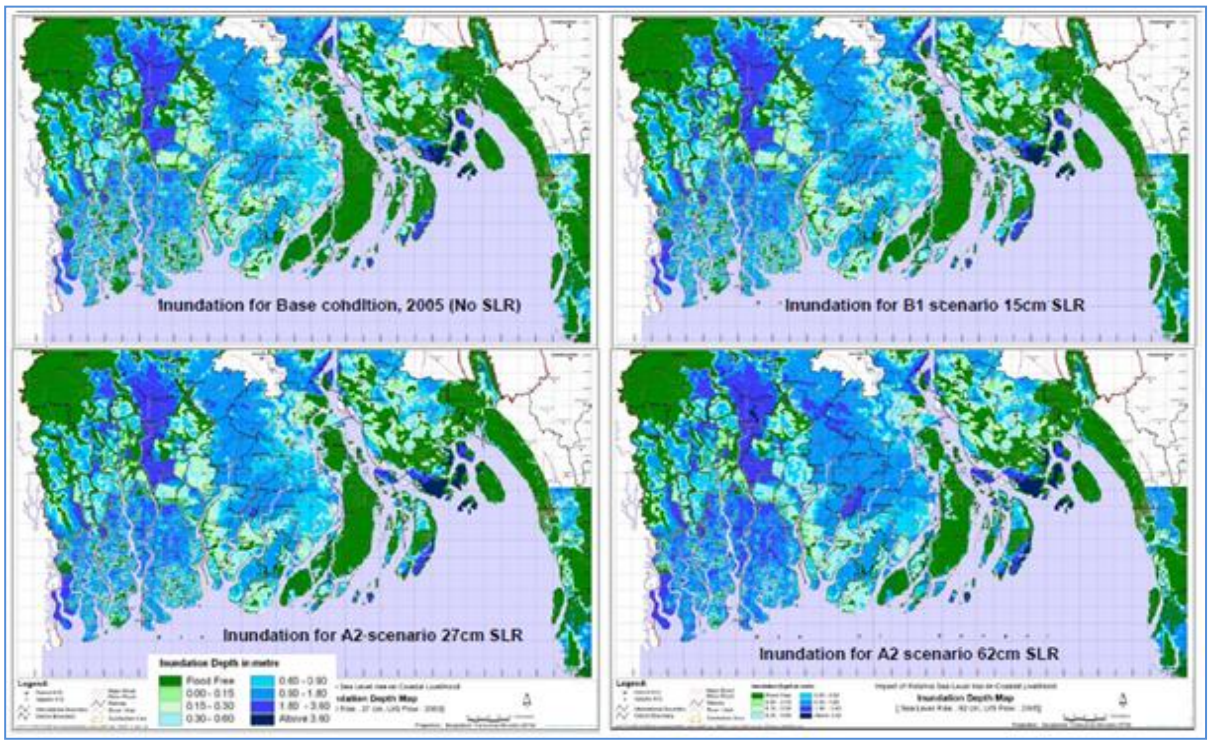


Figure 5. Inundation of the coastal region of Bangladesh for sea level rise of 15cm (B1 scenario), 27cm (A1 scenario) and 62cm (A2 scenario) during the monsoon season.

Projections indicate that drainage congestion in the southern region of Bangladesh will be impacted by rising sea levels, which will result in increased shoreline and soil salinity. Observed sea level rise (SLR) over the last 30 years in Bangladesh has ranged from 6 to 21 mm/year[43]; SLR is expected to accelerate in accordance with global projections (Table 1). This projected SLR will result in approximately 4,700 km^2 of Bangladesh's coastline being lost through inundation by the year 2080 under a severe climate change scenario[44,45], disproportionately affecting offshore islands and areas without polders. Furthermore, the predicted increase in precipitation combined with SLR will reduce the land area of Bangladesh by a further ~55,000 km^2 during the monsoon period.

Shoreline and soil salinity in the southwest region are predicted to increase in inland areas of the delta as a result of climate change, with the most marked change in salinity associated with the dry season. The change in shoreline salinity will cause significant variations in the freshwater and brackish water zones within the delta, with negative impacts on agriculture, biodiversity and the provision of drinking water[46]. Models accounting for salinity threshold values in relation to agriculture, drinking water and biodiversity predict increases in salinity in both the dry and monsoon seasons. During the dry season, salinity will increase by 6% for the A1 scenario and 9% for the A2 scenario. In the monsoon season, salinity will increase by 2% under the A1 scenario and by 6% under the A2 scenario. Saline intrusion is also predicted to extend far into the country's interior under both B1 and A2 scenarios (Figure 6).

[43] Assessment of Sea Level Rise on the Bangladesh Coast through Trend Analysis published by the Government of Bangladesh

[44] A2 scenario - sea level rise of 62 cm.

[45] WARPO, 2005. Living in the Coast, Series 4: Urbanization, available at: http://www.warpo.gov.bd/rep/liv/living4.pdf

[46] Kroeker, K. J., *et al.* (2013). Impacts of ocean acidification on marine organisms: quantifying sensitivities and interaction with warming. Global change biology, 19(6), 1884-1896.

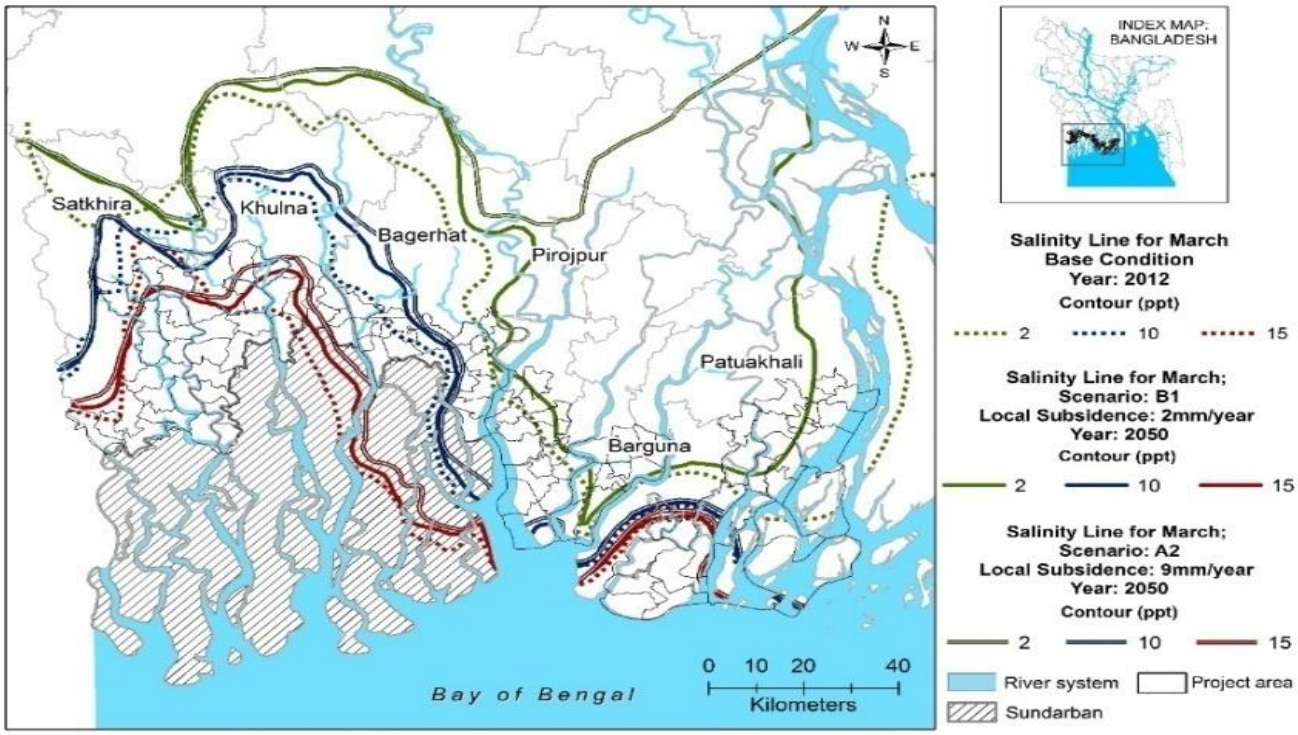


Figure 6: Projected river salinity in 2050 under two different climate change scenarios (A2 and B1)[47]

Cyclones and storm surges

Between 1961 and 2013, a total of 61 cyclones struck Bangladesh. The south-western zone was affected by 28% of these cyclones[48]. Storm surge flooding caused by cyclones is penetrating deeper inland after hitting the coastal islands and causing more extensive damage than previously. Historically, cyclones have had associated storm surges ranging from 1.5 to 10m in height[49]. However, under a climate change scenario, projected increases in sea surface temperatures are expected to increase the intensity of tropical cyclones, which will result in greater wind speeds and higher storm surges. The overall frequency of tropical cyclones in Bangladesh is not likely to increase as a result of climate change, but the number of intense cyclones is expected to increase[50]. Dynamic and regional climate models[51,52] project increased intensity of tropical storms by 2100 for the North Indian Ocean and increased frequency of the highest storm surges across the Bay of Bengal. Combined with SLR, Bangladesh is expected to face increasing tidal surge and inundation of coastal areas. By 2050, an additional 15% of the coastal area of Bangladesh is projected to be inundated by storm surges during cyclones. Storm surges from a 10-year return period cyclone (such as Sidr) could inundate an area 80% greater than what would be flooded presently. This would expose 9.7 million people to severe inundation (>3m), compared with 3.5 million in the no-climate-change scenario[53].

Site-specific vulnerabilities

[47] UNDP, 2017. GCF Funding Proposal: Enhancing adaptive capacities of coastal communities, especially women, to cope with climate change induced salinity.

[48] Quadir, D.A. and Iqbal, M.A., (2008. Tropical cyclones: impact on coastal livelihoods: investigation of the coastal inhabitants of Bangladesh. IUCN Bangladesh Country Office; Joint Typhoon Warning Centre) and JTWC Best Track tropical cyclone data.

[49]Brammer, H., 2014. Bangladesh's dynamic coastal regions and sea-level rise. Climate Risk Management, 1, pp.51-62.

[50] This prediction is supported by the latest models of cyclones in the Bay of Bengal: Gupta S. et al.., Jain I., Johari P., Lal M. 2019 Impact of Climate Change on Tropical Cyclones Frequency and Intensity on Indian Coasts. In: Rao P. et al..., Rao K., Kubo S. (eds) Proceedings of International Conference on Remote Sensing for Disaster Management. Springer Series in Geomechanics and Geoengineering. Springer, Cham

[51]Unnikrishnan, A.S., Kumar, M.R. and Sindhu, B., 2011. Tropical cyclones in the Bay of Bengal and extreme sea-level projections along the east coast of India in a future climate scenario. Current Science, pp.327-331.

[52] Emanuel, K., 2005. Increasing destructiveness of tropical cyclones over the past 30 years. Nature, 436(7051), p.686.Unnikrishnan et al. 2006, Emmanuel (2005)

[53] World Bank 2010, Vulnerability of Bangladesh to Cyclones in a Changing Climate: Potential Damages and Adaptation Cost. Policy research working paper 5280, The World Bank, Washington, D.C

The national climate change vulnerabilities described in the preceding sub-sections are more pronounced in both the coastal and riverine chars than on the mainland[54]. This increased vulnerability is partly as a result of: i) limited capacity within local government; ii) poor infrastructure; iii) the specific geographic context[55]; iv) environmental degradation; and v) socio-economic development deficits[56,57].

A high level of exposure to natural disasters combined with limited access to the mainland contributes to char inhabitants lacking access to the majority of basic services. Although they have productive farmlands, char populations are often unable to access mainland markets[58],have poor access to basic water and sanitation, limited transportation services and low standards of living. There are few alternative livelihood opportunities and limited infrastructure has resulted in both education and skills deficits. This has brought about economic stagnation and a disproportionate dependence on climate-sensitive livelihoods such as agriculture. Char communities are, therefore, increasingly restricted in their ability to adapt to the adverse effects of climate change, including to both climate induced slow and rapid onset disaster events.

Riverine chars

Most inland riverine chars (islands)are exposed to severe levels of erosion and experience flooding at least once a year[59]. This inherent geo-morphological vulnerability and exposure to climate impacts, combined with very limited livelihood opportunities[60],results in char communities being extremely vulnerable to climate change. The small size and geomorphological instability of the riverine chars further affects local adaptive capacity as ecosystem services are more easily disrupted and slower to recover after disruptions than in mainland areas.

Climate change is already impacting on riverine char communities in Bangladesh and these impacts are projected to increase in severity in the future. The main climate change factors impacting people on riverine chars are the increasing frequency and intensity of floods and droughts. Increasing temperatures combined with more erratic rainfall are increasing periodic water stress on riverine chars. In addition, the increasing frequency of floods will result in greater damage to assets and infrastructure and will reduce the interval period in which communities can recover from and prepare for subsequent disasters. The impacts of climate-induced disasters on riverine chars are exacerbated by the fact that, compared to coastal regions, riverine chars have been relatively neglected in post-disaster periods.The majority of government resources and aidhas been prioritised for rehabilitating coastal infrastructure and reinforcing coastal buffer zones, as opposed to supporting recovery efforts within the inland river areas where many riverine chars are located.

Coastal chars

Coastal chars (small offshore islands) are well known in Bangladesh for epitomising vulnerability to climate change, including rising sea levels, an increase in the number and intensity of cyclones, as well as ocean warming, acidification and saline intrusion[61]. The extreme vulnerability of the coastal chars is because of a combination of social and geographical features.

When compared with inland regions at higher elevations, coastal chars are more sensitive to climate-related disasters. There are fewer natural buffers in coastal areas to reduce the climate change impacts of intensifying cyclones, storm surge, elevated water levels and soil salinity[62]. Coastal chars also face development constraints as a result of their small size and geographical remoteness. They have low levels of institutional development, which has negatively impacted on the provisioning of educational and social support systems. Economic development has also been limited by these factors, and there are few economies of scale, which affects both economic competitiveness and household income levels. The adaptive capacity of coastal char

[54]General Economics Division (GED) of the Bangladesh Planning Commission (BPC), 2017. Available at: http://www.deltacoalition.net/wp-content/uploads/2016/04/BDP-Brochure-Final-september-2015.pdf.

[55] These include the dynamic formational processes normal to the GBM delta as well as extreme remoteness.

[56]EGIS – (Environmental and Geographical Information System), (2000). Environmental baseline of Gorai river restoration project, EGIS-II. Bangladesh Water Development Board, Ministry of Water Resources, Government of Bangladesh. Delft, the Netherlands 150 pp.

[57] Mia, A. H., & Islam, M. R. (2005). Coastal land uses and indicative land zones. Program Development Office for Integrated Coastal Zone Management Plan. Dhaka.

[58]and are therefore unable to secure competitive prices for their agricultural produce

[59] In this respect they differ considerably from permanent charland which are not subject to much erosion.

[60] Which include strong dependency on subsistence activities that are influenced greatly by local environmental conditions, poor access to basic water and sanitation and transportation services and low standard of living.

[61]Gattuso, J. P., *et al.*(2015). Contrasting futures for ocean and society from different anthropogenic CO2 emissions scenarios. Science, 349(6243).

[62] Although the function of mangroves as buffers against storm surges and cyclones is generally well-known in Bangladesh, mangrove forests on chars are often removed as populations expand, require wood and seek to increase their access to arable land.

communities is, therefore, significantly lower when compared with mainland populations that are in a similar socio-economic bracket or rely on similar livelihoods.

The vulnerability of the coastal and riverine chars of Bangladesh has been documented through initiatives like the Integrated Coastal Zone Management Plan (ICZMP) and the Char Development Settlement Project (CDSP) (these initiatives are described in Part II Section E). Many of the chars have, however, been neglected with regards to an adaptation needs assessment. The adaptive capacity of the char inhabitants and their ability to anticipate, absorb and develop adequate response strategies to the impacts of climate change has, similarly, not been evaluated.

Project Target Areas

Lakshmitari Union

Background context

The Lakshmitari Union[63] is located in the northwest of Bangladesh (Figure 7). It is an inhabited char in the Teesta River basin and is one of the most disaster-prone unions of Gangachara Upazila[64,65]. The union is situated on broadly flat terrain and is intersected by the rain- and snowmelt-fed Teesta River. Local temperatures in Lakshmitari range between 11°C and 32°C[66] and average annual precipitation in the region amounts to ~2,900mm, 80% of which occurs during the monsoon season. The union covers an area of ~2,700 ha and is governed under the regional administration of the Rangpur district, which is the most poverty afflicted district in Bangladesh. Lakshmitari's total population is ~21,000, which comprises 2,128 households distributed over eight Mauzas[67] and five villages, with a population density of 785 people per km^2. The literacy rate is ~47% and the majority religion is Islam[68].

In Lakshmitari, there has been limited development of both publicly and privately funded infrastructure for: i) water supply; ii) sanitation; iii) health; and iv) transport. Approximately 95% of the population relies on tube wells for water collection, with the remaining 5% utilising informal and unsafe water sources[69]. In addition to limited water supply infrastructure, more than 55% of the population lacks access to any form of sanitation, including sealed and unsealed latrines. During flood events, both tube wells and unsealed latrines become inundated, which leads to the increased prevalence of water-borne diseases such as cholera and diarrhoea amongst the local population[70]. Medical services are not readily available. There are only two community clinics for the provision of such services and only one NGO clinic to service the needs of the entire population. These clinics are open for two days each week and are staffed by two paramedic doctors. Transportation infrastructure is also limited on the char, where the majority of the local roads are unpaved (40 km of 43 km) and passage between the char and the mainland is only via 1 permanent bridge, 10 bailey bridges and 20 paved culverts.

Agriculture is the dominant economic activity in Lakshmitari and the arable land currently covers 2,340 ha. The agricultural produce includes ayush, amon, boro[71], wheat, potatoes, corn and nuts. There are ~4,900 farmers, of which ~50% are tenants. Each household also maintains its own livestock, which includescows, buffaloes, goats and sheep. There are very few livelihood opportunities outside of agriculture and only ~6,000 people are employed on a permanent basis (~28%)[72].

[63] A union is the smallest public administrative structure in Bangladesh and is governed under a Union Parishad, or council, comprised of 12 members (3 reserved for women) and led by a publicly elected Chairman.

[64]An upazila is a sub-district in the administrative structure of Bangladesh.

[65] According to the multi-hazard/risk modelling compiled by national consultants at C3ER

[66] Based on data from the Rangpur meteorological station

[67] These are Buridangi, Char Isorkul, Char Ichli, JoyramOjha, KismatDukhia, Mahipur, MandrainPurbapara and Sankardaha.

[68] Bangladesh Bureau of Statistics. 2011.

[69]Including ponds, canals, and rivers

[70] These diseases are particularly dangerous during disaster events, when access to the mainland and medical support is severely limited.

[71]Ayush, amon and boro are seasonal rice varieties.

[72] Bangladesh Bureau of Statistics. census 2011

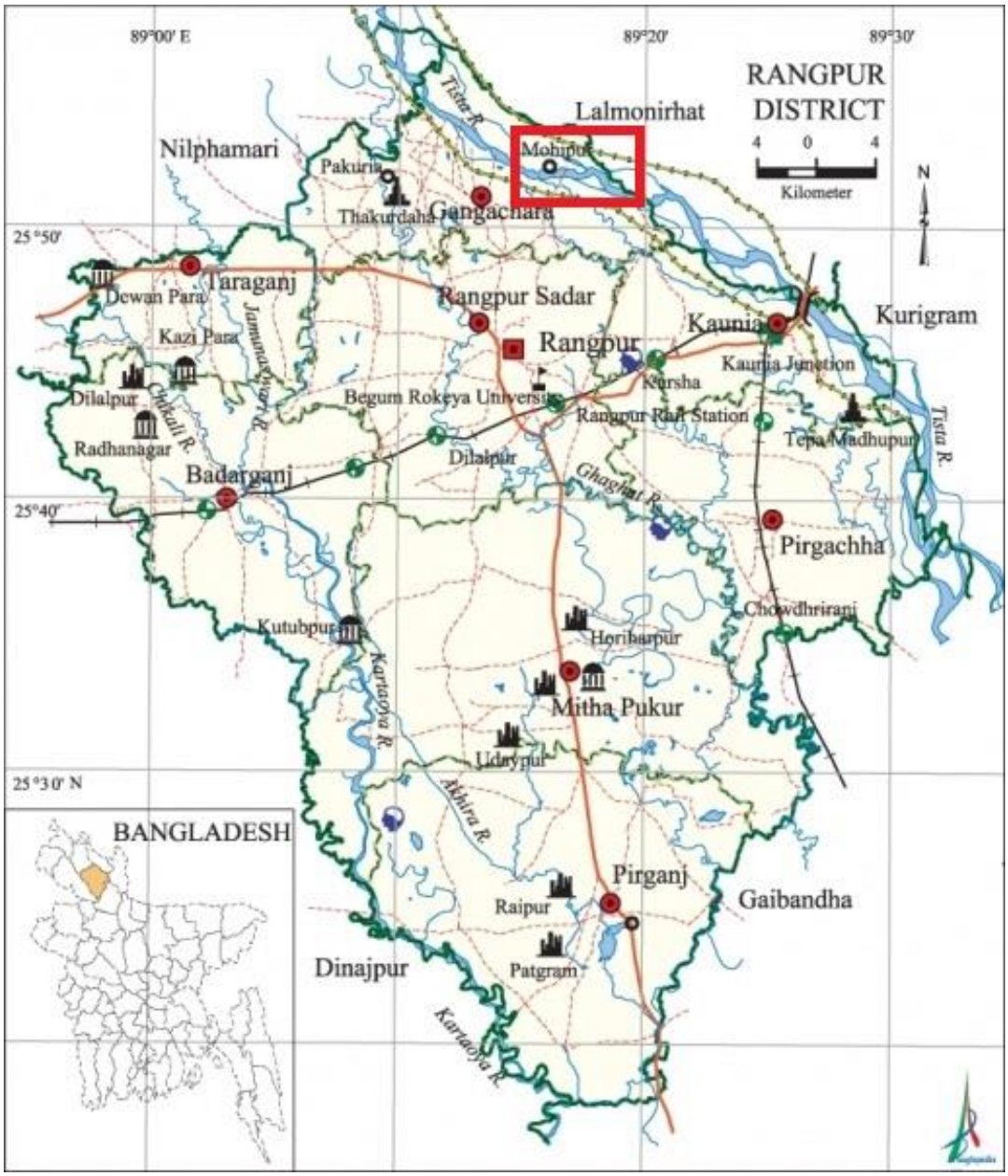


Figure 7. Map of Rangpur district, Bangladesh (with location of Lakshmitari Union indicated)[73]

[73]Banglapedia: the National Encyclopedia of Bangladesh. Available at: http://en.banglapedia.org/index.php?title=Main_Page

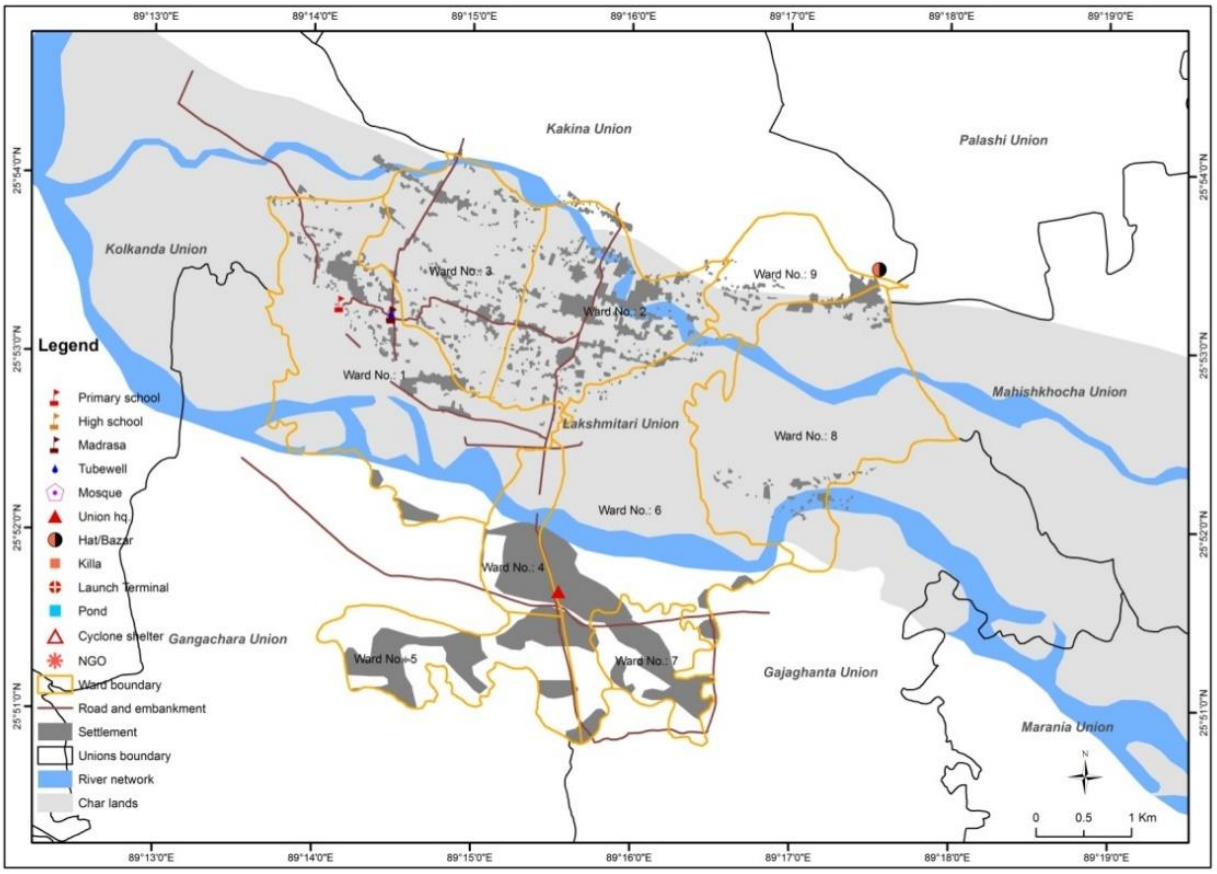


Figure 8. Map of Lakshmitari Union[74]

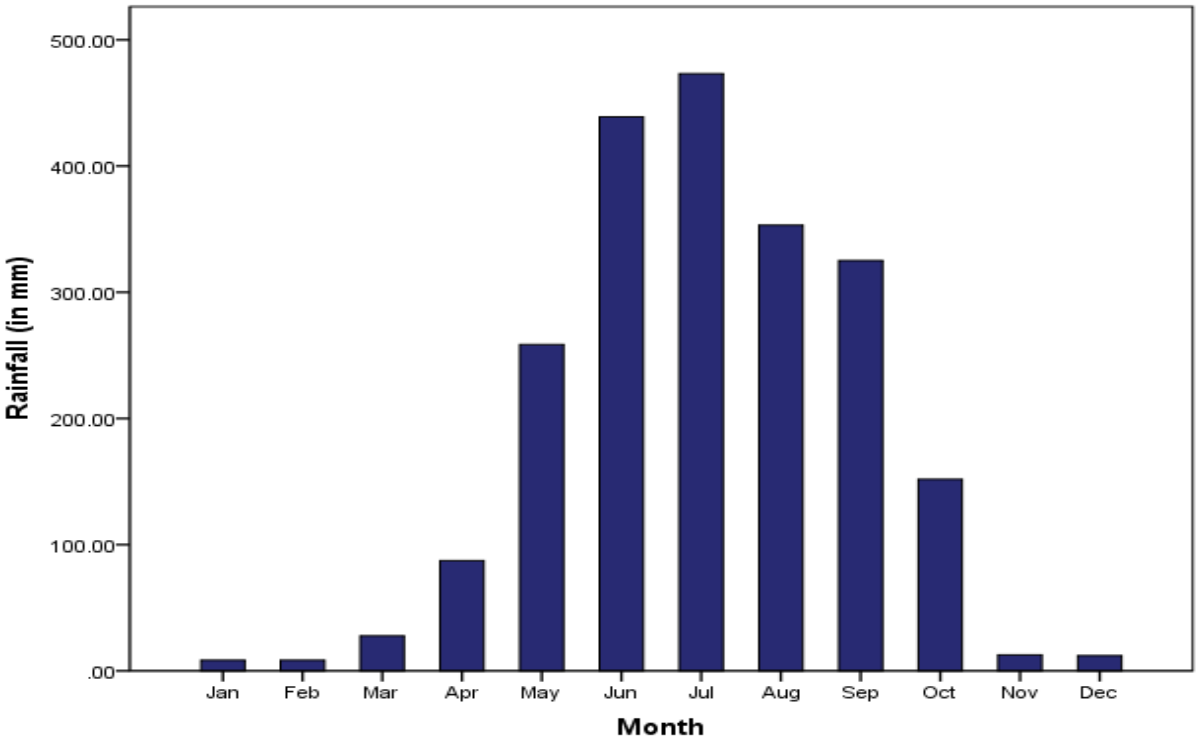


Figure 9. Mean monthly precipitation of Gangachara weather station (number 10208) in Lakshmitari for 1948–2002[75].

[74]Map drawn by Centre for Climate Change and Environmental Research C3ER, BRAC University, Bangladesh. 2017.

[75] Annex D – Climate change and risk and vulnerability assessment.

Climate change and hazard exposure for Lakshmitari

Hydro-meteorological modelling has demonstrated that shifts in the spatial and temporal distribution of rainfall are occurring (and are expected to continue occurring) in Lakshmitari. These shifts include: i) an increase in seasonal monsoon precipitation, with a greater frequency and intensity of extreme precipitation events; ii) a decrease in precipitation for all other seasons; and iii) increasing seasonal drought during the dry season.

Currently, the drought risk in Lakshmitari is considered to be relatively low[76]. However, this risk is projected to increase under future climate change scenarios because of the increasing variability of rainfall patterns[77].In addition to causing an increase in seasonal monsoon precipitation (as discussed above), such variability has resulted in a decrease in precipitation during the dry season. As a result of this decrease, there has already been a re-designation of the Rangpur district from a dry sub-humid zone to an arid zone[78,79]. In addition, the rural and predominantly agrarian economy is being affected by the increasing intensity of short duration heavy precipitation events during the monsoon, and conversely by water stress during the Rabi season[80]. Future climate change scenarios suggest that the Rangpur district will experience: i) prolonged water-stressed periods; ii) reduced surface water supplies; iii) reduced groundwater replenishment; and iv) increased saltwater intrusion into groundwater supplies.

The increasing trend in extreme rainfall events will also increase the flood exposure of Lakshmitari. Most areas in the union are currently considered low risk with regards to flooding. These areas experience seasonal flooding that is rated between F0 (with flood levels of 0.3 m) and F1 (0.9 m). By 2050, the area affected by F1 flooding is expected to increase to encompass the entire union. The densely populated settlement in Ward 2 is predicted to experience a higher incidence of F2 (1.8m) floods by 2050. The increase from F1 to F2 flooding is expected to result in increased damage to households and loss of personal assets within Ward 2, specifically because these structures are not designed to withstand flooding of such a magnitude. In addition, the increased height and duration of floods is expected to result in greatly increased impacts on human health, because of the local prevalence of unsealed latrines and dependence on unsealed tube wells.

Overall, the integrated risk scenario for the Lakshmitari Union shows that the entire union is currently considered a high-risk region (Figure 10-11). The projections for 2050 indicate that this risk is expected to increase for some areas within the union and decrease for others. Notably, the impacts of climate change are expected to shift the risk indicators in Wards 8 and 9 from high-risk exposure to very high-risk exposure[81].

[76]C3ER. "Upazila Climatic Risk Atlas." Comprehensive Disaster Management Programme (CDMP II). Ministry of Disaster Management and Relief, Oct. 2015. Web. 24 Jan. 2017.

[77]Haque, M. E., &Tasnuva, A. (2016). Evaluation of Climate Change Impact And Groundwater Vulnerability Assessment In Rangpur District, Bangladesh. IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT)

[78] Based on moisture index and humidity.

[79]Haque, M. E., &Tasnuva, A. (2016). Evaluation of Climate Change Impact And Groundwater Vulnerability Assessment In Rangpur District, Bangladesh. IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT)

[80]Ibid.

[81] Further climate risk maps of Lakshmitari are available in Annex E

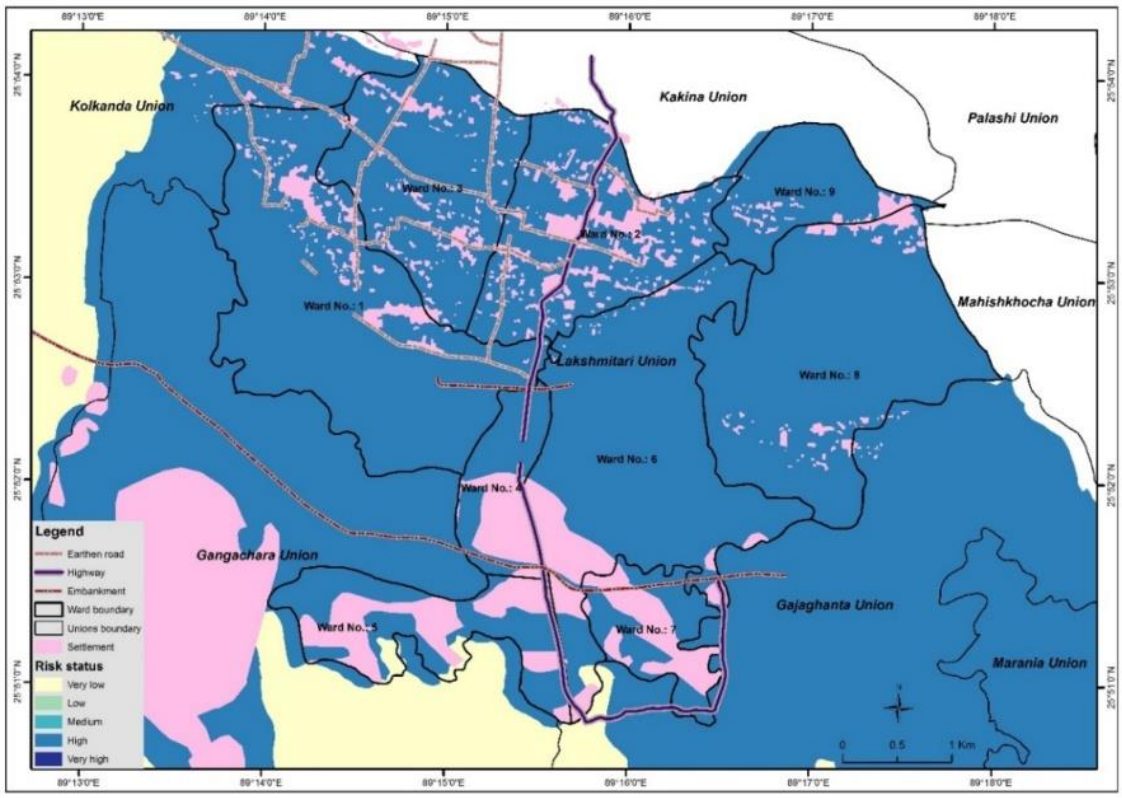


Figure 10. Integrated Risk Exposure Map for Lakshmitari Union (Baseline), Larger versions of these figures are provided in Annex 14_E.

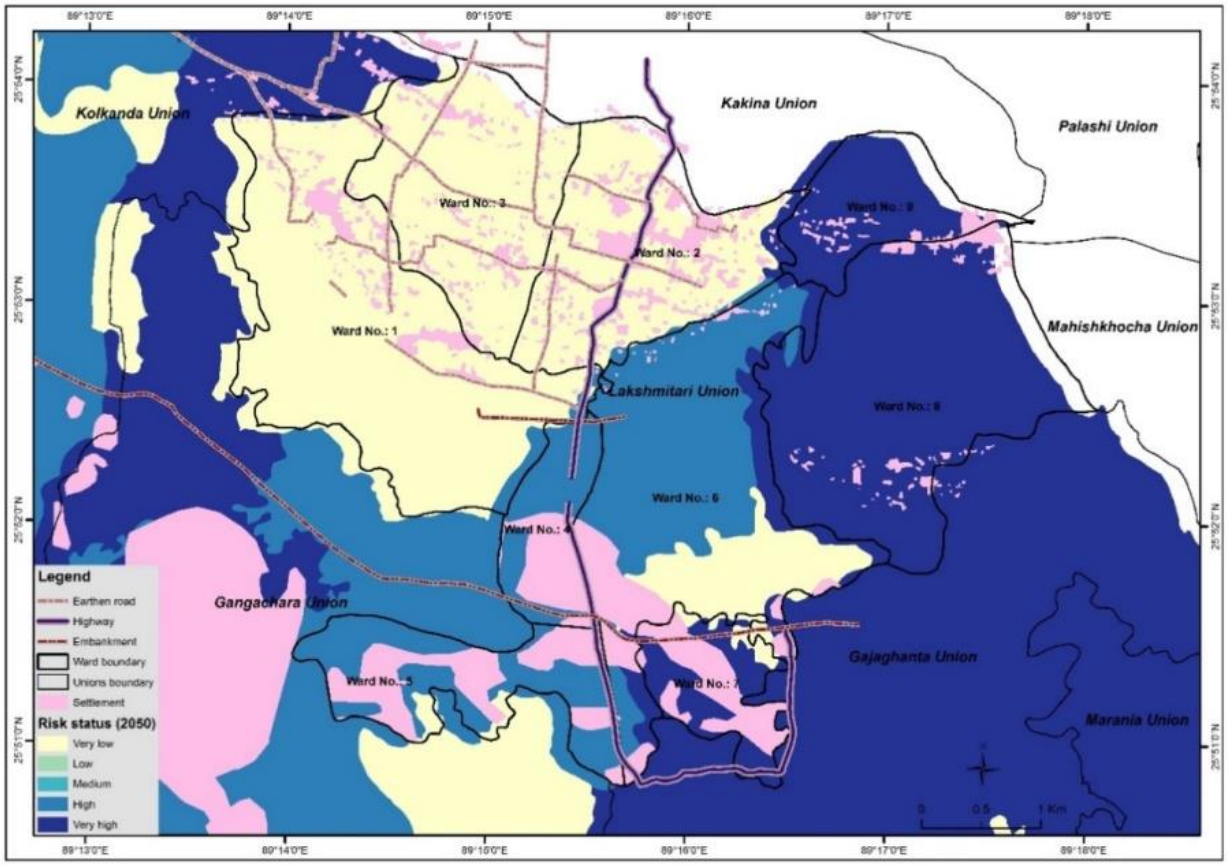


Figure 11. Integrated Risk Exposure Map for Lakshmitari Union (2050). Larger versions of these figures are provided in Annex 14_E.

The decrease in food security, economic productivity, health and personal safety associated with droughts and floods in Lakshmitari will reduce the resilience and adaptive capacity of local communities. Without interventions to increase the climate resilience and adaptive capacity of these communities, they will be forced to act reactively to the impacts of climate change, as opposed to having the capacity to act proactively to protect and prepare for the increased risks brought about by a shifting climate.

Mujibnagar Union

Background context

Mujibnagar is a union of Char Fasson, which is an upazila of the Bhola District. The union is situated within the Bay of Bengal (Figure 11) and consists of four mauzas[82],which collectively occupy an area of 2,605 ha[83]. Mujibnagar is positioned on the western bank of the Bura Gauranga River, which links with the Tentulia River and accounts for 15% of water discharge from the GBM system (Figure 12). The union has a population of ~10,500 with a population density of ~400 people/km^2 distributed amongst ~2,000 households. Literacy levels are low, at only 22%, and the majority religion is Islam.

Figure 12. Map of Bhola District (location of Mujibnagar Union demarcated by red box)[84]

Much like Lakshmitari Union, Mujibnagar has limited infrastructure development for: i) water supply; ii) sanitation; iii) health; iv) transport; and v) energy. The existing traditional drinking water – ponds and shallow tube-wells – are affected by salinity, resulting in the majority of the population having to rely on informal and often polluted water sources such as canals and rivers. Sanitation infrastructure is also limited –only 16% of

[82] These are Char Lewllin, Char Manohar, Char Motahar and Char Sikder

[83] Bangladesh Bureau of Statistics, 2011.

[84]Banglapedia: the National Encyclopedia of Bangladesh. Available at: http://en.banglapedia.org/index.php?title=Main_Page

the population has access to traditional pit latrines, with the remainder practising open defecation. This limitation in sanitation infrastructure, when combined with the local dependence on open water storage (ponds and dams), poses a significant risk to human health during high water periods such as cyclone storm surges, monsoon floods or tidal floods. This is because open water storage facilities become contaminated with human waste during these climate events. Such contamination reduces the availability of clean water and increases the incidence of water-borne diseases.

In Mujibnagar, health and communication infrastructure are severely limited. There is only a single community clinic in the union, in which nine paramedic doctors provide emergency treatment and advice to inhabitants. In addition to water supply, sanitation and health, Mujibnagar is also limited in its transport infrastructure. The majority of the union's transport network is unpaved (46 km of 50 km) and there are no bridges to the mainland, which can only be reached by boat. A further development deficit in Mujibnagar is electrification. Although the union was included in the rural electrification scheme in 2011, field surveys have indicated that few households in Mujibnagar have access to electricity.

As in Lakshmitari, agriculture is the dominant economic activity in Mujibnagar. There is currently ~2,400 ha of arable land available for farming in the union, of which approximately 2,200 ha is irrigated. Major crops produced include rice, wheat, potato and watermelon. Approximately 60% of currently farmed land is occupied by tenants, and landowners occupy the remaining 40%. Field surveys did not identify any livestock farms in Mujibnagar, but rather that individual families keep their own livestock. Alternative livelihood opportunities to agriculture are even more scarce in Mujibnagar than in Lakshmitari, and only ~2,200 inhabitants (~22%) are reported to be formally employed.

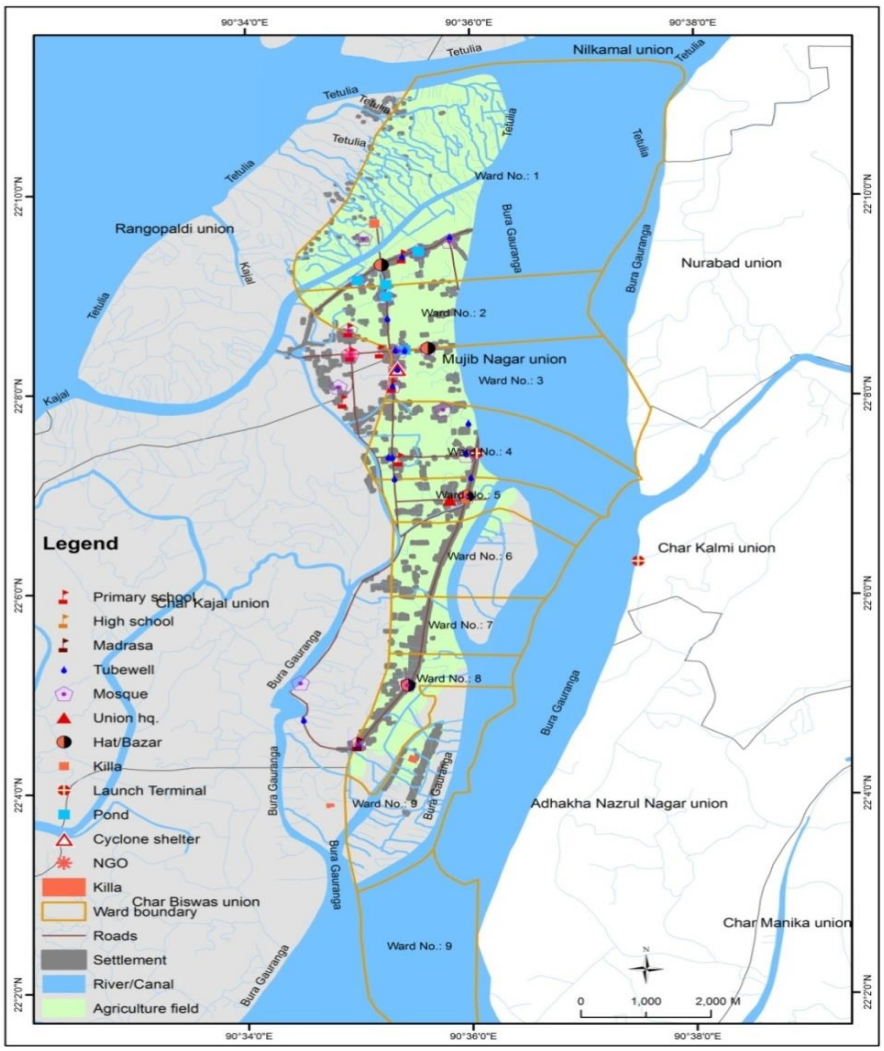


Figure 13. Map of Mujibnagar Union[85]

[85]Map drawn by Centre for Climate Change and Environmental Research, C3ER. 2017. BRAC University, Bangladesh, 2017.

Climate change and hazard exposure for Mujibnagar

Changes have already been observed in the local climate of Char Fasson, on which Mujibnagar is located. The mean annual temperature in the area showed an increasing trend from 1970 to 2010(Figure 13) and mean annual precipitation also increased over this period (Figure 14). In line with the rest of coastal Bangladesh, Mujibnagar's climate is expected to continue to change in the following ways: i) average annual temperature will increase; ii) seasonal precipitation will become more variable; iii) mean annual precipitation will increase; iv) floods will increase in frequency and intensity; v) cyclones will become more intense; and vi) salinization of groundwater will increase as a result of sea level rise.

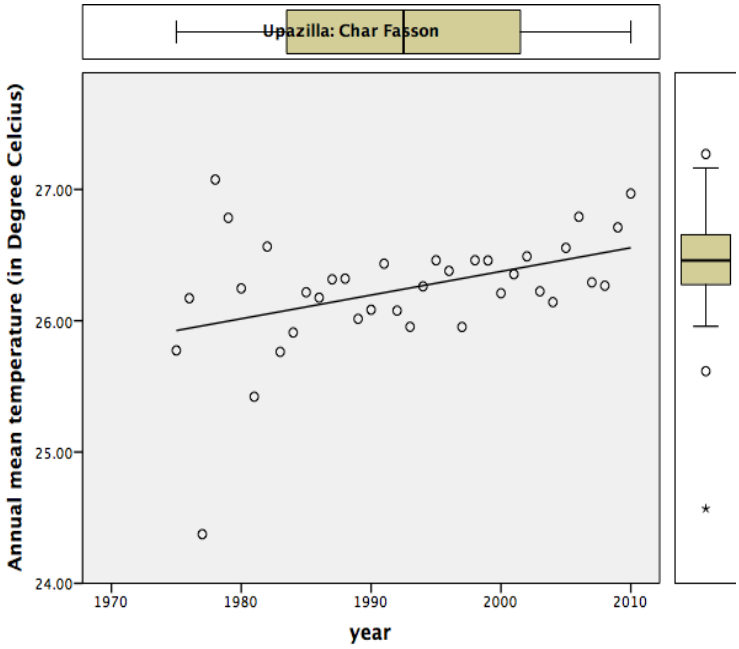


Figure 14. Historical trends in the mean annual temperature for Char Fasson

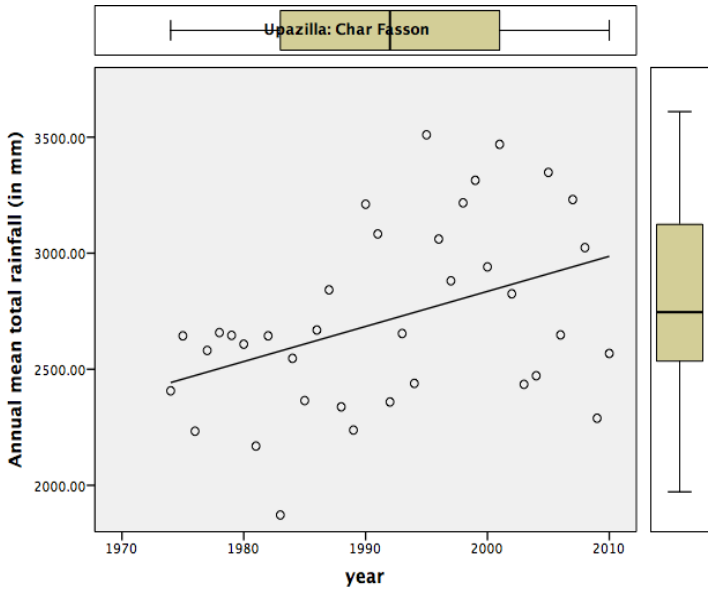


Figure 15. Historical trends in the mean annual precipitation for Char Fasson

Risk assessment

According to data obtained from the Upazila Climate Risk Atlas[86],Mujibnagar has a high integrated risk score (46)[87]. This represents the highest integrated risk score for any union in Char Fasson[88], as well as for any char assessed in the scoping report (see Appendix B). In addition, Mujibnagar's hazard exposure score[89](27) is projected to increase to 41 with climate change. Disaggregated by hazard, and under the climate change scenario, Mujibnagar is projected to become increasingly exposed to: i) floods – where the number of inhabitants exposed to flood hazards is projected to increase to ~3,500 (34% of the current population) from 2,600 (25% of the current population); ii) storm surges –where the storm surge exposure score (69 km^2) under a baseline scenario is projected to increase to 77 km^2 under the climate change scenario, resulting in more than 80% of the population (~8,200 people) being exposed to storm surges; and iii) soil salinization – where the soil salinity exposure score for Mujibnagar (41.7) is the highest of the chars assessed in the scoping report, and is projected to double as a result of climate change. A shift in soil salinity of this magnitude is predicted to affect almost the entire population (~98%) of Mujibnagar.

Taken together, the climate change hazards of increasingly severe floods, cyclone storm surges and salinization will have considerable impacts on the communities of Mujibnagar. In the absence of effective interventions to increase the resilience and adaptive capacity of these communities, climate change will have extremely negative impacts on *inter alia* food security, economic productivity, health and personal safety.

Summary of Development Challenges:

In summary, the major stakeholder concerns that were identified during the field surveys included:

i) insufficient healthcare infrastructure and services during and directly after climate-induced disasters, which is especially pertinent for pregnant women and disabled residents;
ii) limited sanitation and water facilities, which contributes to a greater incidence of disease;
iii) a lack of alternative livelihood opportunities, which was also blamed for greater levels of poverty, childhood marriage and a number of other socio-economic and pyscho-social problems in the beneficiary population;
iv) the need for women to feel secure when using shelters during cyclones;
v) loss of life and personal assets during climate-induced disasters

Barriers to Addressing Climate Change and Development Risks

The proposed project will focus on addressing the following challenges:

- limited access of communities to information about future climate change impacts, with awareness mostly of existing disaster risks;
- limited coverage and effectiveness of disaster preparedness programmes and early warning systems on chars;
- Poor infrastructures, inadequate protection of life, livelihoods and assets against cyclones and floods because of fragile houses, limited number of disaster shelters and fragile embankment systems;
- limited knowledge and technical capacity/options among char communities to adapt livelihood practices to climate change;
- limited access to safe drinking water, sanitation and electricity, and the climate vulnerability of these services; and
- limited knowledge and capacity of local government for climate risk-informed planning.

II. STRATEGY

The proposed AF-financed project is innovative because it will implement an integrated strategy to reduce climate change risks of Char communities and disaster risk management rather than being comprised of separate and isolated sectoral approaches to addressing the effects of climate. By adopting a comprehensive and integrated strategy, the project will simultaneously address the effects of climate change across multiple

[86]C3ER. "Upazila Climatic Risk Atlas." Comprehensive Disaster Management Programme (CDMP II). Ministry of Disaster Management and Relief, Oct. 2015. Web. 24 Jan. 2017.

[87] For further details, see Appendix B.

[88]C3ER. "Upazila Climatic Risk Atlas." Comprehensive Disaster Management Programme (CDMP II). Ministry of Disaster Management and Relief, Oct. 2015. Web. 24 Jan. 2017.

[89] For further details, see Appendix B.

sectors including water, agriculture, infrastructure and preparedness for disasters in the most climate vulnerable locations, working with individual households to community level to increase skills and capacities to adapt and reduce impacts of climate change especially on food security and livelihoods:

i) Increase resilience at the household level by

a. training, redesigning and retrofitting individual household units

b. installing rainwater harvesting system at the household level

c. training and capacity building in adopting climate-resilient agricultural practices

d. diversification of livelihoods of vulnerable households

ii) Increase resilience at the community level by

a. establishing community managed nano-grid infrastructure to provide electricity to communities

b. building infrastructures like cluster houses, repairing and strengthening embankments, establishing community management groups

c. establishing community-based water-user groups for surface water preservation and distribution in water-stressed areas

d. establishing solar irrigation at the community level

e. establishing cold storage facilities for agricultural produce and fish

f. developing climate hazard maps and expanding cyclone early warning systems.

g. modernizing Cyclone Preparedness Programme to provide timely cyclone early-warning and response at community level through floating ambulance and mobile phone health system.

h. establishing farmer field schools and training farmers for innovation and adoption

iii) **Increase knowledge and capacity at the institutional level by**

a. building the capacity of local government institutions to promote climate-resilient approaches

b. establishing local innovation and knowledge centres for communities

c. raising awareness about climate change

Accordingly, the project activities are grouped into four components as follows:

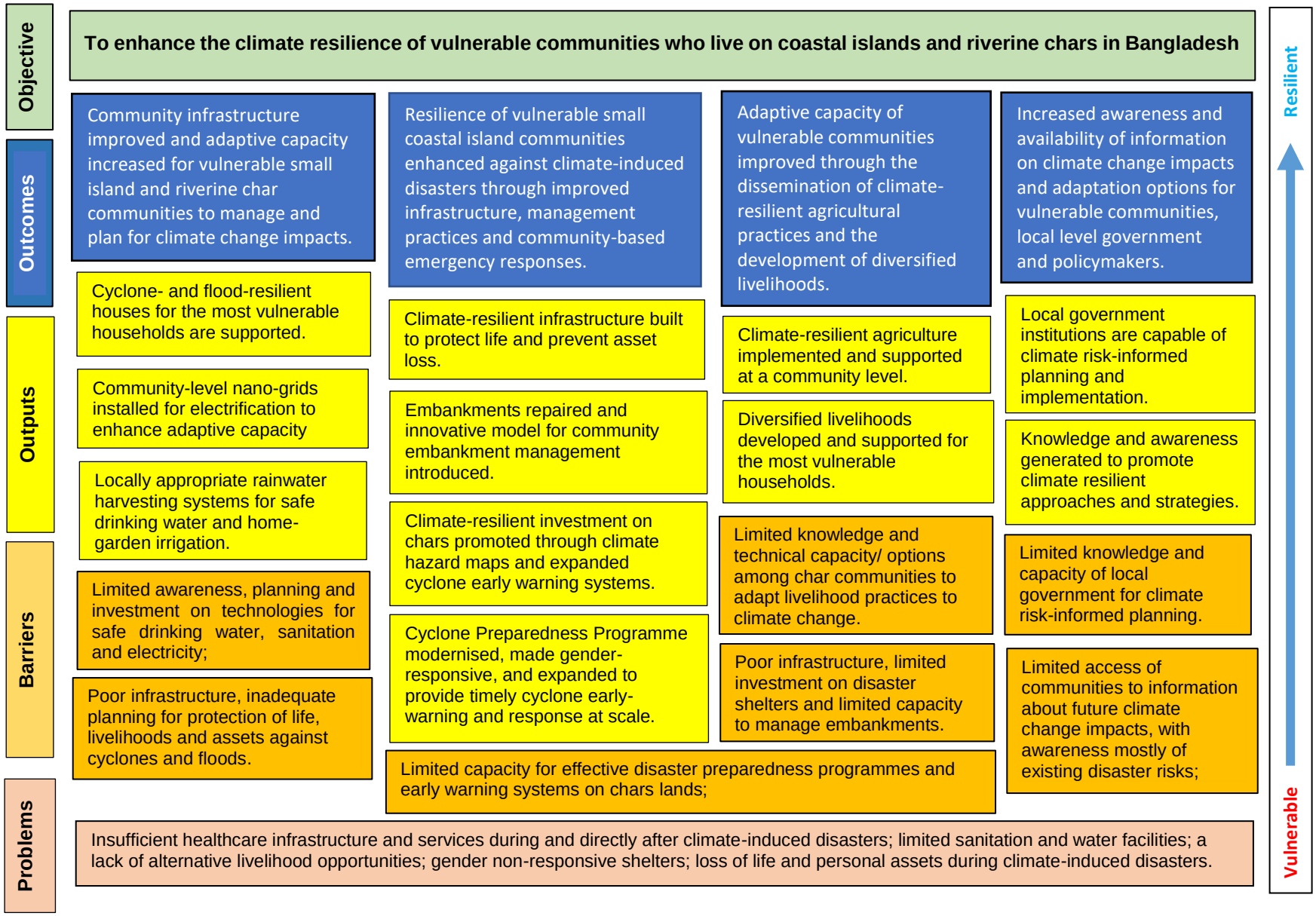
Component 1. Enhanced climate resilience of households through climate-resilient housing, electrification and climate-proof water provisioning

Component 2. Increased climate resilience of communities through infrastructure that is resilient to cyclones and floods, climate risk mapping and inclusive cyclone preparedness.

Component 3: Improved income and food security of communities by innovating and providing assistance to selected households for climate-resilient livelihoods practices.

Component 4. Enhanced knowledge and capacity of communities, government and policymakers to promote climate resilient development on chars.

Theory of Change:



This project will lead to change by addressing the problems and barriers that limit vulnerable coastal and char land communities' ability to make resilient livelihoods and sustainable socioeconomic development. By systematically targeting the key barriers, the project will help coastal and char land communities' make incremental improvements. These short-term changes will in turn lead to long-term improvements; while the project develops capacities, it also lays groundwork for improved management systems and frameworks to sustain outcomes.

More specifically, the project will address barriers related to i) limited access of communities and local government to information about future climate change impacts, with awareness mostly of existing disaster risks; ii) limited capacity within local government and communities on climate risk informed planning; iii) poor infrastructure and management capacities that safeguards live and livelihoods; iv) low levels of institutional development, which has negatively impacted on the provisioning of educational and social support systems; v) limited knowledge and technical capacity/ options among char communities to adapt livelihood practices to climate change.

The transformative aspect of the project lies in integrated strategy which starts from generating and disseminating information on climatic vulnerabilities, transforming information into risk informed planning, strengthening the institutional linkages between communities and local government authorities (DoE, BFD, BWDB, DAE, DDM, LGED, etc.) responsible for environmental, disaster management and sustainable development, enhancing community capacities in managing infrastructures protecting (e.g., embankment) and ensuring their livelihoods (solar irrigation system, floating ambulance), and increasing individual capacity for diversified and adaptive livelihoods.

The project is built on lessons and best practices used in Bangladesh by various projects including those of UNDP. It has heavily used lessons from UNDP-MoEFCC implemented 'Integrating Community Based Adaptation into Afforestation and Reforestation (ICBA-AR) Programmes' funded by GEF, Local Government Initiatives on Climate Change (LoGIC) of UNDP, Comprehensive Disaster Management Programme (CDMP) and Chars Livelihood Programme of DFID- Bangladesh and Char Development and Settlement Project by Government of the Netherlands and IFAD.

The project makes assumptions that stakeholders can distinguish between vulnerability to climate change and baseline challenges, that they are eager to improve their skills and committed to implement identified interventions, the gender sensitive technologies do not increase inequality further, and the reduction in local communities vulnerabilities to climate change are evident within the project's life span. The project also assumes that the integrated approach to the management of climate risks is understood, and supported by the government, both politically and financially and that there are sufficient coordination exists between upazila-level local government and national authorities to scale up the community-based integrated adaptation actions in an efficient manner.

III. RESULTS AND PARTNERSHIPS

The objective of the project is to enhance the climate resilience of vulnerable communities who live on coastal islands and riverine chars in Bangladesh. This objective will be achieved through the following four project outcomes:

1) Community infrastructure improved and adaptive capacity increased for vulnerable small island and riverine char communities to manage and plan for climate change impacts;
2) Resilience of vulnerable small coastal island communities enhanced against climate-induced disasters through improved infrastructure, management practices and community-based emergency responses;
3) Adaptive capacity of vulnerable communities improved through the dissemination of climate-resilient agricultural practices and the development of diversified livelihoods; and
4) Increased awareness and availability of information on climate change impacts and adaptation options for vulnerable communities, local level government and policymakers.

Accordingly, the project has been designed into four components as follows:

Expected Results

Outcome 1. Enhanced climate resilience of households through climate-resilient housing, electrification and climate-proof water provisioning

Baseline scenario (without AF resources): Households in the char communities of Mujibnagar and Lakshmitari are extremely vulnerable to the climate change impacts of increasing cyclones, floods, saline intrusion and water-stress. This vulnerability is for a number of reasons. Firstly, most houses in these communities have not been constructed to withstand cyclones and floods. Secondly the char dwellers also lack the technical and financial capacity to strengthen their houses adequately. Thirdly, the majority of households do not have access to electricity, which: i) limits the economic opportunities available to char dwellers; and ii) hampers communication before and during climate disasters. These chars are not serviced by the national electrical grid and systemic poverty prevents people from obtaining off-grid solutions. Lastly, many households rely on unsafe drinking water sources, which are frequently contaminated during floods and storm surges as well as through saline intrusion. Overall, households in these char communities are likely to remain extremely vulnerable to climate change, unless they are assisted to make their households more climate resilient. Moreover, with the predicted increases in the impacts of climate change, these households will most likely become even more vulnerable in future.

Additionality (with AF resources): Under the proposed project, AF resources will be used to assist the most vulnerable households in Mujibnagar and Lakshmitari to make their houses resilient against increasingly severe floods, cyclones, saline intrusion and water-stress. Households will receive technical and material support to strengthen their houses against cyclones and floods. In addition, AF resources will enable the installation of electricity for households from decentralised renewable energy sources, thereby increasing the general capacity of household members to adapt to various climate change impacts. Furthermore, rainwater harvesting systems will be installed to provide safe drinking water that cannot be contaminated by floods, as well as to irrigate home food gardens. For all these activities, AF resources will also be used to train community members to effectively maintain their houses, electricity supply and water systems, as well as to share their knowledge of these climate-resilient technologies and practices with other people in the community.

Output 1.1. Cyclone- and flood-resilient houses for the most vulnerable households are supported.

Island households typically lack the financial and technical capacity to construct houses that are robust against the impacts of floods, cyclone winds and cyclone storm surges, all of which are becoming increasingly frequent and intense as a result of climate change. This output will assist the most vulnerable households in the char communities of Lakshmitari and Mujibnagar to retrofit their houses against these climate change impacts. Local construction workers will also be trained on climate-resilient building techniques for use in the broader community.

Activity 1.1.1. *Co-designing resilient houses that combine modern and traditional technology*

The 900 most vulnerable households in Mujibnagar and Lakshmitari will be selected jointly by the project partner NGO, local government and community members, following a transparent beneficiary selection process that prioritises women-led households and poor people who are extremely vulnerable living close to or outside the embankments. For a description of the beneficiary selection process and criteria, see Annex 14_A. The process will include identification of the hazards faced by each household and will prioritise identifying extremely vulnerable women- and poor led households. The specific needs for the retrofitting of each selected household will be assessed and this will determine the amount of assistance that will be provided to a household to enhance its resilience to cyclones/and or floods. In all cases, the design and construction will utilise no-fired bricks and materials with zero to low CO_2 foot print, where appropriate. Assistance will be in the form of technical advice, labour, tools and materials facilitated by the project partner NGO, not as a direct financial grant to the household. The retrofitting will be owner-driven and will be supplemented by cash (where possible) and in-kind contributions from household members (e.g. labour and materials). Under this activity, household members will collaborate with the NGO technical advisers to design the most appropriate retrofitting interventions for each house, combining local techniques and appropriate materials with modern technical specifications. The retrofitting itself will be done

under Activity 1.1.3. On the coastal char, the climate-resilient design features will include: i) cyclone resilient structural design, based on 100-year tidal surge and 215 km/hour wind safety measures; ii) provision for increased flood levels as a result of climate change; and iii) saline-resistant materials. On the inland riverine char, the design features will account for increased flood levels under climate change scenarios. Where local construction materials are used, they will meet the relevant technical standards.

Activity 1.1.2. *Training local construction workers on cyclone- and flood-resilient construction techniques.*

Local construction workers such as carpenters and masons will be trained to ensure the adoption of climate-resilient construction techniques and standards beyond the selected most vulnerable households. This training will be delivered through workshops held at the nearest existing vocational training institutions.

Activity 1.1.3. *Retrofitting houses against cyclone winds, storm surges and flooding.*

The NGO project partner will work with local construction workers and household members to retrofit houses, following the assessment and design under Activity 1.1.1. Retrofitting interventions will include raising houses on plinths to resist flooding and strengthening roofs against cyclone winds. The retrofitting interventions will meet climate-resilient design guidelines, as well as consider the specific local context, e.g. site conditions, locally available and appropriate materials. The NGO technical advisers will ensure that the retrofitting meets technical quality standards. In addition to the retrofitting, a part of the funds allocated to households will be used to provide or improve the sanitation and hygiene facilities of each house, in order to reduce water-borne diseases spread by climate change-induced flooding. Landless people will be assisted by the NGO to secure *khas* land (government-owned vacant land) for their houses, in consultation with the community to avoid land-use conflicts.

Output 1.2. Community-level nano-grids installed for electrification to enhance adaptive capacity

The communities in the chars of Lakshmitari and Mujibnagar have no, or very limited, access to electricity and are not connected to the national grid. This impedes socio-economic development in these communities, which in turn limits their capacity to adapt to climate change. Moreover, limited access to electricity also hampers communication, e.g. via mobile phone and radio, before, during and after climate-related disasters. The activities under this output will, therefore, increase electricity access in these communities by implementing decentralised nano-grids which are robust against floods and cyclones.

Activity 1.2.1. *Assessing electricity demand and designing nano-grids powered by solar or wind energy.*

The electricity need of households will be assessed, and nano-grids will be designed to provide electricity to small groups of houses. These nano-grids will each generate and distribute ~1.5–2 kW. The groups of houses that will have non-grids installed will be selected based on their vulnerability by the partner NGO, local government and community members, according to the beneficiary selection criteria described in Annex 14_A.

Activity 1.2.2. *Establishing community groups to operate and maintain renewable energy nano-grid infrastructure.*

Community groups will be established from among the beneficiary households. These groups will be trained and equipped to operate and maintain the nano-grids. The participating households will pay a small fee to the community groups that will be used to cover some of the operation and maintenance costs. The remainder will be covered by project financing and by the local government once the project ends.

Activity 1.2.3. *Installing nano-grid infrastructure to provide electricity to households*[90]*.*

Nano-grids will be installed for30 small clusters of houses. Each nano-grid will serve 15–20 households within a radius of 60–70 m, will be powered by a photovoltaic facility or wind turbine, and will include battery storage. The rooftops of one or two houses will be used for photovoltaic installation. An appropriate photovoltaic system may generate ~1.5–2 kW. The photovoltaic panels and the battery will be connected in series in such a way that the

[90]Groh, S., *et al.* (2015). *Decentralized Solutions for Developing Economies*. Springer International Publishing: Imprint: Springer.

grid voltage is 220 V DC (nominal) to supply households with this voltage. The nano-grid systems will include a device in each household to manage the allocation of electricity to each household.

Output 1.3. Locally appropriate rainwater harvesting systems for safe drinking water and home-garden irrigation.

Local communities on chars have very limited access to safe drinking water. On Lakshmitari char they depend on tube wells that are often contaminated by flood waters during the monsoon season. In Mujibnagar, communities depend on unsafe surface water sources which are polluted by tidal floods and storm surges. In addition, saline intrusion also threatens the water resources of coastal chars[91]. These factors lead to the spread of water-borne diseases and limit the water available for the irrigation of home gardens during the dry season. Household rainwater harvesting has been shown to be a feasible, cost-effective solution to these problems in Bangladesh[92,93]. Under this output, rainwater harvesting systems will be installed, with all cyclone and flood resistant features, in Lakshmitari and Mujibnagar. These systems will provide safe drinking water for households, as well as providing water for the irrigation of home-gardens to enhance food security of women and young children in particular. (Further details on the specific technologies used to clean and filter the water is available in Annex 14_C)

Activity 1.3.1. *Assessing water demand and designing locally appropriate rainwater harvesting systems for households.*

The water need of households will be assessed through surveys by the project partner NGO. Based on this need, rainwater harvesting systems will be designed with sufficient capacity to supply year-round household needs. The project partner NGO will provide the necessary technical expertise. The design will be based on international best practices and locally appropriate specifications (see Annex 14_C). It will include provision for the increasingly erratic rainfall patterns as a result of climate change in the north-west of Bangladesh, where Lakshmitari is located, as well as for increasing saline intrusion in coastal areas[94]. In addition, rainwater harvesting systems will be designed to withstand floods and cyclones. Lastly, the quality of the water from storage tanks will be ensured by installing two-filter systems, which will avoid the contamination problems sometimes experienced with stored rainwater[95].

Activity 1.3.2. *Establishing community-based water-user groups for surface water preservation and distribution in water-stressed areas*

Community members will be supported to establish water-user groups. These groups will be trained to: i) manage the preservation and distribution of surface water in areas that experience water stress during the dry season and/or because of saline intrusion; and ii) assist community members with the maintenance of rainwater harvesting systems. The training will be provided by the project partner NGO and will ensure that the water-user groups are capacitated to be self-sufficient before the end of the project period.

Activity 1.3.3. *Installing home-based rainwater harvesting systems for drinking and gardening.*

The project partner NGO will install rainwater harvesting systems for 500 selected households, in collaboration with household members. Beneficiary households will be the same as for the house retrofitting activities above. Household members will be trained to operate and maintain their rainwater harvesting systems.

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[91] Clarke, D., *et al*. (2015). Projections of on-farm salinity in coastal Bangladesh. Environmental Science: Processes & Impacts, 17(6), 1127-1136.

[92] Islam, K. Z., *et al*. (2014). Low cost rainwater harvesting: an alternate solution to salinity affected coastal region of Bangladesh. American Journal of Water Resources, 2(6), 141–148.

[93] Ferdausi, S. A., & Bolkland, M. W. (2000). Rainwater harvesting for application in rural Bangladesh. In WEDC Conference (Vol. 26, pp. 16-19).

[94] Design specifications for saline intrusion will consider both the necessary capacity of storage tanks, as well as the corrosion of certain construction materials under saline conditions.

[95]Centre for Climate Change and Environmental Research. Personal communication, Nandan Mukherjee, C3ER. BRAC University, July 2018.

Outcome 2: Increased climate resilience of communities through infrastructure that is resilient to cyclones and floods, climate risk mapping and inclusive cyclone preparedness

Baseline scenario (without AF resources): The communities who live on chars are highly exposed to increasingly frequent and intense cyclones and floods. However, there are not sufficiently large and robust shelters against cyclone and flood disasters, the embankments that should help to protect communities against flooding and storm surges are fragile, and the local cyclone preparedness programmes are inadequate in terms of local coverage. In addition, the spatial distribution of climate hazards and vulnerabilities on many chars has not been mapped and communities and local governments consequently do not have the necessary knowledge for climate-resilient planning. As a result, the char communities experience loss of life during cyclones and floods, with assets and livelihoods also impacted negatively. Extreme poverty and limited government capacity and resources means that the necessary infrastructure and services are not being implemented to address the vulnerability of communities to these climate disasters. Without these interventions, the char communities of Mujibnagar and Lakshmitari will remain greatly at risk of cyclones and floods, with the risks expected to increase further with future climate change.

Additionality (with AF resources): Resources from the Adaptation Fund will be used to implement infrastructure and services that are critical for the reduction of cyclone and flood disaster impacts in Mujibnagar and Lakshmitari. Firstly, cluster houses that double as cyclone and flood shelters will be constructed. These cluster houses will provide permanent housing for the most disaster vulnerable households and will also provide shelter for many additional community members during major disasters. Secondly, AF resources will be used to repair and strengthen embankments and river banks, thereby protecting the char lands against floods, storm surges and river bank erosion. Embankment and river bank works will be combined with the development of a community-based approach to embankment management that can serve as a model for other parts of Bangladesh. Thirdly, comprehensive climate risk maps will be produced for the chars of Mujibnagar, Lakshmitari and six other selected chars/islands to inform climate change responsive planning by the government and communities. Lastly, the preparedness of communities in Mujibnagar for cyclone disasters will be enhanced through: i) the expansion and modernisation of the local Cyclone Preparedness Programme; and ii) implementing floating ambulances to rapidly reach critical patients during cyclones. Taken together, these AF-financed activities will greatly enhance the resilience of char communities against floods and cyclones under climate change conditions. Overall, the project will serve as a model for upscaling by the GoB by promoting a paradigm shift from standard disaster risk reduction to climate resilient development planning.

Output 2.1. Climate-resilient infrastructure built to protect life and prevent asset loss.

Char communities are extremely exposed to cyclones and flooding, which are becoming increasingly frequent and intense because of climate change. In coastal areas, cyclone winds, storm surges and flooding cause loss of life and damage to livelihoods and assets. In inland chars, frequent and intense floods have similar negative impacts. The typical houses on chars are not able to withstand cyclone and flood disasters. For this reason, char communities require disaster shelters.

Activity 2.1.1. *Constructing cluster houses for particularly vulnerable households that will function as emergency shelters during flooding and cyclones.*

Twenty cluster houses (i.e. multiple houses in a single robust building) will be constructed by the project partner NGO[96]. The locations of cluster houses will be determined through consultation with the community and local government and will be informed by the climate hazard maps presented in this proposal (see Annex 14_E) as well as the maps developed under Output 2.3. The households most vulnerable to disasters will be selected as beneficiaries, following a transparent, inclusive selection process (see Annexes 14_A and 14_B). Selection criteria will prioritise households that: i) are led by women; ii) have elderly household members; iii) have disabled household members; and iv) are landless. Each cluster house will accommodate four households in non-disaster periods. During flood and cyclone disasters, one cluster house will accommodate up to 100 people and their valuable moveable assets (e.g. documents, seeds, utensils). The elderly and disabled community members who

[96] For specifications of cluster houses, see Annex B.

live in the cluster houses during non-disaster periods will already be in a safe space when disasters occur, rather than having to move to a distant shelter. The location of various cluster houses in different locations in the chars will also reduce the distance that particularly vulnerable people (i.e. the disabled and the elderly who are not residing in the cluster houses) have to travel to reach shelter. The cluster houses will be designed to be women- and children friendly, will include water, sanitation and hygiene (WASH) facilities, and will have solar lighting. For further specifications and illustrations of the proposed cluster house design, see Annex 14_B.

Output 2.2. Embankments repaired and innovative model for community embankment management introduced.

Char lands need to be protected against monsoon floods, tidal flooding and cyclone storm surges, all of which are exacerbated by climate change-induced sea level rise. The existing embankments that should protect char lands against these climate impacts are lacking in places and fragile overall. In Lakshmitari, settlements and farmland are also threatened by river bank erosion. Activities 2.2.1 and 2.2.2 will repair damaged embankments, as well as strengthen embankments and river banks through a combination of grey and ecosystem-based adaptation measures. The fragility of and damage to embankments is in part because of inadequate maintenance and management of the embankments. Activity 2.2.3. will develop an innovative community-centred approach to embankment management that will serve as a model for upscaling by the government to other parts of Bangladesh.

Activity 2.2.1. *Repairing damaged embankments in Mujibnagar.*

Embankments around chars are a vital line of defence against floods and storm surges. In the target char in Mujibnagar 14.5 km of embankment (including 1 km of breached embankment) will be repaired in collaboration with the Bangladesh Water Development Board (BWDB). Separate from this Adaptation Fund project, the Government of Bangladesh, through the BWDB, will construct a new embankment of 3.5 km in Lakshmitari to protect the area from floods. For the location of these embankments and the technical specifications of the repair work, see Annex 14_C.

Activity 2.2.2. *Strengthening embankments in Mujibnagar and riverbanks in Lakshmitari through the installation of geotextile and EbA measures such as planting mangroves, other trees and vetiver grass.*

In Mujibnagar, 10 km of degraded embankments will be strengthened with a combination of geotextiles and the planting of vetiver grass[97] and mangrove trees where appropriate. In Lakshmitari, 2 km of vulnerable riverbank will be strengthened with a combination of geotextiles and vetiver grass. Where required, trees will be used to further strengthen the degraded riverbanks. Embankments will be strengthened according to the established best practices in Bangladesh[98]. The 3.5 km of new embankment constructed by the GoB will also be strengthened in this way. This activity will be conducted by the Bangladesh Water Development Board in collaboration with social forestry programmes and the community embankment management groups that will be established in the following activity.

Activity 2.2.3. *Forming community embankment management groups with locally appropriate incentives.*

The maintenance of embankments will be improved by increasing the involvement of local communities[99]. This will be achieved by creating incentives for community involvement, such as fish farms or social forestry[100] next to embankments. Community embankment management groups (also known as water management organisations [WMOs]) will be mobilised for participation in the repair of embankments and the operation and maintenance of

[97] *Chrysopogon zizanioides*

[98] UNDP, 2017. Technical innovation in disaster risk reduction: Results from four studies. Dhaka.

[99] This follows a historical precedent: prior to 1954, communities in Bangladesh were involved in building small earthen dykes around paddies and along river banks under the leadership of zamindars (landlords). However, the proposed community embankment management model differs from this in some important respects, in particular regarding its focus on community empowerment.

[100] i.e. forestry activities designed to provide benefits to communities, in particular afforestation of embankments.

embankments[101]. This will include extensive consultation and participatory planning of repair works[102]. These community groups will be trained to undertake the operation of embankment infrastructure[103] and to conduct small ongoing maintenance activities. The Bangladesh Water Development Board (BWDB) will sign memoranda of understanding with the community groups for this purpose. Local NGOs will be engaged by the BWDB to facilitate this community engagement process. The community groups will also be responsible for the equitable sharing of benefits from aquaculture and forestry activities on or next to embankments. Overall, this community-based embankment management approach will serve as a model that can potentially be scaled up by the national government.

Output 2.3. Climate-resilient investment on chars promoted through climate hazard maps and expanded cyclone early warning systems.

Many of the chars in Bangladesh are greatly affected by climate-induced disasters such as cyclones. This is because chars often lack the communication infrastructure that is commonly used to warn people about impending cyclones making landfall. These chars are also at a further disadvantage because they have not been mapped on a fine enough scale in terms of climate hazards and vulnerability. Without such maps, investments in infrastructure, housing and livelihood activities cannot be practiced in locations that have less exposure to climate hazards. Furthermore, without these maps, communities do not understand the variable risk associated with different areas of their land and cannot, therefore, identify areas that would be safe during disaster events. This output will address this gap by developing a cyclone early warning system for Mujibnagar and the necessary maps for selected chars.

Activity 2.3.1. *Developing climate hazard and vulnerability maps for selected chars in the Bay of Bengal and the Ganges-Brahmaputra-Meghna (GBM) basin.*

Fine-scale climate hazard maps will be produced for ten selected chars. The hazard maps will be based on existing data from various sources, including from the Ministry of Environment and Forests (MoEF), Ministry of Water Resource (MoWR), Ministry of Agriculture (MoA), Ministry of Health and Family Welfare (MoHFW), Planning Commission, Ministry of Fisheries and Livestock (MoFL), Ministry of Disaster Management and Relief (MoDMR)and NGOs. The maps will be produced by combining socio-economic vulnerability assessments with climate hazard maps. The resulting maps will focus in particular on flooding, storm damage, and river erosion, as well as socio-economic characteristics, infrastructure, basic services and natural ecosystems that buffer against climate disasters. The vulnerability assessments will drawon studies by the BMD and other independent research institutes and non-governmental organisations and will also incorporate data from semi-structured interviews with community members in hazard-prone areas. The comprehensive risk and vulnerability atlas project of the CDMP[104]will serve as a basis for this activity. The climate vulnerability maps will improve the understanding of local perceptions of hazards, community resources to cope with extreme events, and strategies and courses of action adopted by the communities during disasters. These maps will be shared with local government officials, displayed in local public buildings and shared with communities during training events, including with farmer groups and water user groups. In this way, the maps will support the decision-making of communities, local government and other actors and promote climate-resilient investments. This will assist communities, the government and NGOs to make appropriate plans and decisions about disaster risk reduction and disaster responses. In this way the loss of life and assets from climate disasters will be decreased. By producing and disseminating climate vulnerability maps of other chars in addition to Mujibnagar and Lakshmitari, the project will facilitate the upscaling of its climate-resilient char development approach by the government in future.

Activity 2.3.2. *Establishing an effective and inclusive cyclone early warning system*

[101] The establishment of WMOs will follow an eight-step process, as identified in the *Guidelines for Integrated Planning for Sustainable Water Resources Management* published by BWDB in 2008.

[102] According to the guidelines for participatory water management, all inhabitants in an area directly or indirectly affected by water management activities are stakeholders who should be consulted.

[103] such as small hydraulic infrastructure

[104] Comprehensive Disaster Management Programme (CDMP II) of Ministry of Disaster Management and Relief

An enhanced cyclone early warning system will be established in Mujibnagar. This system will be operated through mobile phone networksto provide information to all inhabitants in the form of periodic text message updates[105]. By providing periodic updates, char inhabitants will have a better understanding of how the cyclone risk is developing over time and will, therefore, be better equipped to respond. This will allow char inhabitants to receive advice and make an informed decision on whether they have time to evacuate, or whether they should stay in their own houses[106].

Output 2.4. Cyclone Preparedness Programme (CPP) modernised, made gender-responsive, and expanded to provide timely cyclone early-warning and response at scale.

The Cyclone Preparedness Programme currently does not provide sufficient coverage for the char communities in Mujibnagar. The activities under this output will consequently modernise and expand the CPP in this area to provide timely early warning of cyclones and adequate on-site responses at the necessary scale. This will include tailoring early warnings and cyclone preparedness to local requirements and using the local language. Additionally, the project will extend CPP activities, including the training of volunteers and provisioning of CPP equipment to a further six vulnerable small coastal island unions[107].

Activity 2.4.1. *Engaging community members in the CPP multi-hazard volunteer programme.*

Community members will be engaged in the CPP volunteer training programme on Mujibnagar and in the six additional unions. The training programmes will include search and rescue, water rescue, first aid and the use of light rescue equipment, and will incorporate gender, psycho-social and disability considerations. These CPP training programmes will seek to increase the representation of women in the volunteer corps by a further 25%. In addition to the above training, CPP volunteers will also be trained to assist with embankment repair and strengthening.

Activity 2.4.2 *Providing equipment for CPP volunteers and cyclone shelters.*

The CPP volunteers will be equipped with the necessary personal equipment, including protective clothing, torches and signal flags. Existing cyclone shelters and the cluster houses constructed by this project will be provided with full sets of modern cyclone preparedness equipment. A complete list of the CPP equipment, including costing and technical specifications is provided in Annex 14_D.

Activity 2.4.3. *Providing and equipping floating ambulances that are integrated with a mobile phone health system (M-health) to support stranded and critical patients during climate-induced disaster and post-disaster periods.*

During climate disaster periods, health services are often unable to reach char areas on time to assist vulnerable and critical patients, such as cyclone or flood casualties and women in labour. To address this need, a floating ambulance will be designed and implemented through a partnership between the Ministry of Health and Family Welfare and NGOs. This ambulance will be permanently stationed in Mujibnagar so that itis already present in the area when disasters occur. During normal times, the floating ambulance will provide both primary and emergency health services to communities. The floating ambulance will be approximately 23 feet long and 11 feet wide in order to fit patients comfortably. Metal beams will allow column-free spaces and the boat will have flexible wooden floors, high ceilings and waterproof roofs outfitted with solar panels. The ambulance will be designed to handle the increased water turbulence of cyclone events. It will be staffed by trained healthcare workers. The ambulance will be equipped with mobile phones and radio so that it can be called by anyone with access to a mobile phone, as well as through the CPP system. During non-disaster periods, health care workers on the floating ambulance will also communicate with patients via mobile phone, i.e. through a Mobile Health Support System (M-Health).

[105]Early warning systems in Bangladesh have often failed to be effective because communities are distrustful of the accuracy of forecast data, and therefore do act as appropriate in the time between receiving a warning and the point at which a cyclone makes landfall.

[106]Roy, C., *et al* (2015). The current cyclone early warning system in Bangladesh: Providers' and receivers' views. *International journal of Disaster Risk Reduction*, *12*, 285-299. Available at: https://www.diva-portal.org/smash/get/diva2:812210/FULLTEXT01.pdf

[107]The following unions have been prioritized to receive CPP support under the project: i) Bhabanipur Union and Madanpur Union of Daulatkhan Upazila; ii)Badarpur Union of Lalmohan Upazila; iii) Dakshin Sakuchia Union of Manpura Upazila; and iv) Bara Malancha Union and Char Jahiruddin Union of Tazumuddin Upazila under the Bhola District.

This system will allow health care workers to maintain contact with patients that have critical or chronic conditions. The floating ambulance will be integrated with the existing healthcare infrastructure in the region, including the community clinic on Mujibnagar and other clinics on Char Fasson.

Outcome 3: **Improved income and food security of communities by innovating and providing assistance to selected households for climate-resilient livelihoods practices.**

Baseline scenario (without AF resources): Currently, char communities in Bangladesh are largely reliant on rain-fed agriculture for their livelihoods. These livelihoods are already vulnerable to water stress, flood events, storm surges and saline intrusion, all of which are predicted to increase in frequency and/or severity as a result of climate change. Communities do not currently have the capacity to implement climate-resilient agricultural practices, or to develop a more diversified livelihood base, because of lacking institutional support, limited local capacity and small economic resources. During climate-induced disaster events, institutional assistance is often limited because a large number of people are affected across the country. Lastly, the poor food security of the unions of Mujibnagar and Lakshmitari makes them extremely vulnerable during long-lasting climate disasters, and communities or individual households often have small food stores.

In Mujibnagar the current impacts of climate change include increased saline intrusion and inundation of agricultural land as a result of storm surges and rising sea levels. These impacts are projected to increase in severity and scale as a result of climate change. Increased soil salinity as a result of saline intrusion caused by SLR negatively impacts agricultural productivity[108], which is reducing the food security and the income-generation potential of the already vulnerable local farmers[109].

In Lakshmitari Union the socio-economic conditions faced by the local populations are similar to those in Mujibnagar Union; however, the climate change impacts differ. Increasingly erratic rainfall patterns are impacting negatively on agricultural productivity by exacerbating periods of water stress during the Rabi (dry season). Farmers depend on rainfall for their agricultural livelihoods and disruptions to agricultural productivity impact negatively on food security and overall health[110]. This because of the existing vulnerability of these farmers, their small asset base and limited access to mainland markets. Local communities have neither the financial means nor the technical knowledge to establish irrigation systems. Moreover, these communities have limited access to electricity and any irrigation systems would need to be powered with diesel pumps.

As a result of low levels of education and limited financial and technical capacity, the populations of Mujibnagar and Lakshmitari are limited in their ability to adapt to climate change by developing climate-resilient agricultural practices or diversified climate-resilient livelihoods. Without addressing these problems, agricultural livelihoods, economic opportunities and food security will be increasingly affected by saline intrusion, storm surges and water stress under future climate change.

Additionality (with AF resources): AF resources will be used to improve food security and economic productivity under climate change conditions by: i) developing climate-resilient agricultural practices in Mujibnagar and Lakshmitari through farm field schools that train farmers about climate-resilient cultivars and proven innovative agricultural practices; ii) implementing solar-powered irrigation systems in Lakshmitari; and iii) establishing cold storage facilities in Lakshmitari and Mujibnagar. This will improve both food security and economic productivity in the short-term, and better equip local populations with the knowledge, technical capacity and infrastructure required to maintain agricultural livelihoods as climate change impacts increase in scale and severity. AF resources will also be used to develop diversified livelihood options for particularly vulnerable community members, including those who are unable to engage in agricultural livelihoods because of physical disabilities,

[108]Clarke, D., *et al*. (2015). Projections of on-farm salinity in coastal Bangladesh. *Environmental Science: Processes & Impacts*, *17*(6), 1127-1136.

[109] Szabo, S., *et al*. (2016). Soil salinity, household wealth and food insecurity in tropical deltas: evidence from south-west coast of Bangladesh. *Sustainability Science*, *11*(3), 411-421.

[110]Islam, A. R. M. T., *et al*. (2014). Drought in Northern Bangladesh: social, agroecological impact and local perception. *International Journal of Ecosystem*, *4*(3), 150-158.

landlessness or age. By supporting the development of these livelihoods, AF resources will be used not only to develop the adaptive capacity of the most vulnerable community members but also to help develop alternative climate-resilient skills and industries that will improve the economic productivity of the Mujibnagar and Lakshmitari Unions as a whole.

Output 3.1 Climate-resilient agriculture implemented and supported at a community level

Communities living on small coastal islands and char lands in Bangladesh typically rely on agriculture as their primary form of livelihood. These livelihoods are being threatened by the increasingly severe impacts of water stress, flooding, saline intrusion and cyclone storm surges as a result of climate change. This output will support the development of climate-resilient agricultural practices, improved irrigation and cold storage facilities. In this way it will increase agricultural productivity, food security and the economic potential of farmlands.

Activity 3.1.1. *Establishing farmer field schools and training farmers for innovation and adoption of climate-resilient agricultural practices.*

A farmer field school will be established at each of the local innovation and knowledge centres which will be establishedunder Output 4.2.1.The project will thus establish two farmer field schools in Mujibnagar and two in Lakshmitari. These farmer field schools will be run by the permanent staff employed by the project at the innovation and knowledge centres. The farmer field schools will include demonstration plots to host workshops for local farmers to learn about proven innovative food production techniques, including on the use of: i) hydroponics; ii) fish farms; iii) vertical gardens; iv) the selection and use of climate-resilient cultivars; and v) other climate-resilient agricultural practices. The information disseminated by the farmer field schools will be drawn from existing knowledge in Bangladesh that is underpinned by proven results. The farmer field schools will further function as hubs for research on climate-resilient agriculture and will host visits for farmers from other chars and for agricultural researchers from universities andresearch centres in Bangladesh. These farmer field schools will benefit the farmers living in Mujibnagar and Lakshmitari by fostering collaboration between farmers and increasing their awareness of different climate-resilient agricultural techniques.

Activity 3.1.2. *Establishing cold storage facilities for agricultural produce and fish*[111]*.*

Agriculture is the main livelihood in the target areas and impacted negatively by climate change, thus it is important to increase income from this livelihood in order to increase climate resilience. One of the ways to do this is to increase market access for farmers. To this end, two cold storage facilities will be established in Mujibnagar, as well as in Lakshmitari. The facilities will be located with the farmer field schools atthe local knowledge and innovation centres. This will ensure that staff from the innovation centres can monitor the management of the facilities, and that they are centrally located andeasily accessible to community members. The cold storage facilities will be powered by small photovoltaic facilities or by small wind turbines[112]. These facilities will reduce the wastage of harvested crops and fish and will increase food security at a local level during climate-induced disaster events. The increased capacity to store crops and fish will also have a positive impact on the livelihoods of char communities, as they will be able to stockpile crops and fish to transport to the mainland for sale.

Activity 3.1.3. *Assessing irrigation needs and implementing solar irrigation systems in Lakshmitari to provide water during the dry season.*

An assessment will be conducted in partnership with the Parishad of the Lakshmitari Union by IDCOL, a locally established NGO to determine the irrigation needs of farmers in Lakshmitari. Findings from this assessment will be used to calculate the area of cultivated land that can be successfully irrigated during the Rabi (dry) season. The irrigation systems will draw water from existing tube wells in Lakshmitari and will be powered by independent

[111] Cold storage for fish will be in the coastal area (Mujibnagar) only.

[112] Locally appropriate cold storage facilities made from shipping containers and powered by photovoltaic systems have been developed in Bangladesh, see: http://idcol.org/download/Solar%20PV-Diesel%20Hybrid%20Mini%20Cold%20Storage%20for%20Rural%20Offgrid%20Areas%20of%20Bang....pdf

PV systems or by the nano-grids installed under Activity 1.2.3. The electrical water pump will be a 1.1kW unit, capable of pumping ~90,000 l per day. It is recommended that pumps only be used to irrigate non-rice crops (e.g. potatoes, vegetables, wheat) as it has been shown that applying solar irrigation to rice is not economically feasible. Each pump system will, therefore, be able to irrigate ~7 ha of wheat, or potentially ~15 ha of other vegetable crops[113].

Output 3.2 Diversified livelihoods developed and supported for the most vulnerable households

The communities living on small coastal islands and river char lands in Bangladesh are greatlydependent on climate senstive practices such as agriculture to support food securty and generate income. Both Lakshmitari and Mujibnagar have limited alternative livelihood options availabel for the majority of the population. This output will assist the most vulnerable households to develop alternative livelihoods by assessing opportunities and providing financial and technical assistance to develop new climate-resilient livelihoods. The livelihood approach will also include local enterprise development to make non-fired bricks, with technical assistance from Bangladesh the House Building Research Institute (HBRI).

Activity 3.2.1. *Providing technology, skills and materials to selected households for making their incomes resilient to flooding, cyclones and saline intrusion.*

Vulnerable households that will receive livelihood assistance will be identified through an assessment conducted in partnership with an established local NGO[114]. This assessment will include consultations with the local community and will prioritise woman-led households and those caring for the disabled and the elderly. The partner NGO, equipped with local experience and an understanding of alternative livelihood options on char lands, will support the selected households to determine feasible diversified livelihood options. The partner NGO will then provide support to these households in the form of technology, training and material provisioning. This support will benefit the most vulnerable inhabitants of the chars by assisting them to gain skills and access income generation opportunities, thereby improving their overall adaptive capacity. Preliminary site level scoping studies on the development of alternative livelihoods, that specifically focus on the most vulnerable populations (i.e. women-led households and the landless), have already been conducted (see Annex 14_E).

Outcome 4. Enhanced knowledge and capacity of communities, government and policymakers to promote climate resilient development on chars.

Baseline scenario (without AF resources): Char communities have limited knowledge on climate change adaptation options, in particular with regards to the technical aspects of implementing such options. Local government and other agencies often have limited knowledge and capacity to train char communities on climate-resilient practices. These local governments also do not have sufficient knowledge and capacity to incorporate climate risks adequately into their plans and activities in char areas. Beyond the local level, knowledge of the best ways to help char communities adapt to the unique combination of climate vulnerabilities that confront them is also limited. If these knowledge deficits persist as the climate impacts on chars become more severe with future climate change, the responses of communities, government and other actors will become increasingly ineffective.

Additionality (with AF resources): AF resources will be used for learning, capacity building and knowledge generation and dissemination in order to increase the climate resilience of char communities. This will include: i) building the capacity of local government institutions, the Bangladesh Water Development Board and the Department of Agriculture extension service; ii) establishing local knowledge and innovation centres and effective outreach mechanisms; iii) collecting lessons learned and best practices on community-based and ecosystem-based adaptation options; iv) disseminating knowledge products through a range of media; and v) raising awareness of climate change among school children and community members. Overall, char communities will be equipped with the knowledge to adapt effectively to climate change, and the government will be provided with the knowledge to upscale the approach developed by the project to other char areas.

[113]Groh, S., *et al.* (2015). *Decentralized Solutions for Developing Economies*. Springer International Publishing: Imprint: Springer.

[114]to be identified during the implementation phase

Output 4.1. Local government institutions are capable of climate risk-informed planning and implementation.

Many of the local government institutions currently have limited capacity to conduct planning in a manner that explicitly and comprehensively considers climate risks. These institutions also have insufficient capacity to implement their activities in a fully climate-resilient way. The activities under this output will build the capacity of local government institutions, in support of the overarching, long-term vision of the Bangladesh Delta Plan.

Activity 4.1.1. *Building the capacity of local government institutions, the Bangladesh Water Development Board and the Department of Agriculture extension service to promote climate-resilient approaches in char communities.*

Firstly, local government representatives and staff will be trained on the relevant ecosystem-based and community-based adaptation measures so that they can facilitate the uptake of these measures among char communities. Secondly, staff from the Bangladesh Water Development Board will be trained to incorporate the community-based approach to embankment management into their activities and to plan fully for the increasing risks of climate disasters. Thirdly, extension staff from the Department of Agriculture will be trained to support communities in the adoption of climate-resilient agricultural techniques.

Output 4.2. Knowledge and awareness generated to promote climate resilient approaches and strategies

Generating new knowledge about climate disaster risk reduction and other climate-resilient practices in chars and disseminating this knowledge to communities and decision-makers is vital for adapting to the increasing impacts of climate change.

Activity 4.2.1. *Establishing local innovation and knowledge centres to collect and disseminate innovative adaptation options.*

Two innovation and knowledge centres will be established in each target area (two in Mujibnagar and two in Lakshmitari) to collect local best practices and adaptation innovations, and to disseminate this knowledge across each target area. These centres will host the farmer field schools established under Activity 3.3.1 and will promote innovation in climate-resilient agriculture, household-level food production and other adaptation measures. The centres will also communicate national best practices to community members in the target areas. Lastly, the centres will support the establishment of outreach mechanisms by the project staff and project partners. These outreach mechanisms will include *inter alia:* i) radio programmes; ii) project websites; iii) brochures; and iv) public events. The outreach mechanisms will be supported through social media to effectively communicate project news and widely disseminate information about climate change and adaptation options.

Activity 4.2.2. *Collecting lessons learned and best practices on community-based and ecosystem-based adaptation interventions.*

Throughout the implementation of this project, the lessons learned from interventions will be collected by project staff and by all the project partners and used for adaptive management of the project activities. Best practices developed during the project will also be collected systematically by the local knowledge centres as well as by project staff in general. These best practices and lessons learned will be disseminated widely through the activity below.

Activity 4.2.3. *Disseminating information and knowledge products on a regular basis using arrange of modern and conventional media at local and national levels.*

The sharing of project experience will be achieved by: i) supporting local stakeholders to attend national climate change and disaster risk management forums; ii) presentations at regional forums and meetings; iii) the organization of exchange visits between the communities participating in the project; and iv) the development of manuals and training materials.

Activity 4.2.4. *Raising awareness about climate change among schoolchildren and other community members.*

Teachers and religious leaders will be trained to disseminate climate change information to schoolchildren and other community members through schools and community awareness programmes in Mujibnagar, Lakshmitari and the surrounding areas. This will include information on the nature of climate change, its impacts in Bangladesh and local adaptation options.

Partnerships:

Several adaptation projects are being implemented in char communities in Bangladesh, the objectives of which include improving livelihoods, reducing the impacts of flooding and erosion, and building the resilience of local communities to extreme climate events such as cyclones. Large chars in particular, such as Hatiya and Maheshkhali, benefit from development initiatives funded by donor and national agencies. In contrast, small offshore islands do not usually receive adaptation finance [115]. In addition, many development initiatives implemented among char populations do not incorporate climate change adaptation and may even result in an increase in local communities' vulnerability to extreme climate events. The proposed project will complement following six existing adaptation-focused initiatives. These are:

I. Integrating Community Based Adaptation into Afforestation and Reforestation (ICBA-AR) Programmes (UNDP-GEF)

II. 'Piloting of Some Climate-resilient Development Initiatives at Char Kazal, Galachipa, Patuakhali: An Innovative Concept of Community-Based Adaptation to Climate Change';

III. the 'Char Development and Settlement Project (IV)';

IV. the 'Local Government Initiatives on Climate Change' project (LoGIC);

V. Enhancing Adaptive Capacities of Coastal Communities, Especially Women, to Cope with Climate Change Induced Salinity (GCF-UNDP)

VI. Integrating climate change adaptation into Sustainable Development Pathways of Bangladesh Programme (GEF6; waiting for approval)

Project Title	Major outcome and Output	Implementing agencies, budget & source of funding	Linkages with proposed project	Mechanism for coordination
Integrating Community Based Adaptation into Afforestation and Reforestation (ICBA-AR) Programmes'	Three outcome of the projects are: 1) Vulnerability of communities in new afforestation and reforestation sites reduced through diversified livelihood options and more effective greenbelts, 2) Strengthened community involvement in, and ownership of, forestry-based adaptation and	Ministry of Environment, Forest and Climate Change (MoEFCC) and UNDP, Budget: USD 5.60 million, GEF(LDCF)	Climate resilient livelihoods, coastal afforestation, repair and maintenance of coastal embankments and CPP	Lesson learned from implementation of the project has been incorporated into this project especially on CPP, resilient livelihood and repair and management of embankments

[115]Raza, W, Bhattacharjee, A and Das NC. 2011. Impact of char development and settlement project on improving the livelihood of char dwellers. RED Working Paper no. 17. Dhaka: BRAC.

Project Title	Major outcome and Output	Implementing agencies, budget & source of funding	Linkages with proposed project	Mechanism for coordination
	climate risk reduction programmes, 3) Communal livelihood assets are protected from extreme climate events through effective early warning and preparedness planning.			
'Piloting of Some Climate-resilient Development Initiatives at Char Kazal, Galachipa, Patuakhali: An Innovative Concept of Community-Based Adaptation to Climate Change'	i) promote community-based adaptive capacity for communities in Char Kajal through piloting of adaptive agriculture practices; ii) renovate houses and boats to make them cyclone-resilient; and iii) conserve lands by promoting reforestation/afforestation of mangroves.	Center for Natural Resources Studies (CNRS), US$500,000; from January 2011–December 2012; financed by AF (??)	Similar activities in different areas.	Lesson learned from implementation of the project has been incorporated into this project especially on climate proofing housing, resilient agriculture and community based embankment management.
the 'Char Development and Settlement Project (IV)'	The activities are divided under six project components: 1. Protection for Climate Change, 2. Climate-resilient Infrastructure, 3. Land Settlement and Titling, 4. Livelihood Support, 5. Field Level Institutions, and 6. Surveys and Studies, Operation and Maintenance.	Four local NGOs; March 2011 to December 2018; co-financed by the Government of Bangladesh, the Government of the Netherlands, and the International Fund for Agricultural Development (IFAD)	Improves all infrastructures, and supports resilient livelihoods development;	lessons learned from the CDSP will be used to inform project activities, including whether measures such as the building of embankments and drainage sluices without other measures are effective in protecting vulnerable communities from frequent flooding.
The 'Local Government Initiatives on Climate Change' project	LoGIC has three thematic areas of work: i) capacity building for communities, local government and extension workers to mainstream climate change adaptation into their decision-making processes; ii) facilitating	European Union in collaboration with UNDP-UNDCF and the Local Government Division (LGD) of the Ministry of Local Government,	There is a partial overlap between geographical areas, the proposed project will focus on improving livelihoods and climate resilience at a community	Coordination from central to field level will be maintained as these are both UNDP projects through joint meetings of PMU, and field offices;

Project Title	Major outcome and Output	Implementing agencies, budget & source of funding	Linkages with proposed project	Mechanism for coordination
	climate finance through grants to local governments and promoting a local climate financing mechanism; and iii) providing the most vulnerable communities with direct support to enhance their adaptive capacity	Rural Development and Cooperatives, Bangladesh (2016–2020; budget ~US$ 20 million).	level, while LoGIC is more focused on facilitating climate finance mechanisms and developing capacity at a local government level.	
Enhancing Adaptive Capacities of Coastal Communities, Especially Women, to Cope with Climate Change Induced Salinity	Output 1: Climate resilient livelihoods, focusing on women, for enhanced adaptive capacities of coastal agricultural communities; Output 2: Gender-responsive access to year-round, safe and reliable climate-resilient drinking water solutions; Output 3: Strengthened institutional capacities knowledge and learning for climate-risk informed management of livelihoods and drinking water security;	Ministry of Women and Children Affairs; The 6-year project (2018-2024) with a budget of US$32.98 million (GCF and GoB)	Main linkage is providing support to safe drinking water and livelihood development to most vulnerable communities with an emphasis on women.	
Integrating climate change adaptation into Sustainable Development Pathways of Bangladesh Programe	The goal to establish sustainable buffer zones that act as shelterbelts, prevent erosion, trap sediment and reduce the potential loss of lives and properties during disaster events.	Total USD 25,685,234 (GEF: USD 5,685,234) tentative period 2020-2025 by Ministry of Environment, Forest and Climate Change (MoEFCC)	The proposed project's activities will complement this widespread afforestation initiative by developing climate hazard maps and risk scenarios which will highlight areas most at risk to the impacts of disaster events. Lessons learned from the coastal afforestation initiative will also be valuable for the proposed project.	Coordination from central to field level will be maintained as these are both UNDP projects through joint meetings of PMU, and field offices;

Risks and Assumption:

Financial and project management will be conducted according to UNDP's Programme and Operations Policies and Procedures to ensure that financial and project risks are mitigated. In addition, the Government of Bangladesh's strong commitment to supporting the implementation of project interventions will limit the risks of the proposed project. However, there are several underlying project assumptions which, if not met, may contribute to the limited achievement of the project's objectives. These assumptions are presented below.

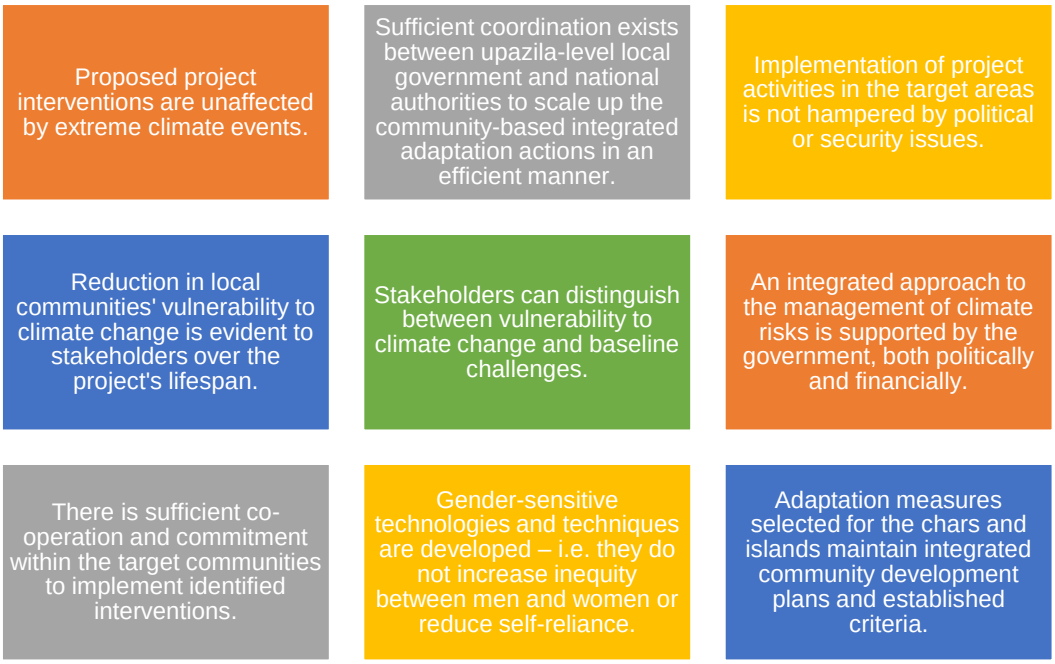


Figure 16. Underlying assumptions that must be met for successful achievement of the project objective.

Financial and Project Risk Management

Detailed financial and project risks related to the above-mentioned assumptions, as well as associated mitigation strategies identified, are outlined in Table 2 below. During regular project review meetings, in which UNDP will be an active participant, all risks and mitigation measures will be reviewed and updated as per established practices.

Table 2. Financial and project risk management measures for the proposed project, including risk ratings.

Risk no.	Identified risk	Type	Risk rating	Mitigation measures
1.	Identifying climate-resilient livelihood options that are suitable to the condition of the vulnerable people.	Programme Management	Medium	Success of the assignment will depend mostly on the identification of innovative livelihood options that will be suitable considering local, social, economic, ecological and climatic conditions and will be accepted by the local communities. Capacity of the vulnerable people will be carefully assessed and lessons from other projects will be reviewed and made available to the people to select from a range of options.
2.	Uncertainty regarding the intensity of climatic	Strategic	Medium	The project will utilise all climate scenarios and invest in down-scaling them for the islands in the Bay of Bengal. The risk information will be

Risk no.	Identified risk	Type	Risk rating	Mitigation measures
	events that may affect the project interventions, including housing and infrastructure.			used to design the interventions, especially for infrastructure and houses. Communities will be trained to switch their livelihoods depending on the changing climate. Local government and extension officials will also be trained.
3.	Current and predicted climate variability and/or extreme climate events negatively impact timeline of the project.	Operational	Medium	• The project will integrate the two outputs focusing on hazard risk scenarios and early warning communication to enable strong preparedness planning. • Activities under relevant outputs will be implemented early in the project's lifespan so that the potential impacts of extreme climate events are minimised. A business continuity plan will be in place.
4.	Influence of government and local political leaders in selection of beneficiaries.	Political	Medium	• In the project preparation phase, extensive consultation sessions have been conducted with government officials, including high-level officials of the ministries in Dhaka, confirming their commitment to the successful implementation of the project. • Continuing stakeholder consultation and involvement will be undertaken to ensure that government agencies maintain their commitment to project implementation. • Government will issue a guideline on selection criteria and a Grievance Redressal Mechanism will be established (see Annex 14_G).
5.	Capacity constraints of local communities and other stakeholders may limit the ability to undertake the implementation of proposed interventions.	Institutional	Medium	• The proposed project focuses on a community-based and participatory approach. • Human resource capacity will be developed in all targeted areas. • Local adaptation measures will be specifically tailored to the communities which will implement them.

Environmental and social risk management

Environmental and social impacts and risks have been identified for the proposed project. The Table 3 below describes risks and impacts management for the proposed project in accordance with the Environmental and Social Principles of the AF.

Table 3. Environmental and social risk management.

Checklist of environmental and social principles	Potential impacts and risks	Mitigation measures
Compliance with the Law	No appreciable risk	The involvement of government entities in the selection of adaptation interventions and technical design will ensure that all relevant laws will be considered during

Checklist of environmental and social principles	Potential impacts and risks	Mitigation measures
		project implementation. Once implemented, the monitoring of adaptation interventions will provide a means of tracking their alignment with national laws for the duration of the project.
Access and Equity	The beneficiaries of the proposed project are poor people in vulnerable communities who are often not integrated into decision-making processes. There is, therefore, a risk that certain community members may benefit more than others. This may result in both intra- and inter-community conflicts.	This risk will be mitigated through the beneficiary selection approach (Annex 14_A), and the incorporation of community consultation for all interventions that do not achieve complete coverage of the target populations. Furthermore, both beneficiary and non-beneficiary communities will be sensitised towards the approach of prioritising the support from the proposed project to the most vulnerable communities. A grievance mechanism (see Annex 14_G) has also been developed to support any community members who feel they are experiencing discrimination.
Marginalised and Vulnerable Groups	There is a risk that vulnerable and marginalised groups will be excluded during the implementation of project activities and have insufficient access to the associated benefits.	The proposed project has been designed to ensure that marginalised and vulnerable groups – especially women and people living with disabilities – will not be adversely affected by, but will instead benefit from, relevant climate change adaptation activities. Community consultations have been incorporated for all activities that do not achieve complete coverage of the target population. This will allow for the identification of marginalised and vulnerable households.
Human Rights	No activities are, or will be, included in the design of the proposed project that are not in line with established international human rights. Moreover, the proposed project will promote the fundamental human rights of access to food, water and information.	The project seeks to ensure that benefits of the project are shared broadly in a non-discriminatory, equitable manner through participatory processes and transparent selection criteria. Extensive stakeholder consultations were held during project preparation (Appendix A) and will be continued throughout project implementation.
Gender Equity and Women's Empowerment	The proposed project is targeting communities where men occupy the majority of the leadership positions. There is, therefore, a risk that women will not benefit equitably from the proposed project's climate change adaptation and capacity-building interventions.	Gender equity and women's empowerment were considered across all relevant design aspects of the proposed project and gender equity will be adhered to throughout the implementation period. To this end, a gender assessment was conducted during the development of the proposal to ensure that gender considerations were fully considered during project design (see Annex 12). In particular, equal rights, responsibilities, opportunities and access of women to the benefits of climate change adaptation have been considered. For example, project activities that target the most vulnerable community members (Activities 2.1.1. and 3.2.1.) are prioritised towards women-led

Checklist of environmental and social principles	Potential impacts and risks	Mitigation measures
		households. For technical assessments, as well as capacity-building activities, women will be strongly encouraged to participate.
Core Labour Rights	Local communities will be involved in the implementation and maintenance of climate change adaptation interventions. Therefore, local community members may be exposed to the risk of accidents while implementing the proposed project's climate change adaptation interventions.	During implementation, the National Project Steering Committee and Management Units will ensure respect for international and national labour laws and codes, for any work that may be carried out in relation to the project. This includes the eight International Labour Organisation Convention (ILO) core labour standards related to fundamental principles and rights of workers, as well as ILO Convention No. 169, which concerns rights of indigenous and tribal peoples. Prioritisation of women participation may be used to provide fair and equal opportunity for women to seek employment as labourers. All forms of negative discrimination in respect of employment and occupation will be eliminated. The proposed project will not engage in child labour in any of its activities. All forms of forced or compulsory labour will be eliminated.
Indigenous Peoples	No appreciable risk	No mitigation necessary.
Involuntary Resettlement	There is a low risk that houses have been constructed in areas that conflict with the infrastructure interventions under Component 2 (Specifically Output 2.1). This may result in temporary resettlement while infrastructure interventions are completed.	The project will ensure that in-depth consultations are conducted with any households that may be at risk of requiring resettlement. The possibility of involuntary resettlement has been considered for the repair of embankments and a resettlement policy has been prepared for this possibility (see Annex 11). Any involuntary relocation or resettlement will only be conducted after extensive community consultation and negotiation with any affected households. Benefits including reimbursement for the cost of the house, further livelihood support and provisioning of new land will all be included in any negotiated package. A grievance mechanism has also been developed (see Annex 14_G) and will be in place to address any concerns of affected community members.
Protection of Natural Habitats	On-the-ground adaptation interventions (specifically EbA) will include the planting of species for enrichment and/or restoration of ecosystems. This could lead to long-term alteration of natural habitats in terms of species assemblages and structure, which may result in various disturbances and negative environmental impacts.	The promotion of EbA interventions through the proposed project is more likely to result in the restoration, improved management and protection of natural habitats, as well as the strengthened supply of ecosystem goods and services. To ensure that this principle is adhered to, the consultation with and inclusion of relevant stakeholders (community and authority level) during project design and implementation is prioritised. All necessary impact assessments will be conducted before the implementation of interventions. Furthermore, all national environmental laws will be respected during the selection and implementation of adaptation interventions.

Checklist of environmental and social principles	Potential impacts and risks	Mitigation measures
	Adaptation interventions involving hard infrastructure will also be constructed – for example, the rehabilitation of damaged embankments (Activity 2.1.2.). Such interventions may result in the disturbance of small areas of natural habitat.	
Conservation of Biological Diversity	There is a low risk that adaptation interventions involving the construction of hard infrastructure – for example, the rehabilitation of damaged embankments (Activity 2.1.2.) could negatively impact biodiversity.	The project will ensure the conservation and sustainable use of biological diversity factors are considered in the process of finalising adaptation interventions. Adaptation intervention sites (specifically under Activity 2.1.1.) will be selected using a participatory approach and input from an environmental expert to ensure that activities do not cause significant loss of biological diversity.
Climate Change	No appreciable risk	No mitigation measures necessary
Pollution Prevention and Resource Efficiency	No appreciable risk	No mitigation measures necessary
Public Health	No appreciable risk	No mitigation measures necessary
Physical and Cultural Heritage	No appreciable risk	No mitigation measures necessary
Lands and Soil Conservation	Risks have been identified that are associated with the grey infrastructure interventions (Output 2.2.). These interventions include raising houses on plinths, repairing flood protection embankments and the construction of dual-purpose cluster house/storm shelters.	The project will ensure that all relevant environmental codes and standards will be followed during the design and construction of the grey infrastructure interventions. To comply with both national legislation and the Environmental and Social Principles of the Adaptation Fund, it is recommended that a comprehensive ESIA is undertaken at selected sites and an EMP commensurate with the identified impacts is developed prior to the construction of any greyinfrastructure.

Where required, an Environmental Management Plan for some of the project's on-the-ground activities will be developed and implemented (see Annex 11). Appraisal of the project activities will be based on a detailed quality programming checklist – formulated and approved by national stakeholders – to ensure that all necessary, country-specific safeguards are addressed and incorporated into the project design.

Compliance with the Environmental and Social Policy of the Adaptation Fund

The project will comply with the Environmental and Social Policy of the Adaptation Fund as described in Part II: Section J. As the Adaptation Fund-accredited Implementing Agency, UNDP – together with the relevant national partners – will ensure that the project follows the procedures outlined in the Environment and Social Policy of the

Fund. This includes, for example, the requirement that all project activities reflect local circumstances and needs and draw upon national actors and capabilities. The proposal has been screened according to the UNDP Social and Environmental Safeguards Procedure to ensure that necessary safeguards are incorporated into the project design. This includes quality assessment and social and environmental safeguards.

Gender equality and empowering women:

This project incorporates gender considerations into all interventions, including for all training, support and awareness raising activities. Although the primary focus of the project is on households that have the greatest vulnerability, the position of women in Bangladesh – especially in relation to climate change impacts – makes them the most likely beneficiaries of the project interventions.

Beneficiary Selection Criteria of the Project: During the first phase of implementation, the selection of beneficiaries will be based on the intersectional vulnerability of households, including prioritisation of: i) female-headed households; ii) households where an adolescent girl is solely responsible for household income;

The final selection will prioritise the following beneficiaries:

- Gender: female-headed households (including those widowed, divorced or separated/abandoned).
- Age: for livelihoods, women between 18-49; for other support, households with children and the elderly.
- Income: households with income of less than US$1.25 per person per day; Household Status: Women and girl beneficiaries from households where there are no able male members to earn livelihoods; Women from households where there are a greater number of dependent members on the women (household members chronically ill; physically, mentally and/or visually impaired or disabled).

The proposal contains four components, which all incorporate gender considerations. Component 1, in particular, will include a strong gendered focus on supporting women-led households, improve gender equality and social inclusion. The other three components will also include gender-sensitive planning that responds to gender differences and identifies opportunities and reduces and places emphasis on women's vulnerability. For instance, component one comprises of: i) plinth raising and house strengthening for reducing flood/storm surge exposure; ii) community-level nano-grid facilities; and iii) household-level rainwater harvesting options implemented for safe drinking water supply, which will all improve the health and well-being of women and children. It is apparent from the field study that, women and children are the most vulnerable and are likely to be affected more by the impacts of climate change. All other components such as climate information system, knowledge management & research and capacity building and institutional reformation involve activities that increase the capabilities to cope with climate change adaptation. Training and capacity building program for the CBOs/WMOs on disaster emergency management, climate change adaptation, first aid, as well as capacity technical workshops on the establishment, use, and maintenance of climate early warning system, including the interpretation and application of tailored climate information services, targeting community members as well as women and children to enhance their capacity to address their adaptation deficit.

The project interventions that focus on improving resilient infrastructure will benefit women in particular, as the twenty cluster houses will have women-led households as the prioritised beneficiaries. The use of these houses as shelters during cyclones and floods will also empower women, by positioning the owners of the cluster houses (i.e. women) as the authority governing these shelters for the duration of the cyclone or flood. This will also ensure that other women and girls are provided with safe shelters.

The project will also focus on developing the livelihoods of the local communities, by improving agricultural knowledge and techniques and developing new alternative livelihood options. The development of alternative livelihoods (which will prioritise female beneficiaries) will empower women by providing them with the training and materials they require to become self-sufficient if they choose to. By improving the economic productivity and self-sufficiency of women through this activity, the project will support a shift towards greater empowerment of women. To support gender equality, the training and awareness-raising activities held at the knowledge and innovation centres will include a minimum of 50% female representation and will incorporate gender sensitivity training. This will include the training for the farmer field schools, community training for embankment management and community training for the maintenance of newly constructed infrastructure (i.e. nano-grids and rainwater harvesting systems).

The component 2 of the proposed interventions are designed by including a gender perspective and the activities of this component are clearly set to develop the resilience of the women by ensuring their livelihood, health and by increasing their capacity. The raised platform cluster houses will provide better security to women in times of flood. Also, it will ensure improved water supply and sanitation for them. They will also be able to do homestead gardening which will enhance their economic capacity. Moreover, women can actively take part in embankment management activities.

Cluster house design: The cluster houses that function as cyclone shelters will be designed to have separate wash facilities for women and for men. These cluster houses will also belong predominantly to women-led households, ensuring that women will, in general, hold the greatest authority over these shelters during cyclone events. The structure of the cluster houses will also ensure that if necessary, there are multiple rooms where women and children could be separated from men during cyclone events.

Component 2, the project will also establish and equip a mobile floating medical unit. This will ensure that even during climate-induced disaster events, medical services will remain available to attend to medical emergencies. The floating ambulance will provide service to women during emergency especially for pregnant women. The floating ambulance will have provision for child delivery. Also, it will have an intensive care that will be able to give support to babies for a few days until better treatment is arranged. Other primary treatments and necessary medicines for women will be also available in the floating ambulance. This will help to ensure better health for mother and children.

Component 3 will, in particular, support women through improving their food security and providing alternative livelihood options, which will enhance their self-sufficiency in the local communities. Since, the climate resilient livelihood intervention targets women it will increase their income and therefore their autonomy and empowerment. This increase in autonomy and income will allow women to allocate a greater portion of their income towards education and the health for their households. The natural cold storage and solar powered irrigation pump will help to improve agriculture in the study area. Women will be also involved to use and maintain these facilities which will increase their capacity. Also, agricultural improvement will led to better food security that will help to ensure better health and nutrition for women.

In general, the project support increases the economic assets of the women and their households and spurs enterprise-development in the communities. Shifting women's livelihoods to climate resilient options will reduce the likelihood of the need for social protection and social safety net pay outs. Provision of safe drinking water will reduce the diseases especially of women and children.

In order to remove the long-standing discrimination of women by the male-dominated Bangladesh society, aspects of the project are directly targeted towards women from vulnerable households. Through on-the-ground climate change adaptation interventions in Bangladesh, the proposed project will directly benefit ~32,000 people from two vulnerable island communities. This includes ~10,500 direct beneficiaries in Mujibnagar (~48% women) and ~21,000 direct beneficiaries in Lakshmitari (~49% women). The results framework will also include disaggregated gendered results to ensure that women benefit equally from all interventions and trainings.

South-South and Triangular Cooperation (SSTrC)

Learning opportunities and technology transfer from peer countries will be further explored during project implementation. To present opportunities for replication in other countries, the project will codify good practices and facilitate dissemination through global ongoing South-South and global platforms, such as Africa Solutions Platform, the UN South-South Galaxy knowledge sharing platform and PANORAMA[116].

In addition, to bring the voice of Bangladesh 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 Global Commission on Adaption. The project will furthermore provide opportunities for regional

[116] https://panorama.solutions/en

cooperation with countries that are implementing initiatives on Asia Pacific Adaptation Network, Climate Action Network South Asia in geopolitical, social and environmental contexts relevant to the proposed project in Bangladesh.

South-South and Triangular Cooperation is at the core of UNDP agenda to support Bangladesh's to play a supportive role to share its lessons learnt in climate resilient policies and investments. The project will provide support to GOB's planned Climate Change Information and Knowledge Network.

Through the development of partnership with other initiatives on SSTrC, project results will be shared with the Asia Pacific Adaptation network (APAN), Global Commission on Adaptation, Global Adaptation Forums, Asia-Pacific Climate Week and Climate Networks as a part of SSTrC. Efforts of UNDP Regional Centre, Bangkok will be engaged to connect and work together with wide variety of interested stakeholders from governments to private sector and civil society among LDC countries. UNDP has a strong role to play as knowledge broker, capacity development and knowledge management supporter and partnership facilitator. UNDP will focus results of the proposed project on:

1. Brokering knowledge on scalable development solutions and analysis on what has worked and what has not, with systematic information of who, where and what is happening in South-South and triangular cooperation.
2. Enabling harmonization of policies, legal frameworks and regulations to increase opportunities and maximize mutual benefits of South-South exchanges, while supporting capacity development of Southern partners to better implement SSC and TrC initiatives.
3. Facilitating partnerships, fostering innovations, and promoting the scaling-up of promising ideas.

The project is designed to generate a great body of knowledge for continuous improvement of its performance as well as disseminate them for policy making and South-South and Triangular Cooperation (SSTrC). Many of the knowledge products will be generated through component 1 which will produce training modules, develop applications and databases and establish platforms for both the private and public sector on climate change adaptation.

Learning products from the project will be documented and disseminated through different media and target a range of stakeholders and project beneficiaries. The knowledge materials generated under the project will include, but not be limited to, the following: capacity development action plans on climate change adaptation; training modules and handbooks on the priority issue of climate change adaptation; the development of knowledge platforms and applications, reports on best practices and innovations for mainstreaming adaptation in Bangladesh.

Innovativeness, Sustainability and Potential for Scaling Up

The proposed project was designed through consultation with government agencies, NGOs, Community Based Organisation (CBOs), donor and partner agencies, and local communities, particularly targeting women and marginalized populations. Findings from household surveys, focus group discussions, key informant interviews, transect walks and participatory rapid appraisals (PRA) were combined with secondary research and analysis of past and ongoing efforts, best practices and lessons learned to inform project design. Based on this analytical groundwork and the pathways to replication and scale established by this project, GoB aims to sustain and scale the project impacts in other islands being targeted for hazard mapping under the project.

The sustainability of the proposed project will be supported by :i) emphasising the active participation of communities in the implementation and management of project interventions; ii) strengthening institutional and technical capacity at regional and community levels to ensure stakeholders have adequate knowledge and skills to maintain the benefits of the project interventions; iii) training communities extensively on climate-resilient agricultural techniques, rainwater harvesting, climate-resilient construction and locally appropriate climate-independent livelihood options; and iv) raising awareness on climate change and climate change adaptation amongst local community members, governments and other stakeholders.

Project interventions have been designed to incorporate both capacity building and physical interventions. All physical interventions have included considerations of sustainability beyond the end of the project funding cycle. Small-scale infrastructure development under the project has been designed to incorporate community-based organisations, which will be trained to maintain infrastructure within their communities. Large-scale infrastructure

interventions (Activities 2.2.1, 2.2.2. and 2.4.2) also incorporate community-level management, but maintenance will be funded and supported through national level entities (e.g. BWDB), or through aligned projects (e.g. Cyclone Preparedness Programme). The measures to ensure the sustainability of each of these physical interventions are as follow:

- Retrofitted houses will be maintained beyond the project period by household members who will be trained on the appropriate maintenance techniques under Activity 1.1.1, as well as by the pool of construction workers in the community who will be trained under Activity 1.1.3 on retrofitting and maintenance of climate-resilient house features.

- The renewable energy nano-grids will be maintained beyond the project period by the community groups that will be established and trained on operation and maintenance under Activity 1.2.2. Financing for the continued operation and maintenance will come from a small fee collected from the participating households, as well as from the local government.

- Rainwater harvesting systems will be maintained by community members, who will be supported in this by the community-based water user groups that will be established under Activity 1.3.2. These groups will receive the necessary technical training to ensure that communities can self-sufficiently maintain the rainwater harvesting infrastructure beyond the project period. Similar to the community-level infrastructure, the household-level infrastructure under Activity 1.3.3. will be maintained by household members who will be trained on this aspect.

- The cluster houses will be maintained by the households living in the cluster houses, with larger maintenance undertaken by the Department of Disaster Management (DDM) in collaboration with local government institutions. The pool of local construction workers trained on climate-resilient houses under Activity 1.1.3. will be able to contribute their skills.

- The repaired embankments will be maintained by the Bangladesh Water Development Board and the community embankment management groups that will be established and trained under Activity 2.2.3.

- Irrigation infrastructure and cold storage facilities provided by the project will be maintained by community members through the increased income they will generate by using the irrigation and storage infrastructure.

Under Component 3, the dissemination of climate-resilient agricultural practices will be managed through farmer field schools. These field schools will operate continuously for the duration of the project. This will ensure that there will be scope for extensive training opportunities for the local communities and will support the continuous transfer of knowledge between trainers and farmers. It will also foster collaboration between local farmers attending the field schools, further supporting the transfer of knowledge and skills throughout local communities. To support the long-term sustainability of alternative livelihoods under this component, established local NGOs will be contracted to provide assessments and conduct training and skills development. Partnering with NGOs who have extensive experience working with the target communities will help ensure that the livelihoods are locally appropriate, thereby supporting their long-term sustainability.

To support the sustainability of improved adaptive capacity of the target communities, hazard risk maps will be produced under Component 2. The dissemination of these maps will help to inform communities on the hazards of specific areas. Under Component 4, capacity building activities (Output 4.1) will incorporate the hazard maps produced under Component 2 for increasing the knowledge base of local government on climate risk. In this way, both local communities and institutional bodies will have an improved understanding of the relevant climate hazards and on the areas that are at greatest risk. This will support the incorporation of climate risk factors into development planning and implementation at both institutional and local levels, thereby improving the adaptive capacity of the region as a whole. The project will also develop a strategy to augment local school curricula with climate-related topics. This will ensure that appropriate information on climate change is available for the youth,

which will support a shift towards more climate-oriented thinking for subsequent generations of inhabitants within the project areas.

IV. PROJECT RESULTS FRAMEWORK

This project will contribute to the following Sustainable Development Goal (s): 1 – No Poverty, 2-No Hunger, 3-Good Health and Well Being, 5-Gender Equality, 6- Clean Water and Sanitation, 8 – Decent Work and Economic Growth, 10 – Reduced Inequality, 11 -Sustainable Cities and Communities, 13 – Climate Action, 14 – Life Below Water, and 15 – Life on Land.
This project will contribute to the following country outcome included in the UNDAF/Country Programme Document: No 3. Enhance effective management of the natural and man-made environment focusing on improved sustainability and increased resilience of vulnerable individuals and groups.

	Indicators	**Baseline**	**Mid Term (MT) and End of Project Target**	**Sources of verification**	**Risks and Assumptions**
Project Objective: to enhance the climate resilience of vulnerable communities who live on coastal islands and riverine chars in Bangladesh	Enhanced climate resilience of vulnerable communities in the Mujibnagar and Lakshmitari Unions.	TBD; preferably vulnerability index method;	Lower vulnerability;	Baseline, midterm and end of project Survey report	All cross sectoral investments are designed to increase resilience of the targeted communities.
Outcome 1: Enhanced climate resilience of households through climate-resilient housing, electrification and climate-proof water provisioning	Number of households with increased resilience through strengthened houses, electrification and water provisioning.	0	- Strengthened houses 900 nos - HHs with electricity 300-450 - 500 HHs provisioned with rainwater	Project Report	Climate resilient infrastructures are cost effective, and are effective in reducing vulnerability(ies) against anticipated exposure (s).
Output 1.1. Cyclone and flood resilient houses for the most vulnerable households.	Number of houses made resilient against climate disasters (cyclones and floods)	0	900 houses retrofitted in Mujibnagar and Lakshmitari (1st Yr – 360; 2nd Yr – 270; 3rd Yr - 270)	Registers of project beneficiaries at each site, site visits, household surveys and project reports.	Community preference and resilient technical design is within the project's budget limit, and no significant increase of price of materials.
Output 1.2. Community-level nano-grids installed for electrification to enhance adaptive capacity	Number of nano-grids installed and operational.	0	30 nano-grids installed (1st Yr – 10; 2nd Yr – 10; 3rd Yr - 10) and made operational to provide electricity to 300 – 450 houses.	Registers of project beneficiaries at each site, site visits, household surveys and project reports.	Collaboration between communities, project partner NGOs, local government and other stakeholders. Community groups trained by project successfully operate and maintain the nano-grids.

	Indicators	Baseline	Mid Term (MT) and End of Project Target	Sources of verification	Risks and Assumptions
Output 1.3. Locally appropriate rainwater harvesting systems for safe drinking water.	Number of household rainwater harvesting systems installed and operational. Number of water user groups established and trained.	0	500 households provided with functioning and climate-resilient rainwater harvesting systems (1st Yr – 162; 2nd Yr – 169; 3rd Yr - 169); 10 water user groups established and trained (1st Yr – 2; 2nd Yr – 4; 3rd Yr - 4);	Registers of project beneficiaries at each site, site visits, household surveys and project reports.	Water user groups and household members trained by project successfully operate and maintain the rainwater harvesting systems.
Outcome 2: Increased climate resilience of communities through infrastructure that is resilient to cyclones and floods, climate risk mapping and inclusive cyclone preparedness	Number of people with increased resilience through strengthened disaster infrastructure.	0	TBD (# of people covered by the cluster houses and embankments)	Project Report	Climate resilient infrastructures are cost effective, and are effective in reducing vulnerability(ies) against anticipated exposure (s).
Output 2.1. Climate-resilient mini-disaster shelter/cluster houses built to protect life and prevent asset loss.	Number of dual-purpose cluster house/ disaster shelters constructed and in use.	0	20 dual-purpose cluster house/ disaster shelters constructed and in use (1st Yr – 5; 2nd Yr – 7; 3rd Yr - 8). (Minimum 50% of beneficiaries will be women-led households)	Registers of project beneficiaries at each site, site visits, and project reports. Project reports and site visits.	When Khas land is not available, community is willing to allocate the land.
Output 2.2. Embankments repaired and innovative model for community embankment management introduced.	Km of damaged embankments repaired/ strengthened. Km of riverbank strengthened.	0	12.5 km of embankments repaired in Mujibnagar (1st Yr – 3 km; 2nd Yr – 5; 3rd Yr – 4.5) 14.5 km of riverbank strengthened in Lakshmitari (1st Yr – 3.5 km; 2nd Yr – 6; 3rd Yr – 5)	Project reports and site visits.	The lessons from the community management practices of embankment are well documented and owned by Ministry of Water Resources for change in practice.

	Indicators	Baseline	Mid Term (MT) and End of Project Target	Sources of verification	Risks and Assumptions
	Number of community embankment management groups established		1 community embankment management group established at each project site.		
Output 2.3. Climate-resilient investment on chars promoted through climate hazard maps and expanded cyclone early warning systems.	Km^2 of char areas mapped Number of householdsin Mujibnagar receiving periodic updates during cyclone risk periods	0	8 climate hazard and vulnerability maps covering selected islands in the Bay of Bengal (1st Yr – 6; 2nd Yr – 2) Every household in Mujibnagar has at least one member receiving periodic early cyclone warnings during cyclone risk periods.	Registers of project beneficiaries at each site, site visits, and project reports.	The community risk assessment and risk reduction plans are within the capacity of the local government to integrate into their plans and budget.
Output 2.4. Cyclone Preparedness Programme (CPP) modernised and expanded to provide timely cyclone early warning and response at scale.	Number of CPP volunteers trained Existing cyclone shelters in Mujibnagar provisioned with CPP equipment	0	~2,500 CPP volunteers trained in Mujibnagar (increase female representation in CPP by at least 25%) 10,000 CPP volunteers trained on six additional islands (5000 CPP trained by mid term) 7 existing cyclone shelters (3 cyclone shelter completed by mid term) and 16 cluster houses (7 houses completed by mid term) provisioned with CPP equipment in Mujibnagar.	Project reports and site visits.	Community engages in CPP and community members volunteer for the programme.

	Indicators	Baseline	Mid Term (MT) and End of Project Target	Sources of verification	Risks and Assumptions
			~2,500 CPP volunteers provided with personal cyclone preparedness equipment (50% by mid term) 8 mobile floating medical unit procured and provisioned (4 nos by mid of project) 6 additional islands equipped with CPP Equipment (3 island by mid term)		
Outcome 3: Improved income and food security of communities by innovating and providing assistance to selected households for climate-resilient livelihoods practices	Number of people with provided with improved climate resilient livelihoods;	0	~6,500 1st Yr – 1300; 2nd Yr – 1300; 3rd Yr – 1300; 4th Yr – 1300; 5th Yr - 1300).	Project Report	Stakeholders are interested in climate resilient livelihood techniques; Climate resilient livelihood techniques provide year round livelihood to stakeholders;
Output 3.1 Climate-resilient agriculture implemented	Number of field schools session held; Number of people trained in climate-resilient agricultural practices; Number of cold storage units installed and operational; Hectares of agricultural land irrigated;	0	Quarterly field school trainings held in Mujibnagar and Lakshmitari for a total of 64 field school trainings. (include at least 25% female representation, but aim is for minimum of 50%) 1st Yr – 13; 2nd Yr – 13; 3rd Yr – 13; 4th Yr – 13; 5th Yr - 12).	Registers of project beneficiaries at each site, site visits, household surveys and project reports.	Collaboration between communities, project partner NGOs, local government and other stakeholders.

	Indicators	Baseline	Mid Term (MT) and End of Project Target	Sources of verification	Risks and Assumptions
			~7,500 farmers trained on climate-resilient agricultural practices (1st Yr – 1500; 2nd Yr – 1500; 3rd Yr – 1500; 4th Yr – 1500; 5th Yr - 1500). 2 cold storage units installed in Mujibnagar and 2 cold storage units installed in Lakshmitari (2nd Yr – 2; 3rd Yr – 2;). 80 hectares of land irrigated in Lakshmitari (2nd Yr – 40 ha; 3rd Yr – 40 ha).		
Output 3.2 Diversified livelihoods supported at the village level.	Number of people provided with technology, skills and materials to make their livelihoods climate resilient.	0	~6,500 people provided with technology, skills and materials to make their livelihood climate resilient. (minimum 50% female beneficiaries) (1st Yr – 1300; 2nd Yr – 1300; 3rd Yr – 1300; 4th Yr – 1300; 5th Yr - 1300).	Registers of project beneficiaries at each site, household surveys and project reports	Collaboration between women cooperatives, communities, project partner NGOs, local government and other stakeholders.
Outcome 4: Enhanced knowledge and capacity of communities, government and policymakers to promote climate resilient development on chars.	Number of people reached by knowledge products and awareness raising	0	~7,500 (1st Yr – 1500; 2nd Yr – 1500; 3rd Yr – 1500; 4th Yr – 1500; 5th Yr - 1500).	Project reports; survey report;	Awareness raising activities and knowledge products draw attention of the stakeholders;
Output 4.1. Local government institutions are capable of climate risk-informed planning and implementation.	Number of staff from local government institutions, Bangladesh Water Board and	0	250 staff from local government institutions, Bangladesh Water Board and Department of	Project reports	Mechanism exist to allow integration of information into planning and decision making.

	Indicators	Baseline	Mid Term (MT) and End of Project Target	Sources of verification	Risks and Assumptions
	Department of Agriculture trained.		Agriculture trained to incorporate climate risk into their decisions and activities.		
Output 4.2. Knowledge and awareness generated to promote climate resilient approaches and strategies	Number of adaptation innovation centres established Number of people reached by awareness raising campaigns Number of knowledge products developed	0	2 Adaptation innovation centres established in two project locations (total 4). Total 4 field schools in two areas (2nd Yr – 2 nos; 3rd Yr – 2 nos) 75% of the population in the target areas reached by awareness campaigns (minimum 50% women). 10 manuals and brochures developed (3rd Yr – 5; 4th Yr - 5).	Project reports. school visits, site visits, household surveys and national newspapers.	Stakeholders find innovation centers useful for their resilience.

V. 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 3 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 mandatory AF-specific M&E requirements will be undertaken in accordance with the AF's Operational Policies and Guidelines. The costed M&E plan included below, and the Monitoring plan in Annex 3, will guide the AF-specific M&E activities to be undertaken by this project.

In addition to these mandatory UNDP and AF 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.

Additional AF monitoring and reporting requirements:

Inception Workshop and Report: A project inception workshop will be held within six months after the project received the 1st disbursement, 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 AF DA 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 Steering Committee (PSC) meetings and finalize the first-year annual work plan.
h. Formally launch the Project.

The Project Manager will prepare the inception report no later than one month after the inception workshop. The inception report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Advisor, and will be approved by the Project Steering Committee.

AF Project Performance Report (PPR):
The AF PPR is to be submitted on an annual basis, one year after the start of project implementation (date of inception workshop) and the last such report should be submitted six months after project completion. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PPR. The PPR submitted to the AF will be shared with thePSC.

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)

AF Fund Core Impact Indicators:
The AF Core Impact Indicators included as Annex – 4 will be used to monitor global environmental benefits and will be updated for reporting to the AF in all PPR reports. Note that the project team is responsible for updating the indicator status. The updated monitoring data should be shared with MTR/TE consultants prior to required evaluation missions, so these can be used for subsequent ground truthing. The methodologies to be used reporting have been defined by the AF and are available on the AF website.

Independent Mid-term Review (MTR):
The terms of reference, the review process and the final MTR report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the UNDP Evaluation Resource Center (ERC).

The evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired by UNDP evaluation specialists 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 under review.

The AF Designated Authority and other stakeholders will be actively involved and consulted during the evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate.

The final MTR report and MTR TOR will be publicly available in English and will be posted on the UNDP ERC by June 2022; subject to approval of Prodoc and TPP. A management response to MTR recommendations will be posted in the ERC within six weeks of the MTR report's completion.

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

The evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired by UNDP evaluation specialists 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 -AF Designate Authority and other stakeholders will be actively involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate.

The final TE report and TE TOR will be publicly available in English and posted on the UNDP ERC by December 2024; subject to approval of Prodoc and TPP. A management response to the TE recommendations will be posted to the ERC within six weeks of the TE report's completion.

Final Report:
The project's terminal AF PPR 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 PSCduring 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 AF for providing grant funding, the AF 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 AF will also accord proper acknowledgement to the AF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy and the AF policy on public involvement.

Monitoring and Evaluation Plan and Budget:

Type of M&E activity	Responsible parties	Budget US$ (excluding project team time)	Indicative Cost US$	Timeframe
Direct Project Monitoring and Quality Assurance including progress and financial reporting, project revisions, technical assistance and risk management	Project Managers Finance cum Admin Associate UNDP External consultants – CTA	(supported from staff costs included in Project execution, and from IE fee)		Quarterly, half-yearly and annually and as needed
Evaluations, assessments including terminal evaluation	Project Managers UNDP External consultants	90,000	90,000	During and end of project implementation
Terminal Report (Collection of lessons learned from the mid-term and terminal evaluations to be compiled in a report and disseminated to local-and-national-level government and policymakers)	Project Managers UNDP External consultants	10,000	10,000	At end of project implementation
NIM Audit as per UNDP audit policies	Project managers UNDP	Project site 1: 12,500 (2,500 annually) Project site 2: 12,500 (2,500 annually)	12,500 12,500	Annually at year end
Inception meeting, field visits and project steering committee meetings	Project managers UNDP	Project site 1: 12,500 (2,500 annually) Project site 2: 12,500 (2,500 annually)	12,500 12,500	Inception meeting within first 2 months and bi-annual PSC meetings
TOTAL indicative cost Excluding project team staff time and UNDP staff and travel expenses		**US$ 150,000**	**150,000**	

VI. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

Roles and responsibilities of the project's governance mechanism:

National Executing Agency: The National Executing Agency for this project is Bangladesh's Department of Environment (DoE) under the Ministry of Environment, Forest and Climate Change (MoEFCC).

The National Executing Agency 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 National Executing Agency 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 NEA 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.
- Risk management as outlined in this Project Document;
- Procurement of goods and services, including human resources;
- Financial management, including overseeing financial expenditures against project budgets;
- Approving and signing the multiyear work plan;
- 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:

To assist with successfully delivering project outcomes and components, the following **Responsible Parties** will enter into agreements with DoE, MoEFCC:

Table 4. The Responsible Parties for each project component.

Components	Responsible Parties	Modality
Resilient housing	NGO/Firm or LGED	The National Project Director (NPD) in consultation with UNDP will award a contract to a competent NGO or Firm using Public Procurement Rules (PPR), 2006.
Nano-grid installation, solar storage and irrigation	NGO/ Firm or IDCOL	The National Project Director (NPD) in consultation with UNDP will award a contract to a competent NGO or Firm using Public Procurement Rules (PPR), 2006.
Rainwater Harvesting	NGO/Firm	The National Project Director (NPD) in consultation with UNDP will award a contract to a competent NGO or Firm using Public Procurement Rules (PPR), 2006.
Climate-resilient infrastructure/cyclone shelters	NGO/Firm/LGED	The National Project Director (NPD) in consultation with UNDP will award a contract to a competent NGO or Firm using Public Procurement Rules (PPR), 2006.
Embankments and local management arrangement	BWDB	DoE will enter into an LoA with BWDB and a community-based organisation.
Expansion of early warning	CPP/DDM	DoE will enter into an LoA with DDM.
Climate-resilient livelihoods including skills and technology	NGOs with support from LGIs	A committee will be formed under the NPD with representatives from MoEFCC, DoE, UNDP, DLS, DAE, LGIs and UNDP. NPD will

Components	Responsible Parties	Modality
		award contract on the basis of the recommendation of the committee NPD will award a contract to a competent NGO following government rules and regulations.
Solar irrigation pumps, community level nano-grids	Firm or IDCOL	NPD will procure goods and services on the basis of public procurement rule (PPR), 2006 and/or UNDP's procurement policy
Capacity of LGIs, BWDB, DAE	BWDB, DAE and National Institute of Local Government	Capacity-building/training will be provided by the NPD in consultation with PIC.

Project stakeholders and target groups: brief description is given below and engagement mechanism in Annex - 5

Stakeholder engagement:

Possible roles of the stakeholders are given in Table 5.

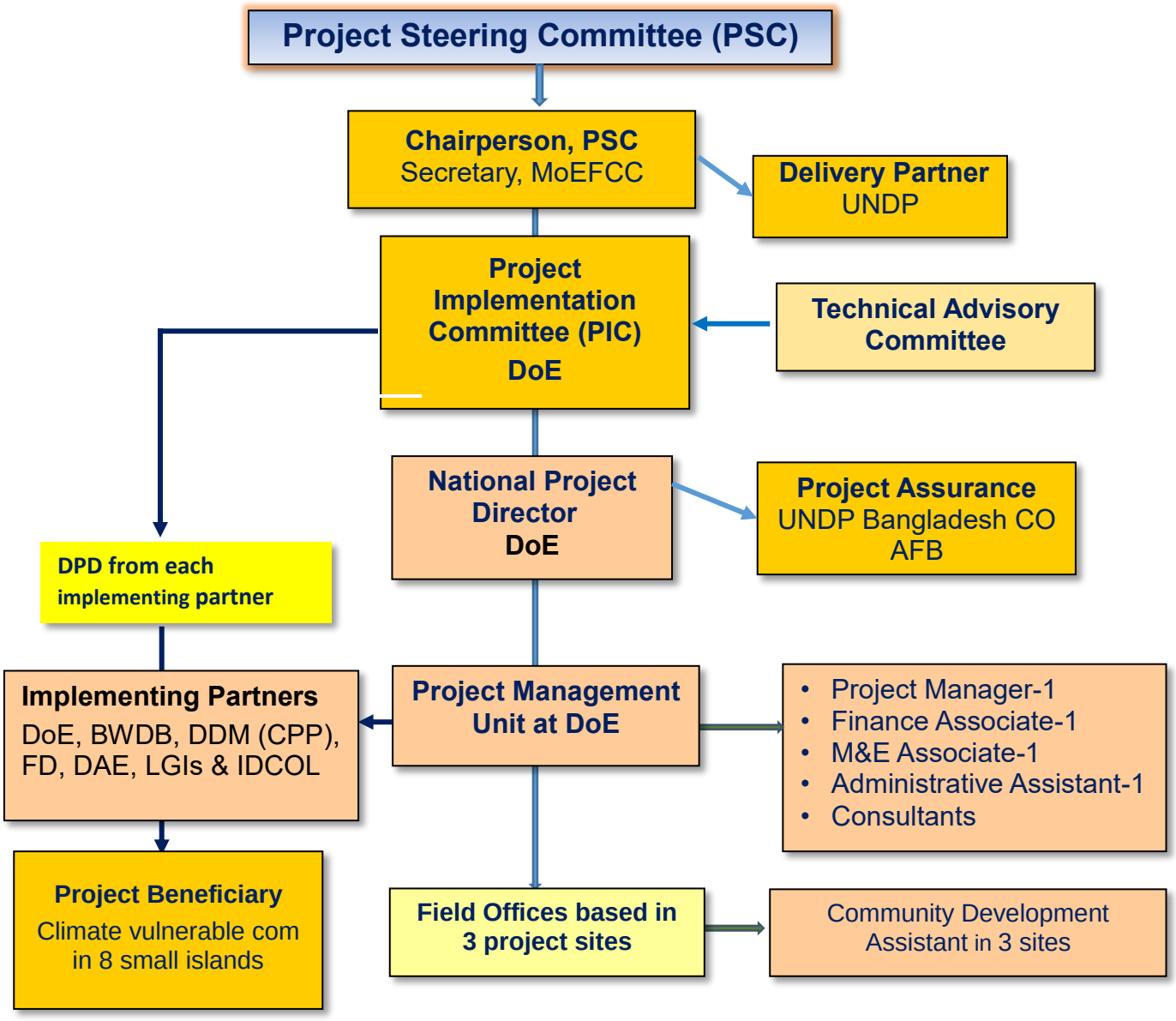
Table 5: Stakeholders Mandate and Roles in Project

Stakeholder	Mandate	Possible roles in project execution
Ministry of Environment, Forests and Climate Change	MoEFCC is the focal ministry for all work on climate change, forestry and environmental issues.	Overall leadership and strategic guidance to the project; Review project's progress in monthly review meeting held at MoEFCC; Chair the Project Steering Committee (PSC) for making consensus-based strategic, policy and management decisions for the project.
Department of Environment (DoE)	Focal entity for enforcement of environmental standards, biosafety, mass awareness on environment and climate change.	The Executing Entity for this project (represented by National Project Director-NPD); will be responsible and accountable for the execution of the project, including ensuring that the objectives and components of the project are delivered, and for the effective use of project resources.
Planning Commission and the Implementation, Monitoring and Evaluation Division (IMED) of Ministry of Planning	The Planning Commission oversees the Annual Development Programme (ADP), including all activities under projects and programmes registered with the GoB; The IMED to monitor projects under the development budget.	Project's review, approval and revision process. Integration into national planning processes. Monitor project progress as member of Project Implementation Committee (PIC) and Project Steering Committee. Take necessary field visits to oversee project progress.
Bangladesh Water Development Board	Responsible for Flood Control and Drainage (FCD) infrastructure including climate change adaptation activities related to the infrastructures;	Take part in capacity building activities; Construct and repair embankments and such infrastructures; support community management of the embankments.
Bangladesh Forest Department	The Forest Department (FD) of the MoEFCC is the leadNEA, as the agency responsible for	Provide technical advice to strengthened infrastructures like embankments through afforestation and reforestation programme.

Stakeholder	Mandate	Possible roles in project execution
	management of forested lands.	
Department of Agriculture Extension (DAE)	Provide efficient and effective needs-based extension services to all categories of farmer, to enable them to optimize their use of resources, in order to promote sustainable agricultural and socio- economic development.	Support promotion of climate-resilient agriculture and livelihoods in char land communities; take part in capacity building programmes taken by the project.
Cyclone Preparedness Programme (CPP) under Department of Disaster Management (DDM)	CPP ensures rapid dissemination of cyclone warning signals; assists in sheltering, rescuing and offering immediate medical attention; involved in post disaster recuperation and extensive rehabilitation operations.	Support expansion and modernization of CPP programme to targeted areas; to take part in capacity building programmes; support major maintenance works of cluster houses
Local Government Institutions (Upazilla Parishad, Union Parishad)	Local Economic Development, Local Service Delivery and Local Governance.	local government institutions to facilitate integration of information into local level planning, support uptake of the relevant ecosystem-based and community-based adaptation measures among char land communities; to take part in capacity building programmes; support major maintenance works of cluster houses in collaboration with DDM.
Beneficiaries	education, skill development, socio-economic development, safety and security.	Take part in skills and capacity building programme; manage retrofitted houses, renewable energy nano-grid, rainwater harvesting systems, cluster houses, irrigation infrastructures, solar cold storage facilities, contribute financially for maintenance of the same; take part in climate-resilient agricultural practices, exchange experience and learnings;
UNDP	Support the people and government to create a more sustainable, peaceful, innovative and resilient economy, environment and society.	UNDP is the Delivery Partner who will provide guidance regarding the technical feasibility of the project, compliance with development partners requirements and rules pertaining to the use of project resources. Provides supports to NPD to carry out programme activities during the annual cycle.

UNDP: UNDP is accountable to the AF for the implementation of this project. This includes oversight of project execution to ensure that the project is being carried out in accordance with agreed standards and provisions. UNDP is responsible for delivering AF project cycle management services comprising project approval and start-up, project supervision and oversight, and project completion and evaluation. UNDP is responsible for the Project Assurance role of the Project Steering Committee/ Project Board.

Project Organisation Structure



The Project Steering Committee /Project Executive Board is responsible for taking corrective action as needed to ensure the project achieves the desired results. In order to ensure UNDP's ultimate accountability, PSC 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 Resident Representative (or their designate) will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed

Specific responsibilities of the Project Steering Committee (PSC)/ Project Board include:

- Provide overall guidance and direction to the project, ensuring it remains within any specified constraints;
- Address project issues as raised by the project manager;
- Provide guidance on new project risks, and agree on possible mitigation and management actions to address specific risks;
- Agree on project manager's tolerances as required, within the parameters set by UNDP-GEF, and provide direction and advice for exceptional situations when the project manager's tolerances are exceeded;
- Advise on major and minor amendments to the project within the parameters set by UNDP-GEF;
- Ensure coordination between various donor and government-funded projects and programmes;
- Ensure coordination with various government agencies and their participation in project activities;
- Track and monitor co-financing for this project;
- Review the project progress, assess performance, and appraise the Annual Work Plan for the following year;
- Appraise the annual project implementation report, including the quality assessment rating report;
- Ensure commitment of human resources to support project implementation, arbitrating any issues within the project;
- Review combined delivery reports prior to certification by the NEA;
- Provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans;
- Address project-level grievances;
- Approve the project Inception Report, Mid-term Review and Terminal Evaluation reports and corresponding management responses;
- Review the final project report package during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

The composition of the PSC/Project Board must include the following roles:

a. Project Steering Committee/ Project Executive: Is an individual who represents ownership of the project and chairs the PSC. The Executive is normally the national counterpart for nationally implemented projects. The Project Executive is: *Secretary, MoEFCC*

b. Beneficiary Representative(s): Individuals or groups representing the interests of those 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 civil society representative(s) can fulfil this role. The Beneficiary representative (s) is/are: *Head of Relevant NGO/CSO. Name will be proposed and selected during 1st PSC meeting*

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

d. Project Assurance: UNDP performs the quality assurance role and supports the PSC and Project Management Unit by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. The PSC cannot delegate any of its quality assurance responsibilities to the Project Manager. UNDP provides a three – tier oversight services involving the UNDP Country Offices and UNDP at regional and headquarters levels. Project assurance is totally independent of the Project Management function.

Project extensions: The UNDP-Global Environmental Finance Executive Coordinator must approve all project extension requests. Note that all extensions incur costs and the AF project budget cannot be increased. A single extension may be granted on an exceptional basis and only if the following conditions are met: one extension only for a project for a maximum of six months; the project management costs during the extension period must remain within the originally approved amount, and any increase in Project

Management Costs (PMC) will be covered by non-AF resources; the UNDP Country Office oversight costs during the extension period must be covered by non-AF resoruces.

The project implementation will be governed by a **Project Steering Committee** (PSC), which will consist of a group of representatives responsible for making consensus-based strategic, policy and management decisions for the project. The PSC will oversee the project implementation, review compliance with the GoB, UNDP and AF requirements, and ensure the implementation of the management plan for the risks identified. Every six months – and/or earlier if an urgent strategic decision is to be made – the PSC will meet to discuss project progress and stakeholder performance. The PSC will be comprised of (Figure 17) relevant stakeholders with following due procedures of the Government of Bangladesh. The Project's technical and financial progress will be monitored quarterly by **Project Implementation Committee (PIC)**. The PIC will be chaired by DG of DoE comprising relevant members as per the norm.

- **Secretary,** Ministry of Environment, Forest and Climate Change will chair the Project Steering Committee (PSC) who will provide overall policy guidance regarding the implementation of the project.
- **Director General**, Department of Environment, will chair the PIC to support project's timely implementation.
- **Responsible Parties** will be the key partners of the govt who will support delivery of project components. Seven key responsible parties will be (i) Bangladesh Water Development Board (BWDB), (ii) Cyclone Preparedness Programme (CPP) under Department of Disaster Management (DDM), (iii) Bangladesh Forest Department (BFD), (iv) Department of Agriculture Extension (DAE), and (v) Local Government Institutions (LGIs), (vi) Sustainable Renewable Energy Development Authority (SREDA), (vii) Infrastructure Development Company Limited (IDCOL). They will ensure the realisation of project benefits and sustainability from the perspective of project beneficiaries.
- A **Delivery Partner** representative who will provide guidance regarding the technical feasibility of the project, compliance with development partners requirements and rules pertaining to the use of project resources. This role will be fulfilled by UNDP.
- A **Project Assurance Team** that will provide project guidance and oversight. This role will be fulfilled by MoEFCC and UNDP.
- **Project Implementation Committee (PIC)** will provide programme and operational support to the PMU team and report project physical and financial progress to PSC. PIC will be chaired by DG, DoE.
- **Technical Advisory Committee** will provide technical support to the National Project Steering Committee and PIC to ensure technical specification and quality of project's development intervention. This committee will be headed by Project Director, Department of Environment.
- **Project Beneficiaries** will be the beneficiaries of eight islands, and they will be benefitted from the project interventions.
- A **Project Management Unit** (PMU) that will be responsible for the development and implementation of all the components of the project. The PMU will consist of:
    - A National Project Director, will be nominated from DoE by MoEFCC, who will be responsible for the overall direction, strategic guidance and timely delivery of project outputs;
    - Deputy Project Director, will be nominated by the National Executing Agencies who will be responsible for supporting National Project Director and PMU in timely delivery of project outputs and activities. S/He will provide support to PMU in delivery of development interventions at project sites and beneficiaries. DPD will be appointed by MOEFCC after nominated by DoE.

- A Project Manager, recruited by UNDP in consultation with NPD, who will manage the implementation and day-to-day operation of the project under the direct supervision of NPD and will be accountable to UNDP.

  The Project Manager has the authority to run the project on a day-to-day basis on behalf of the NEAwithin the constraints laid down by the PSC. The UNDP will appoints the Project Manager.

  The Project Manager's primary responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The Project Manager will inform the PSC/Project Board and the Project Assurance roles of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted. The Project Manager will remain on contract until the Terminal Evaluation report and the corresponding management response have been finalized and the required tasks for operational closure and transfer of assets are fully completed.

  Specific responsibilities include:

  - Manage the overall conduct of the project.
  - Plan the activities of the project and monitor progress against the approved work plan.
  - 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 PSC-agreed tolerances to achieve results.
  - Ensure that changes are controlled, and problems addressed.
  - Perform regular progress reporting to the PSC 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 PSC 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 work plan, 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 AF PIR submission deadline so that progress can be reported in the AFPIR.

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

- A Technical Team, recruited by UNDP in consultation with NPD, that will: i) develop programme standards; ii) provide technical support and guidance; iii) implement the policy research, dialogue and advocacy components of the project; iv) guide the implementation of social, gender, and environmental safeguards plans; v) implement capacity-building, knowledge management and communications activities; and vi) monitor project progress and support project M&E.
- An Operations Team, recruited by UNDP in consultation with NPD, that will manage finance, general administration, procurement, internal auditing and risk management functions of the project. This role involves: i) managing funds; ii) programme quality assurance; iii) fiduciary risk management; iv) procurement; and v) the timely delivery of financial and programme reports to AF.

- **Other Representatives** which will include representatives from: i) Local Government Division; ii) Rural Development and Cooperatives Division; iii) Ministry of Agriculture; iv) Ministry of Fisheries and Livestock; v) Ministry of Planning; vi) Ministry of Finance; vii) Implementation, Monitoring and Evaluation Division; viii) Bangladesh Forest Research Institute; ix) Local Government Engineering Department; ix) Universities and Research Institutes, and x) NGO/private sector representatives.

VII. FINANCIAL PLANNING AND MANAGEMENT

The total cost of the project is **US$ 9,212,322**. This is financed through an *AF* grant, where UNDP, as the AF Multilateral Implementing Entity, is responsible for the oversight of the AF resources transferred to UNDP bank account only.

Budget Revision and Tolerance: As per UNDP requirements outlined in the UNDP POPP, the PSC/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 PSC.

Should the following deviations occur, the Project Manager/CTA and UNDP Country Office will seek the approval of the BPPS/GEF team to ensure accurate reporting to the AF:

a) Budget re-allocations among components in the project budget with amounts involving 10% of the total project grant or more;

b) Introduction of new budget items that exceed 5% of original AF allocation.

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

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 National

Executing Agency is an UN Agency, the project will be audited according to that Agencies applicable audit policies.

Project Closure: Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP. On an exceptional basis only, and if there is no increase of the project budget, one extension of the operational closure date beyond the initial duration of the project may be approved by the UNDP-GEF Directorate. However, all costs incurred to close the project must be included in the project closure budget and reported as final project commitments presented to the NPSC during the final project review. The only costs a project may incur following the final project review are those included in the project closure budget.

Operational completion: The project will be operationally completed 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 PSC meeting. Operational closure must happen with 3 months of posting the TE report to the UNDP ERC. The National Executing Agency through a NPSC 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 National Executing Agency and other parties of the project, UNDP is responsible for deciding on the transfer or other disposal of assets. Transfer or disposal of assets is recommended to be reviewed and endorsed by the PSC/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. In all cases of transfer, a transfer document must be prepared and kept on file. The transfer should be done before Project management Unit (team) complete their assignments.

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 NEAhas reported all financial transactions to UNDP; c) UNDP has closed the accounts for the project; d) UNDP and the NEAhave certified a final Combined Delivery Report (which serves as final budget revision).

The project will be financially completed within 6 months of operational closure or after the date of cancellation. Between operational and financial closure, the NEAwill 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-GEF Unit for confirmation before the project will be financially closed in Atlas by the UNDP Country Office.

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

VIII. TOTAL BUDGET AND WORK PLAN

Atlas[1] Proposal or Award ID:	00093848	Atlas Primary Output Project ID:	00098085
Atlas Proposal or Award Title:	Adaptation Initiative for Climate Vulnerable Offshore Small Island and Riverine Charland in Bangladesh		
Atlas Business Unit	BGD10		
Atlas Primary Output Project Title	Adaptation Initiative for Climate Vulnerable Offshore Small Island and Riverine Charland in Bangladesh		
UNDP-PIMS No.	6172		
National Executing Agency	Department of Environment		

Outcome	Responsible Party/ Implementing Agency	Fund ID	Donor Name	Budget Account Code	Budget 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
Outcome 1. Community infrastructure improved and adaptive capacity increased for vulnerable small island and riverine char communities to manage and plan for climate change impacts.	UNDP	62040	AF	71300	Local/National Consultants	26,500	13,000	10,500	3,000	2,000	55,000	1C; 1E; 1G; 1J; 1L
				72100	Contractual Services-Companies	131,566	135,631	135,631	0	0	402,828	1D; 1I
				72300	Materials and Goods	612,000	459,000	459,000	0	0	1,530,000	1A
	MoEFCC			75700	Training, Workshops and Conferences	8,000	4,000	4,000	2,000	2,000	20,000	1B; 1F; 1K
	Total Outcome 1					**778,066**	**611,631**	**609,131**	**5,000**	**4,000**	**2,007,828**	
Outcome 2. Resilience of vulnerable small coastal island communities enhanced against climate-induced disasters through improved infrastructure, management practices and community-based emergency responses.	UNDP	62040	AF	71300	Local Consultant	10,500	7,250	7,250	5,250	5,000	35,250	2B; 2F; 2G; 2M
	MoEFCC			72100	Contractual Services-Companies	352,040	566,420	508,040	8,400	2,400	1,437,300	2A;2C;2D;2H;2I
	UNDP			72300	Materials and Goods	119,435	119,435	119,435	119,435	119,435	597,176	2K;2N
	MoEFCC& LGI			75700	Training, Workshops and Conferences	49,500	49,500	51,500	51,500	46,000	248,000	2C; 2E
	Total Outcome 2					**531,475**	**742,605**	**686,225**	**184,585**	**172,835**	**2,317,726**	
Outcome 3. Adaptive capacity of vulnerable	UNDP	62040	AF	71300	Local Consultant	32,500	38,000	38,000	38,000	38,000	184,500	3B; 3E; 3G

Outcome	Responsible Party/ Implementing Agency	Fund ID	Donor Name	Budget Account Code	Budget 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
communities improved through the dissemination of climate-resilient agricultural practices and the development of diversified livelihoods.	UNDP			71400	Contractual Services-Individuals	47,427	40,285	40,285	40,285	40,285	208,568	3A; 3J
	MoEFCC			72100	Contractual Services-Companies	-	356,500	356,500	-	-	713,000	3C; 3D
	MoEFCC			72300	Materials and Goods	455,000	455,000	455,000	455,000	455,000	2,275,000	3I
	MoEFCC& LGI			75700	Training, Workshops and Conferences	-	4,000	4,000	4,000	4,000	16,000	3F; 3H
	Total Outcome 3					**534,927**	**893,785**	**893,785**	**537,285**	**537,285**	**3,397,068**	
Outcome 4. Increased awareness and availability of information on climate change impacts and adaptation options for vulnerable communities, local level government and policymakers	UNDP	62040	AF	71400	Contractual Services-Individuals	18,400	47,200	47,200	47,200	47,200	207,200	4F; 4H; 4I
	MoEFCC& UNDP			71600	Travel	6,400	6,400	6,400	6,400	6,400	32,000	4E
	MoEFCC			72100	Contractual Services-Companies	72,000	27,000	27,000	27,000	27,000	180,000	4B
	UNDP &MoEFCC			74200	Audio Visual &Print Prod Costs	39,600	14,850	14,850	14,850	14,850	99,000	4C
	MoEFCC& LGI			75700	Training, Workshops and Conferences	15,000	31,750	22,375	18,375	9,000	96,500	4A; 4D; 4G
	Total Outcome 4					**151,400**	**127,200**	**117,825**	**113,825**	**104,450**	**614,700**	
Project Management	UNDP	62040	AF	71400	Contractual Services-Individuals	118,200	118,200	118,200	118,200	118,200	591,000	PM1; PM2; PM3; PM4; PM5
	UNDP			71600	Travel	10,000	10,000	10,000	10,000	10,000	50,000	PM6
	MoEFCC			72100	Contractual Services-Companies	5,000	5,000	45,000	5,000	65,000	125,000	PM12
	UNDP			72400	Communic& Audio Visual Equip	5,000	5,000	5,000	5,000	5,000	25,000	PM10
	UNDP			72500	Supplies	12,000	2,000	2,000	2,000	2,000	20,000	PM7
	MoEFCC			72800	Information Technology Equipment	8,400	1,400	1,400	1,400	1,400	14,000	PM8
	UNDP			74100	Professional services	5,000	5,000	5,000	5,000	5,000	25,000	PM11
	UNDP			74500	Miscellaneous	5,000	5,000	5,000	5,000	5,000	25,000	PM9

Outcome	Responsible Party/ Implementing Agency	Fund ID	Donor Name	Budget Account Code	Budget 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
	9212322 Total PMC					168,600	151,600	191,600	151,600	211,600	875,000	
	Project Total					2,164,468	2,526,822	2,498,567	992,295	1,030,170	9,212,322	

Summary of Funds:

	Upon Agreement signature (US$)	After Year 1 (US$)	After Year 2 (US$)	After Year 3 (US$)	After Year 4 (US$)	Total
Scheduled date (tentative)	July 2020	July 2021	July 2022	July 2023	July 2024	
Project funds	2,164,468	2,526,822	2,498,567	992,295	1,030,170	9,212,322
Total	**2,164,468**	**2,526,822**	**2,498,567**	**992,295**	**1,030,170**	**9,212,322**

Budget Notes

NOTE	Output	Budget code	Nature of Expense	Amount	Description
1A	Output 1.1. Cyclone and flood resilient houses for the most vulnerable households.	72300	Materials and Goods	1,530,000	Retrofitting of 900 vulnerable char houses @ US$1,700 per unit
1B		75700	Training	10,000	- Training workshops to train construction workers on climate/cyclone resilient approaches:10 workshops @ US$1000 per workshop (TS)
1C		71300	Local Consultant	11,000	- National consultants or technical specialists to conduct training workshops: 44 days @ US$250 per day (TS)
			Total Output 1.1:	**1,551,000**	
1D	Output 1.2. Community-level nano-grids installed	72100	Contractual Services-Companies	147,828	- 30 Solar Units + installation @ US$4,927 per unit

NOTE	Output	Budget code	Nature of Expense	Amount	Description
1E	for electrification to enhance adaptive capacity	71300	Local/National Consultants	11,000	- National consultants to conduct assessment of electricity needs: 44 days @ US$250 per day (TS)
1F		75700	Training	5,000	- Workshops to train community maintenance groups on maintaining solar units: 10 workshops @ US$500 per workshop (TS)
1G		71300	Local/National Consultants	11,000	- National consultants or specialists to conduct training workshops: 44 days @ US$250 per day (TS)
1H			**Total Output 1.2:**	**174,828**	
1I	Output 1.3. Locally appropriate rainwater harvesting systems for safe drinking water and home-garden irrigation.	72100	Contractual Services-Companies	255,000	500 rainwater harvesting units + installation @ US$510 per unit
1J		71300	Local Consultant	11,000	- Assessment of water demand - national consultant: 44 days @ US$250 per day (TS)
1K		75700	Training	5,000	- Workshops to train community-based water-user groups 10 workshops @ US$500 per workshop (TS)
1L		71300	Local Consultant	11,000	- National consultants to conduct training workshops 44 days @ US$250 per day (TS)
			Total Output 1.3:	**282,000**	
2A	Output 2.1. Climate resilient infrastructure built to protect life and prevent asset loss	72100	Contractual Services-Companies	800,000	- Cluster house construction materials + labour @ US$40,000 per unit
2B		71300	Local Consultant	8,250	- Engineer to provide support/assessments for location and construction of cluster houses 33 days @ US$250 per day (TS)
			Total Output 2.1:	**808,250**	
2C	Output 2.2. Embankments repaired and innovative model for community embankment management introduced.	72100	Contractual Services-Companies	375,000	- Embankment repair @ US$30,000 per km (further information on technical details on the embankment repair are provided in Annex 14_C)
2D		72100	Contractual Services-Companies	208,800	- Embankment strengthening through EbA @ US$14,400 per km

NOTE	Output	Budget code	Nature of Expense	Amount	Description
2E		75700	Training	24,000	- Workshops to train community embankment management groups 12 workshops @ US$2,000 per workshop (TS)
2F		71300	Local Consultant	5,500	- National consultant to train communities on community management of embankments 22 days @ US$250 per day (TS)
2G		71300	Local Consultant	5,500	- National consultant or specialist to assess and develop livelihoods to be connected to embankment management and conduct trainings 22 days @ US$250 per day (permanent staff employed under output 3.1)
2H		72100	Contractual Services-Companies	37,500	Environmental management plan and environmental monitoring
			Total Output 2.2	**656,300**	
2I	Output 2.3. Climate-resilient investment on chars promoted through climate hazard maps and expanded cyclone early warning systems.	72100	Contractual Services-Companies	16,000	Contract company to develop/produce hazard maps for vulnerable char islands: 8 chars @ US$2000 per char
2J			**Total Output 2.3:**	**16,000**	
2K	Output 2.4. Cyclone Preparedness Programme (CPP) modernised and expanded to provide timely cyclone early warning and response at scale.	72300	Materials and Goods	385,000	- CPP Equipment: 7 packs @ US$55,000 per pack
2L		75700	Training	224,000	- CPP volunteer training workshops: 64 workshops @ US$3,500 per workshop (TS)
2M		71300	Local Consultant	16,000	- National consultant or CPP representative to conduct training workshops: 64 days @ US$250 per day (TS)
2N		72300	Materials and Goods	212,176	- Cost to procure and equip mobile ambulances: 8 ambulances @ US$26,522 per ambulance
			Total Output 2.4:	**837,176**	
3A	Output 3.1. Climate-resilient agriculture implemented and	71400	Contractual Services-Individual	28,568	- Establish and maintain demonstration plots: 8 demonstration plots @ US$3,571 per plot
3B		71300	Local Consultant	162,500	- Farmer field schools: 65 workshops @ US$2,500 per workshop

NOTE	Output	Budget code	Nature of Expense	Amount	Description
3C	supported at a community level	72100	Contractual Services-Companies	200,000	- Cold storage facilities + installation: 4 facilities @ US$50,000 per unit
3D		72100	Contractual Services-Companies	513,000	- Solar powered pump and associated equipment (e.g. piping, drip irrigation systems): 6 units @ US$85,500 per unit
3E		71300	Local Consultant	11,000	- National consultants to assess water needs for irrigation in Lakshmitari 44 days @ US$250 per day (TS)
3F		75700	Training	8,000	- Workshops to train communities on maintenance of cold storage units 8 workshops @ US$1,000 per workshop (TS)
3G		71300	Local Consultant	11,000	- National consultants or specialists to conduct training workshops for cold storage units 44 days @ US$250 per day (TS)
3H		75700	Training	8,000	- Workshop to train communities on use and maintenance of solar irrigation 8 workshops @ US$2,000 per workshop (TS)
		Total Output 3.1:		**942,068**	
3I	Output 3.2. Diversified livelihoods developed and supported for the most vulnerable households	72300	Materials and Goods	2,275,000	- Financial assistance to provide inputs for alternative livelihoods 6500 beneficiaries @ US$350 per beneficiary.
3J		71400	Contractual Services-Individual	180,000	- 2 national consultants or livelihood specialists to conduct needs assessment, develop alternative livelihoods as well as support and capacitate implementing NGO 120 months (5 years) @ US$1500 per month (TS)
		Total Output 3.2:		**2,455,000**	
4A	Output 4.1. Local government institutions are capable of climate risk informed planning and implementation.	75700	Training	37,500	- Workshops to increase capacity of local government and extension officers 25 workshops @ US$1,500 per workshop
		Total Output 4.1:		**37,500**	
4B	Output 4.2. Knowledge and awareness generated to promote climate resilient approaches and strategies.	72100	Contractual Services-Companies	180,000	Materials and construction of innovation centres 3 centres @ US$60,000 per centre
4C		74200	Audio Visual & Print Prod Costs	99,000	Cost of disseminating information (e.g. radio broadcasts, public billboards, pamphlets)

NOTE	Output	Budget code	Nature of Expense	Amount	Description
4D		75700	Training, Workshop and conference	27,000	6 presentations at regional workshops/seminars @ US$4,500 per presentation
4E		71600	Travel	32,000	16 exchange visits between different communities 16 exchange visits @ US$2,000 per visit
4F		71400	Contractual Services-Individual	129,600	Knowledge management and communication consultant: 2 consultants for 54 month @ US$1200 per month (TS)
4G		75700	Training, Workshop and conference	32,000	Workshops to train teachers and community leaders on climate change information, impacts and adaptive strategies 16 workshops @ US$2,000 per workshop (TS)
4H		71400	Contractual Services-Individual	57,600	1 Community facilitator to each manage innovation centres 192 months (4 years) @ US$300 per month (TS)
4I		71400	Contractual Services-Individual	20,000	National consultant to develop an advocacy strategy based on the lessons from project: 80 days @ US$250 per day (TS)
		Total Output 4.2:		**577,200**	
PM1	Project management	71400	Contractual Services-Individual	200,000	Recruitment of project technical staffs (project management and administrative staffs) - Project Manager (1 Position)
PM2		71400	Contractual Services-Individual	88,500	Recruitment of project technical staffs (project management and administrative staffs) - Project Finance cum Admin Associate (1 Position)
PM3		71400	Contractual Services-Individual	90,000	Recruitment of project technical staffs (project management and administrative staffs) - M&E Associate (1 Position)
PM4		71400	Contractual Services-Individual	52,500	Recruitment of project technical staffs (project management and administrative staffs) - Admin Assistant (1 position)
PM5		71400	Contractual Services-Individual	160,000	Recruitment of project technical staffs (project management and administrative staffs) - Community Development Assistant (3 positions)
PM6		71600	Travel	50,000	Field visits for monitoring and travel cost for project management unit.
PM7		72500	Stationary & Supplies	20,000	- Office Equipment and supplies
PM8		72800	Info. and technology equipt. / IT Equipment	14,000	- ICT Equipment and Supplies

NOTE	Output	Budget code	Nature of Expense	Amount	Description
PM9		74500	Miscellaneous	25,000	- Operation and Maintenance
PM10		72400	Communic & Audio Visual Equip	25,000	Communication costs
PM11		74100	Professional services	25,000	Audit costs
PM12		72100	Contractual Services-Companies	125,000	Project M&E (Inception meeting, steering committee meetings, technical meeting, Audits, Final evaluations)
			Total PMC:	**875,000**	

IX. LEGAL CONTEXT

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of (Bangladesh) and UNDP, signed on 25 November 1986.

This project will be implemented by the Department of Environment (DoE) under the Ministry of Environment, Forest and Climate Change (MOEFCC) 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 National Executing Agency 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.

X. RISK MANAGEMENT

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 National Executing Agency and its personnel and property, and of UNDP's property in the National Executing Agency's custody, rests with the NEA . To this end, the NEA 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 NEA's security, and the full implementation of the security plan.

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 NEA's obligations under this Project Document.

The National Executing Agency 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.

The NEA acknowledges and agrees that UNDP will not tolerate sexual harassment and sexual exploitation and abuse of anyone by the NEA, 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 NEA, 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 NEA, 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.

In the performance of the activities under this Project Document, the NEA 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 NEA 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 NEA 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 NEA and its sub-parties may use the training material available at UNDP;

iii. Report and monitor allegations of SH and SEA of which the NEA 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 NEA 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 NEA shall advise UNDP of any actions taken by it or any of the other entities further to the investigation.

The National Executing Agency 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 NEA, 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.

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).

The NEA 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.

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.

The National Executing Agency 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 NEA 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.

The requirements of the following documents, then in force at the time of signature of the Project Document, apply to the NEA: (a) UNDP Policy on Fraud and other Corrupt Practices and (b) UNDP Office of Audit and

Investigations Investigation Guidelines. The NEA 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.

In the event that an investigation is required, UNDP has the obligation to conduct investigations relating to any aspect of UNDP projects and programmes. The NEA shall provide its full cooperation, including making available personnel, relevant documentation, and granting access to the NEA'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 NEA to find a solution.

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

UNDP shall be entitled to a refund from the NEA 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 NEA under this or any other agreement. Recovery of such amount by UNDP shall not diminish or curtail the NEA's obligations under this Project Document.

Where such funds have not been refunded to UNDP, the NEA 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 NEA 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.

Each contract issued by the NEA 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 NEA shall cooperate with any and all investigations and post-payment audits.

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.

The NEA 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.

XI. MANDATORY ANNEXES

1. Project Map and geospatial coordinates of the project area

2. Multiyear Workplan
3. Monitoring Plan
4. Stakeholder Engagement Plan
5. UNDP Atlas Risk Log
6. Overview of technical consultancies/subcontracts
7. Terms of Reference for Technical services to be provided by UNDP, the PSC, Project Manager, Chief Technical Advisor and other positions as appropriate

Additional Annexes (8-14) below are in separate document.

8. Signed letter from the NEA and AF Designated Authority requesting UNDP Support Services (if required on exceptional basis)
9. Signed LOA between UNDP and IP requesting UNDP Support Services (if required on exceptional basis)
10. Social and Environmental Screening Procedure (SESP)
11. Environmental Social Management Framework (ESMF) if required.
12. Gender Analysis and Gender Action Plan
13. Procurement Plan – for first year of implementation especially
14. Specific annexes (e.g. target landscape profile, feasibility study, other technical reports)

Annex 1. Project Map and geospatial coordinates of the project area

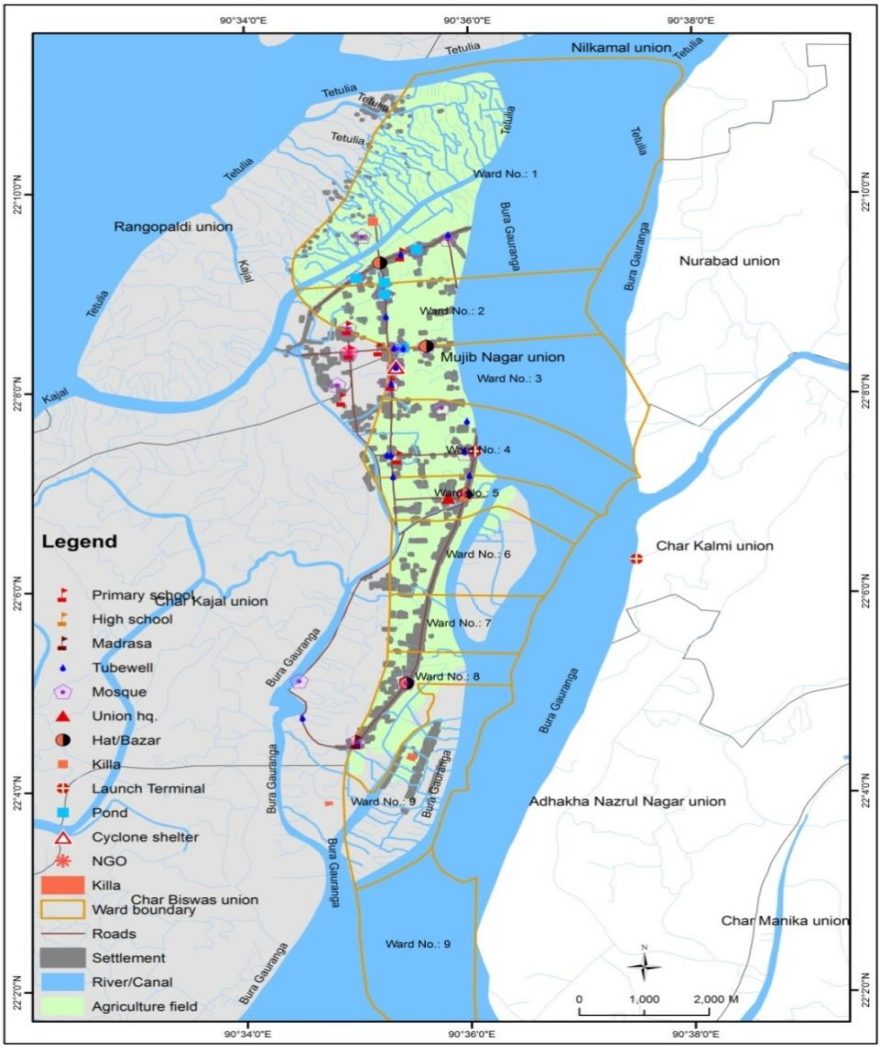


Figure 1. Map of Mujibnagar Union (Bhola)

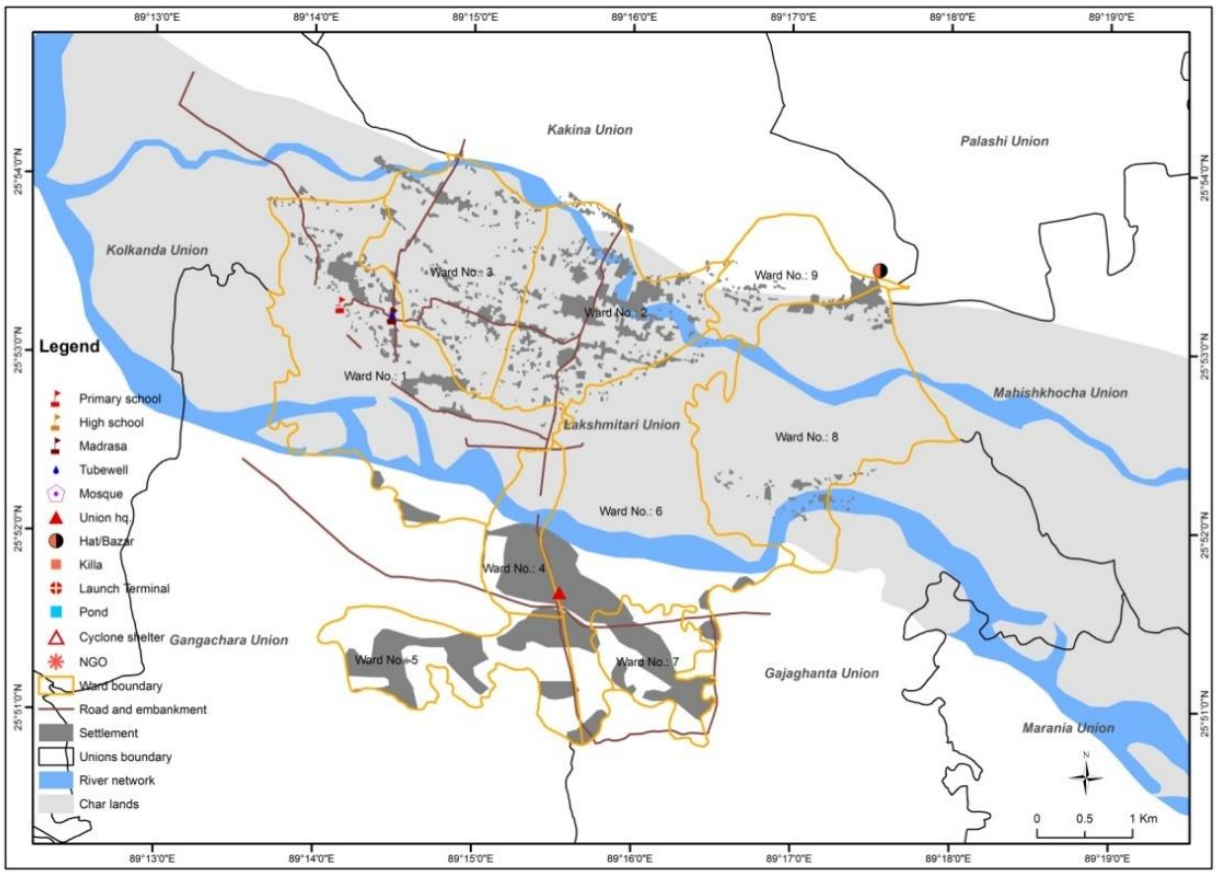


Figure 2. Map of Lakshmitari Union (Rangpur)

Coordinates of Project Sites:

Site Name	Northing	Easting
Lakshmitari Union	25^0 54' to 25^0 51'	89^0 13' to 89^0 19'
Mujibnagar Union	22^0 20' to 22^0 09'	90 34' to 90^0 38'

Annex 2: Multi-Year Work Plan

Note this only shows indicative timelines for activities. PMU to refine the work plan based on comments from inception workshop at regional and national level.

Output/activity per outome	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Component 1. Enhanced climate resilience of households through climate-resilient housing, electrification and climate-proof water provisioning																				
Outcome 1.Community infrastructure improved and adaptive capacity increased for vulnerable small island and riverine char communities to manage and plan for climate change impacts.																				
Output 1.1. Cyclone- and flood-resilient houses for the most vulnerable households are supported.																				
Activity																				
1.1.1. Co-designing resilient houses that combine modern and traditional technology																				
1.1.2 Training local construction workers on cyclone- and flood-resilient construction techniques.																				
1.1.3 Retrofitting houses against cyclone winds, storm surges and flooding.																				
Output 1.2. Community-level nano-grids installed for electrification to enhance adaptive capacity																				
1.2.1 Assessing electricity demand and designing nano-grids powered by solar or wind energy.																				
1.2.2 Establishing community groups to operate and maintain renewable energy nano-grid infrastructure																				
1.2.3 Installing nano-grid infrastructure to provide electricity to households																				
Output 1.3 Locally appropriate rainwater harvesting systems for safe drinking water and home-garden irrigation.																				
1.3.1 Assessing water demand and designing locally appropriate rainwater harvesting systems for households.																				
1.3.2 Establishing community-based water-user groups for surface water																				

Output/activity per outome	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
preservation and distribution in water-stressed areas																				
1.3.3 Installing home-based rainwater harvesting systems for drinking and gardening.																				
Component 2. Increased climate resilience of communities through climate-resilient infrastructure, climate risk mapping and inclusive cyclone preparedness.																				
Outcome 2. Resilience of vulnerable small coastal island communities enhanced against climate-induced disasters through improved infrastructure, management practices and community-based emergency responses.																				
Output 2.1. Climate-resilient infrastructure built to protect life and prevent asset loss.																				
2.1.1. Constructing cluster houses for particularly vulnerable households that will function as emergency shelters during flooding and cyclones.																				
Output 2.2. Embankments repaired and innovative model for community embankment management introduced.																				
2.2.1 Repairing damaged embankments in Mujibnagar																				
2.2.2 Strengthening embankments in Mujibnagar and riverbanks in Lakshmitari through the installation of geotextile and EbA measures such as planting																				
2.2.3 Forming community embankment management groups with locally appropriate incentives.																				
Output 2.3. Climate-resilient investment on chars promoted through climate hazard maps and expanded cyclone early warning systems.																				
2.3.1. Developing climate hazard and vulnerability maps for selected chars in the Bay of Bengal and the Ganges-Brahmaputra-Meghna (GBM) basin.																				
2.3.2 Establishing an effective and inclusive cyclone early warning system																				

Output/activity per outome	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 2.4. Cyclone Preparedness Programme (CPP) modernised, made gender-responsive, and expanded to provide timely cyclone early-warning and response at scale.																				
2.4.1 Engaging community members in the CPP multi-hazard volunteer programme																				
2.4.2. Providing equipment for CPP volunteers and cyclone shelters.																				
2.4.3 Providing and equipping floating ambulances that are integrated with a mobile phone health system (M-health) to support stranded and critical patients during climate-induced disaster and post-disaster periods.																				
Component 3: Improved income and food security of communities by innovating and providing assistance to selected households for climate-resilient livelihoods practices																				
Outcome 3: Adaptive capacity of vulnerable communities improved through the dissemination of climate-resilient agricultural practices and the development of diversified livelihoods.																				
Output 3.1 Climate-resilient agriculture implemented and supported at a community level																				
3.1.1. Establishing farmer field schools and training farmers for innovation and adoption of climate-resilient agricultural practices.																				
3.1.2. Establishing cold storage facilities for agricultural produce and fish																				
3.1.3. Assessing irrigation needs and implementing solar irrigation systems in Lakshmitari to provide water during the dry season.																				
Output 3.2 Diversified livelihoods developed and supported for the most vulnerable households																				
3.2.1. Providing technology, skills and materials to selected households for																				

Output/activity per outome	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
making their incomes resilient to flooding, cyclones and saline intrusion.																				
Component 4. Enhanced knowledge and capacity of communities, government and policymakers to promote climate resilient development on chars.																				
Outcome 4. Increased awareness and availability of information on climate change impacts and adaptation options for vulnerable communities, local level government and policymakers																				
Output 4.1. Local government institutions are capable of climate risk-informed planning and implementation.																				
4.1.1. Building the capacity of local government institutions, the Bangladesh Water Development Board and the Department of Agriculture extension service to promote climate-resilient approaches in char communities.																				
Output 4.2. Knowledge and awareness generated to promote climate resilient approaches and strategies																				
4.2.1. Establishing local innovation and knowledge centres to collect and disseminate innovative adaptation options.																				
4.2.2. Collecting lessons learned and best practices on community-based and ecosystem-based adaptation interventions.																				
4.2.3. Disseminating information and knowledge products on a regular basis using arrange of modern and conventional media at local and national levels.																				
4.2.4. Raising awareness about climate change among schoolchildren and other community members.																				
Monitoring and Evaluation																				

Annex 3: M&E Plan

Note this only shows indicative M&E Plan. PMU to refine the plan based on comments from inception workshop at regional and national level.

B – 1: Monitoring Plan

Monitoring	Indicators	End of Project target	Description of indicators and targets	Data source/ Collection Methods	Frequency	Responsibility	Means of verification	Risks/ Assumptions
Project Objective: To enhance the climate resilience of vulnerable communities who live on coastal islands and riverine chars in Bangladesh	Enhanced climate resilience of vulnerable communities in the Mujibnagar and Lakshmitari Unions.	Lower score	TBD; preferably vulnerability index method	Survey and vulnerability analysis	Baseline; mid year and final year	PMU, Monitoring Associate, Survey team	Vulnerability assessment report	All cross sectoral investments are designed to increase resilience of the targeted communities.
Outcome 1: Community infrastructure improved and adaptive capacity increased for vulnerable small island and riverine char communities to manage and plan for climate change impacts.	Number of households with increased resilience through strengthened houses, electrification and water provisioning.	- Strengthened houses 900 nos - HHs with electricity 300-450 - 500 HHs provisioned with rainwater	This is basically a cumulative reflection of indicators for output 1.1, 1.2 & 1.3; HHs with all these resilient infrastructures will be more adaptive to CC.	Household survey.	Half Yearly	PMU, Monitoring Associate, Community Associates	Baseline, Quarterly, half-yearly, and yearly report	Climate resilient infrastructures are cost effective and are effective in reducing vulnerability(ies) against anticipated exposure (s).
Output 1.1. Cyclone and flood resilient houses for the most vulnerable households.	Number of houses made resilient against climate disasters (cyclones and floods)	900	Shows # of HHs with adaptive infrastructures making resilient against floods and cyclone; - # of HHs	Household survey.	Quarterly	PMU, Monitoring Associate, Community Associates	Registers of project beneficiaries at each site, site visits, NGO/ Firm report, and project reports.	Community preference and resilient technical design is within the project's budget limit, and no significant increase of

Monitoring	Indicators	End of Project target	Description of indicators and targets	Data source/ Collection Methods	Frequency	Responsibility	Means of verification	Risks/ Assumptions
			(% of female HHs) - # & % of HHs strengthened;					price of materials.
Output 1.2. Community-level nano-grids installed for electrification to enhance adaptive capacity	Number of nano-grids installed and operational.	- 30 nano-grids; - 300 – 450 HHs.	Access to solar electricity & sustainable mgt reflects less dependency on fuel of which price changes frequently especially for Island & char land communities; - # of nanogrids - # of HHs covered under each grid	Survey, field verification, Household survey.	Quarterly	PMU, Monitoring Associate, Community Associates, NGO / Firm	NGO/ Firm report; project report; field visits	Collaboration between communities, project partner NGOs, local government and other stakeholders. Community groups trained by project successfully operate and maintain the nano-grids. Water user groups and household members trained by project successfully operate and maintain the rainwater harvesting systems.
Output 1.3. Locally appropriate rainwater harvesting systems for safe drinking water.	Number of household rainwater harvesting systems installed and operational. Number of water user groups established and trained.	- 500 units - 10 water user groups	Access to clean drinking water reduces diseases, saves time, & increases resilience. - # of rain water	Survey.	Quarterly	As above	NGO/ Firm report; project report; field visits	

Monitoring	Indicators	End of Project target	Description of indicators and targets	Data source/ Collection Methods	Frequency	Responsibility	Means of verification	Risks/ Assumptions
			harvesting units installed - # of units in women headed HHs - # of groups (% female)					
Outcome 2: Resilience of vulnerable small coastal island communities enhanced against climate-induced disasters through improved infrastructure, management practices and community-based	Number of people with increased resilience through strengthened disaster infrastructure.	TBD (# of people covered by the cluster houses and embankments)	This is a cumulative reflection of output indicators 2.1 to 2.4. - # of people (% female) living in cluster houses - # of people (% female) protected by embankment & river bank protection - # of people (% female) covered by cyclone warning system	Household survey;	Half Yearly	PMU, Monitoring Associate, Community Associates	Project report, survey report	Climate resilient infrastructures are cost effective and are effective in reducing vulnerability(ies) against anticipated exposure (s).

Monitoring	Indicators	End of Project target	Description of indicators and targets	Data source/ Collection Methods	Frequency	Responsibility	Means of verification	Risks/ Assumptions
			- # (% female) of people can be reached by CPP					
Output 2.1. Climate-resilient mini-disaster shelter/cluster houses built to protect life and prevent asset loss.	Number of dual-purpose cluster house/ disaster shelters constructed and in use.	- 20 nos cluster house - 50% (women beneficiary)	To withstand cyclone and flood disasters, communities require disaster shelters; - # of cluster units - # (% female) of beneficiaries - # of HHs (% female)	Household survey;	Quarterly	As above	TOR, Work order; NGO / firm report; project report; field visits	When Khas land is not available, community is willing to allocate the land.
Output 2.2. Embankments repaired and innovative model for community embankment management introduced.	Km of damaged embankments repaired/ strengthened.	14.5 km in Mujibnagar	Embankments around chars are a vital line of defence against floods and storm surges. - Km of embankment	Survey.	Monthly/ quarterly	BWDB, PMU, M&E associate, Community development assistants	Report from BWDB; field visits; photo monitoring (before & after photo) Project reports; LOA with BWDB and CBO	The lessons from the community management practices of embankment are well documented and owned by Ministry of Water Resources for change in practice.

Monitoring	Indicators	End of Project target	Description of indicators and targets	Data source/ Collection Methods	Frequency	Responsibility	Means of verification	Risks/ Assumptions
	Km of riverbank strengthened.	10 km in Mujibnagar & 2 km in Lakshmitari = 12.5	Riverbank will be strengthened by combination of geotextiles and grasses. - km of riverbank	Survey.				
	Number of community embankment management groups established	3 nos	- # of management groups functional (% male & female)	Survey.				
Output 2.3. Climate-resilient investment on chars promoted through climate hazard maps and expanded cyclone early warning systems.	Km^2 of char areas mapped	8 climate hazard and vulnerability maps	Detailed map of communities will help them in identifying vulnerable locations; - Km^2 area covered - number of zones	Survey.	Quarterly	As above	As above; maps; Firm / NGO report; Field visits; project reports	The community risk assessment and risk reduction plans are within the capacity of the local government to integrate into their plans and budget.
	Number of households in Mujibnagar receiving periodic updates during cyclone risk periods	All HHs of Mujibnagar	Early warning to HHs will provide them with time for preparation; - # of HHs (% male & female HHs)	Sample survey				

Monitoring	Indicators	End of Project target	Description of indicators and targets	Data source/ Collection Methods	Frequency	Responsibility	Means of verification	Risks/ Assumptions
Output 2.4. Cyclone Preparedness Programme (CPP) modernised and expanded to provide timely cyclone early warning and response at scale.	Number of CPP volunteers trained	~2,500 CPP volunteers trained in Mujibnagar (increase female representation in CPP by at least 25%) 10,000 CPP volunteers trained on six additional islands	Training program in CPP will increase resilience especially for early warning and response program. - # of people by site (% female)	Training register / report	Quarterly	As above	As above & training reports; LOA with CPP of DDM In addition - Site register; Assets transfer letter;	Community engages in CPP and community members volunteer for the programme.
	Existing cyclone shelters in Mujibnagar provisioned with CPP equipment	7 existing cyclone shelters and 20 cluster houses provisioned with CPP equipment in Mujibnagar. ~2,500 CPP volunteers provided with personal cyclone preparedness equipment	Better equipped shelters will help communities during disaster; especially the floating medical units. - # of shelters by types & number of equipment; - # of CPP volunteers	Field verification; survey			Site register; equipment distribution register; Site register; equipment distribution register;	

Monitoring	Indicators	End of Project target	Description of indicators and targets	Data source/ Collection Methods	Frequency	Responsibility	Means of verification	Risks/ Assumptions
		8 mobile floating medical unit procured and provisioned 6 additional islands equipped with CPP Equipment	with equipment; - # of floating units made & in operation; - # of islands equipped with equipment & # of equipment by island				Site register; equipment distribution register;	
Outcome 3: Adaptive capacity of vulnerable communities improved through the dissemination of climate-resilient agricultural practices and the development of diversified livelihoods.	Number of people provided with improved climate resilient livelihoods;	6500	This is a cumulative reflection of output indicators 3.1 to 3.2. - # of people with climate resilient livelihoods (% female) - # of people by livelihoods - # of HHs by livelihood - # of people by season by livelihood - % of target population		Half yearly	As above	Registers of project beneficiaries at each site, site visits, NGO report, and project reports.	Stakeholders are interested in climate resilient livelihood techniques; Climate resilient livelihood techniques provide year-round livelihood to stakeholders;

Monitoring	Indicators	End of Project target	Description of indicators and targets	Data source/ Collection Methods	Frequency	Responsibility	Means of verification	Risks/ Assumptions
Output 3.1 Climate-resilient agriculture implemented and supported at a community level	Number of field school sessions held;	65 sessions	- # of field school sessions - # of members per school attended (% female)	Training attendences	Quarterly	As above	As above	Collaboration between communities, project partner NGOs, local government and other stakeholders.
	Number of people trained in climate-resilient agricultural practices;	~7,500 farmers; % of female minimum 25; target 50	- # of people trained (% female); - # of training sessions	Training attendences				
	Number of cold storage units installed and operational;	2	- # of cold storage units (solar)	Field verification				
	Hectares of agricultural land irrigated;	80	- # of ha land	Field verification				
Output 3.2 Diversified livelihoods supported at the village level.	Number of people provided with technology, skills and materials to make their livelihoods climate resilient.	~6,500 people (minimum 50% female beneficiaries)	Dependency on one livelihood option increases vulnerability to CC. the more the options, the less the vulnerability. - # of people with	Household survey	Quarterly	As above	As above	Collaboration between women cooperatives, communities, project partner NGOs, local government and other stakeholders.

Monitoring	Indicators	End of Project target	Description of indicators and targets	Data source/ Collection Methods	Frequency	Responsibility	Means of verification	Risks/ Assumptions
			diversified livelihood (% female)					
Outcome 4: Increased awareness and availability of information on climate change impacts and adaptation options for vulnerable communities, local level government and policymakers	Number of people using knowledge/ information into practices	TBD	Trained GoB officials & farmers if use the information generated by the project for betterment, then it can be said that awareness is raised. - # of people using knowledge / information into practices	Distribution lists, attendacnce sheet, survey	Quarterly	As above	As above	Awareness raising activities and knowledge products draw attention of the stakeholders;
Output 4.1. Local government institutions are capable of climate risk-informed planning and implementation.	Number of staff from local government institutions, Bangladesh Water Board and Department of Agriculture trained.	250	- # of person (% female) by LGIs	Training attendance	Quarterly	As above	As above & training reports;	Mechanism exist to allow integration of information into planning and decision making.
Output 4.2. Knowledge and awareness generated	Number of adaptation innovation centres established	4	- # of centers	Field verification	Quarterly	As above	As above and newspaper	Stakeholders find innovation centers useful

Monitoring	Indicators	End of Project target	Description of indicators and targets	Data source/ Collection Methods	Frequency	Responsibility	Means of verification	Risks/ Assumptions
to promote climate resilient approaches and strategies	Number of people reached by awareness raising campaigns	75% of the population in the target areas (minimum 50% women).	- # of people (% female) - # of events by type by year	Distribution lists, attendacnce sheet, survey				for their resilience.
	Number of knowledge products developed	10	- # of products by types					

G – 2: Evaluation Plan

Evaluation Title	Planned start date Month /year	Planned end date Month/ year	To be evaluated by	Budget for consultants[117]
Mid-term Evaluation	April 2022	June 2022	External reviewer	US$ 30,000
Terminal Evaluation	September 2024	December 2024	External reviewer	*US$ 30,000 – 60,000*
Total evaluation budget				*US$ 90,000*

[117] The budget will vary depending on the number of consultants required (for full size projects should be two consultants); the number of project sites to be visited; and other travel related costs. Average # total working days per consultant not including travel is between 22-25 working days.

Annex 4: Adaptation Fund Core Impact Indicator

LIST OF TABLES FOR REPORTING ADAPTATION FUND CORE IMPACT INDICATORS

Adaptation Fund Core Impact Indicator "Number of Beneficiaries"				
Date of Report				
Project Title	**ADAPTATION INITIATIVE FOR CLIMATE VULNERABLE OFFSHORE SMALL ISLANDS AND RIVERINE CHARLAND IN BANGLADESH**			
Country	**BANGLADESH**			
Implementing Agency	**United Nations Development Programme (UNDP)**			
Project Duration	**Five (5) years**			
	Baseline *(absolute number)*	Target at project approval *(absolute number)*	Adjusted target first year of implementation *(absolute number)*	Actual at completion[118] *(absolute number)*
Direct beneficiaries supported by the project	0	31,000		
Female direct beneficiaries	0	17500		
Youth direct beneficiaries	0	12000		
Indirect beneficiaries supported by the project	0	341,000		
Female indirect beneficiaries	0	175000		
Youth indirect beneficiaries	0	135000		

[118] At project completion, the proponent could report on % targeted population reached or successfully supported (the absolute numbers could then be deduced from that figure)

Adaptation Fund Core Impact Indicator "Early Warning Systems"				
Date of Report				
Project Title	**ADAPTATION INITIATIVE FOR CLIMATE VULNERABLE OFFSHORE SMALL ISLANDS AND RIVERINE CHARLAND IN BANGLADESH**			
Country	**BANGLADESH**			
Implementing Agency	**United Nations Development Programme (UNDP)**			
Project Duration	**Five (5) years**			
	Baseline	Target at project approval	Adjusted target first year of implementation	Actual at completion
Adopted Early Warning Systems *(Category targeted – 1, 2, 3, 4; and absolute number*[119]*)* ***Output 2.3.*** *Climate-resilient investment on chars promoted through climate hazard maps and expanded cyclone early warning systems.* *(1) risk knowledge,* *(2) monitoring and warning service,* *(3) dissemination and communication,* *(4) response capability.*	 1 1 1 1	 3 3 4 4		
Hazard *(select from the list on page 2)*		*Floods* *Tropical cyclones* *Severe storms* *Coastal erosion*		
Geographical coverage*(km2)*	0	3403.48		
Number of municipalities/ Mauza[120] *(number)*	0	31		

[119] As there is no ranking method is available in the provided document, the scale for EWS was developed after consultation with experts where 0= No EWS; 1= Preliminary stage; 2= Moderate; 3= Good; 4= Excellent

[120] A lower administrative boundary

Adaptation Fund Core Impact Indicator "Assets Produced, Developed, Improved, or Strengthened"				
Date of Report				
Project Title	**ADAPTATION INITIATIVE FOR CLIMATE VULNERABLE OFFSHORE SMALL ISLANDS AND RIVERINE CHARLAND IN BANGLADESH**			
Country	**BANGLADESH**			
Implementing Agency	**United Nations Development Programme (UNDP)**			
Project Duration	**Five (5) years**			
	Baseline	Target at project approval	Adjusted target first year of implementation	Actual at completion
Sector (identify)				
Targeted Asset				
1) Health and Social Infrastructure *(developed/improved)* • Mobile floating medical unit procured and provisioned	0	8		
2) Physical asset *(produced/improved/strengthened)* • Houses retrofitted in Mujibnagar and Lakshmitari	0	900		
• Dual-purpose cluster house/disaster shelters constructed and in use. (Minimum 50% of beneficiaries will be women-led households)	0	16		
• Nano-grids installed and made operational to provide electricity to houses. (number of nano-grids)	0	30		
• Households provided with functioning and climate-resilient rainwater harvesting systems	0	500		
• Embankments repaired/strengthened in Mujibnagar	0	12.5 km		
• Riverbank strengthened in Lakshmitari	0	14.5 km		
• Quarterly field school trainings held in Mujibnagar and Lakshmitari (include at least 25% female representation, but aim is for minimum of 50%)	0	64		
• Farmers trained on climate-resilient agricultural practices.	0	7,500		
• Cold storage units installed in Mujibnagar and Lakshmitari	0	4		
• Land irrigated in Lakshmitari	0	80 Ha		
• People provided with technology, skills and materials to make their livelihood climate resilient. (minimum 50% female beneficiaries)	0	6500		
Changes in Asset *(Quantitative or qualitative depending on the asset)*				

Adaptation Fund Impact Indicator "Increased income, or avoided decrease in income"				
Date of Report				
Project Title	**ADAPTATION INITIATIVE FOR CLIMATE VULNERABLE OFFSHORE SMALL ISLANDS AND RIVERINE CHARLAND IN BANGLADESH**			
Country	**BANGLADESH**			
Implementing Agency	**United Nations Development Programme (UNDP)**			
Project Duration	**Five (5) years**			
	Baseline	Target at project approval	Adjusted target first year of implementation	Actual at completion
Income Source[121]*(name)*				
Income Source **Output 3.2** Diversified livelihoods supported at the village level. Sewing machine Handicrafts Livestock Poultry Shop Homestead gardening Net making				
Income level *(USD)* **Output 3.2** Diversified livelihoods supported at the village level. (Total benefit within the project period) Sewing machine Handicrafts Livestock Poultry Shop Homestead gardening Net making	0	140,625 28,125 7,500 37,500 12,500 4,500 62,500		
Number of households *(total number in the project area)*	0	850		

[121] When the numbers of livelihoods go through significant changes, such as when sources of income are diversified, it may be useful to illustrate the changes by primary livelihoods.

Adaptation Fund Core Impact Indicator "Natural Assets Protected or Rehabilitated"				
Date of Report				
Project Title	**ADAPTATION INITIATIVE FOR CLIMATE VULNERABLE OFFSHORE SMALL ISLANDS AND RIVERINE CHARLAND IN BANGLADESH**			
Country	**BANGLADESH**			
Implementing Agency	**United Nations Development Programme (UNDP)**			
Project Duration	**Five (5) years**			
	Baseline	Target at project approval	Adjusted target first year of implementation	Actual at completion[122]
Natural Asset or Ecosystem *Coastal ecosystem* *Riverine ecosystem*				
Change in state **Output 2.2.** Embankments repaired and innovative model for community embankment management introduced. *Ha or km Protected/rehabilitated, or* *Effectiveness of protection/rehabilitation - Scale (1-5)*	0 2	100 Ha 4		
Total number of natural assets or ecosystems protected/rehabilitated		100 Ha land protected including agricultural land,		

[122] At project completion, the proponent could report on % targeted population reached or successfully supported (the absolute numbers could then be deduced from that figure)

Annex 5: Stakeholder Engagement Plan

Project preparation

This project has been developed through extensive stakeholder consultations, including with communities in the selected islands, civil society and with the GoB (see Appendix A). The engagement of stakeholders will continue during the implementation of the project and even after the project ends. A tentative engagement plan is given below which is to be enriched and vetted during inception workshop.

			Level of Engagement						Resources Required		
Sl	**Stakeholders**	**Issues**	**Information sharing**	**Consultation**	**Collaboration**	**Joint Decision-making**	**Joint execution**	**Methods of engagement**	**Information sharing**	**Human Development**	**Technical inputs**
Government institutions											
1.	Ministry of Environment, Forest & Climate Change (MoEFCC)	All project related issues	X	X	X	X	X	NPSC, PIC, meetings, field visits, progress reporting etc	X		
2.	Department of Environment (DoE)	As above	X	X	X	X	X	NPSC, TAC, PIC, meetings, field visits, progress reporting etc	X	X	X
3.	Forest Department (FD)	Greening embankment	X	X	x	X		Meetings, workshops, factsheets	X		
4.	Bangladesh Water Development Board (BWDB)	Embankment construction and repair	X	X	X	X	X	MOU, NPSC, TAC, PIC, meetings, workshops, training etc	X	X	X
5.	Department of Disaster Management (CPP Program)	Expansion of early warning, modernization of CPP	X	X	X	X	X	MOU, NPSC, TAC, PIC, meetings, workshops, training etc			
6.	Local Government Engineering Department (LGED)	All construction related matters	X	X	X	X		Meetings, workshops, trainings	X	X	X

			Level of Engagement						Resources Required		
Sl	**Stakeholders**	**Issues**	**Information sharing**	**Consultation**	**Collaboration**	**Joint Decision-making**	**Joint execution**	**Methods of engagement**	**Information sharing**	**Human Development**	**Technical inputs**
7.	Sustainable Renewable Energy Development Authority (SREDA)	Nano-grid, solar irrigation & similar matters; knowledge mgt	X	X	X			Meetings, workshops	X		
8.	Infrastructure Development Company Limited (IDCOL)	As above	X	X	X			Meetings, workshops	X		
9.	Ministry of Land represented by relevant DCs	Project updates and Cluster houses	X	X	X			Coordination Meetings workshops, factsheets	X		
10.	Ministry of Planning	Monitoring	X	X	X			NPSC, PIC, field visits	X		
11.	External Resources Division (ERD)	Monitoring	X	X	X			NPSC, PIC, field visits	X		
12.	IMED	Monitoring						NPSC, PIC, field visits			
13.	Ministry of Women and Child Affairs (M0WCA)	Women empowerment, beneficiary selection	X	X	X	X		workshops, meetings, factsheets, TAC	X	X	X
14.	Ministry of Agriculture (MoA)	Climate resilient agriculture and diversification	X	X	X	X		workshops, meetings, assessments, TAC, training events	X	X	X
15.	Department of Agricultural Extension	As above	X	X	X	X		As above	X	X	X

			Level of Engagement						Resources Required		
Sl	**Stakeholders**	**Issues**	**Information sharing**	**Consultation**	**Collaboration**	**Joint Decision-making**	**Joint execution**	**Methods of engagement**	**Information sharing**	**Human Development**	**Technical inputs**
16.	Ministry of Fisheries and Livestock (MoFL)	As above	X	X	X	X		As above	X	X	X
17.	Department of Fisheries	As above	X	X	X	X		As above	X	X	X
18.	Department of Livestock	As above	X	X	X	X		As above	X	X	X
19.											
20.	Deputy Commissioners of project sites	Project major activities	X	X				Coordination meetings, workshops, training, assessments	X	X	X
21.	Upazila Parishad	All project activities						Meetings, workshops, training, events, assessments, field visits, monitoring			
22.	Union Parishad	All project activities	X	X	X	X	X	As above	X	X	X
23.	Local Government Institutions (LGIs)	All project activities	X	X	X	X	X	As above	X	X	X
Civil Society Organizations											
1.	Bangladesh Center for Advanced Studies (BCAS)	Vulnerability assessments, capacity building & partner selection (bidding)	X	X	X	X		workshops, meetings factsheets, potential NGO partner	X	X	X

			Level of Engagement						Resources Required		
Sl	**Stakeholders**	**Issues**	**Information sharing**	**Consultation**	**Collaboration**	**Joint Decision-making**	**Joint execution**	**Methods of engagement**	**Information sharing**	**Human Development**	**Technical inputs**
2.	Bangladesh Environmental Lawyers Association (BELA)	Matters related to environmental and social safeguard;	X	X	X	X		TAC, meetings, workshops, factsheets, social & env safeguard, potential NGO partner	X	X	
3.	Arannayk Foundation (AF)	Climate Resilient livelihood	X	X				workshops, factsheets, potential NGO partner	X		
4.	Center for Natural Resource Studies (CNRS)	Climate Resilient livelihood, community mobilization, assessments, & partner selection (bidding)	X	X	X			Training, workshops, factsheets, potential NGO partner, RFP	X	X	X
5.	Community Development Center (CODEC)	As above	X	X	X			Training, workshops, factsheets potential NGO partner, RFP	X		
6.	BRAC	As above	X	X	X			As above	X		
7.	Society for Development Initiatives (SDI)	As above	X	X	X			As above	X	X	X
8.	Dwip Unnayan Sangstha (DUS)	As above	X	X	X			As above	X	X	X
9.	Sagarika Samaj Unnayan Sangstha (SSUS)	As above	X	X	X			As above	X	X	X
10.	TMSS	As above	X	X	X			As above	X	X	X

			Level of Engagement						Resources Required		
Sl	**Stakeholders**	**Issues**	**Information sharing**	**Consultation**	**Collaboration**	**Joint Decision-making**	**Joint execution**	**Methods of engagement**	**Information sharing**	**Human Development**	**Technical inputs**
11.	ASA	As above	X	X	X			As above	X	X	X
12.	ESDO	As above	X	X	X			As above	X	X	X
13.	Grameen Unnayon Sangstha (GUS)	As above	X	X	X			As above	X	X	X
14.	Society for Assist the Poor (SAP)	As above	X	X	X				X	X	X
Private Sectors/ Companies (list to be updated by PMU)											
		RFP related to climate resilient housing, solar irrigation, nano-grid, cold storage etc	X	X			X	Potential partner in implementation; RFP	X		
Academia and Research Institutions											
1.	BCSIR	Renewable energy related infrastructures	X	X				Meeting, workshops, TAC	X		
2.	Department of Renewable Energy, Dhaka University	As above						Meeting, workshops, TAC			
3.	Relevant depts. of BUET	As above + embankment repair						Meeting, workshops, TAC			
4.	Centre for Climate Change and Environmental Research	As above, + all assessments	X	X				Meeting, workshops, TAC			

			Level of Engagement						Resources Required		
Sl	**Stakeholders**	**Issues**	**Information sharing**	**Consultation**	**Collaboration**	**Joint Decision-making**	**Joint execution**	**Methods of engagement**	**Information sharing**	**Human Development**	**Technical inputs**
	(C3ER), BRAC University										
5.	Department of Architecture, BRAC University	Climate resilient cluster housing									
6.	Center for Environmental GIS (CEGIS)	GIS analysis, technical assessments	X		X			Trainings, workshops, factsheets	X	X	X
7.	Department of Environmental Sciences and Disaster Management, Noakhali Science and Technology University	Disaster management related issues, assessments, early warning	X	X				Meeting, workshops, TAC			
Communities / Beneficiaries											
	Local communities, beneficiaries, women hhs	All project activities	X	X	X	X	X	As beneficiary of direct inputs, meetings, workshops, training	X	X	X
Media											
1.	Local media										
2.	TV channel like Channel I, Independent, ATN, 24, BTV etc.		X		X			workshops, factsheets	X	X	
3.	Newspaper- Daily star		X		X			workshops, factsheets	X	X	
4.	Independent Television		X		X			workshops, factsheets	X	X	

			Level of Engagement						Resources Required		
Sl	**Stakeholders**	**Issues**	**Information sharing**	**Consultation**	**Collaboration**	**Joint Decision-making**	**Joint execution**	**Methods of engagement**	**Information sharing**	**Human Development**	**Technical inputs**
5.	Newspaper-Prothom Alo		X		X			workshops, factsheets	X	X	
6.	Bangladesh NGOs Network for Radio and Communication (BNNRC)		X		X			workshops, factsheets	X	X	
Development Partners											
1	UNDP		X	X	X	X		workshops, factsheets	X		
2	USAID		X	X	X	X		workshops, factsheets	X		
3	World Bank		X	X	X	X		workshops, factsheets	X		
4	German Development Cooperation (GIZ)		X	X	X	X		workshops, factsheets	X		
5	European Union (EU)		X	X	X	X		workshops, factsheets	X		

Communications plan

The project will also emphasize strong communications with a broader range of stakeholders. Key elements of the project's communication strategy are outlined in the table below:

Key element	Relevant group	Means
1. Project governance meetings; NPSC meetings; Advisory Committee and other meetings	All stakeholders that are members of the various committees	Meetings
2. Seminars/workshops and training events, including the Inception workshop, and End-of-project workshop	National and local-level government officials NGOs and CSOs, Academia	Workshop, meeting, seminar, training On-the-job training
3. Project documents, thematic reports and publications	Various government departments and decision-makers	Direct dissemination (e.g. email or hard copy) to persons. Access via the Project website

4. Technical reports	Various government department, development partners and NGOs	Direct dissemination (e.g. email or hard copy/ USB-drive); Access via the Project website to reports and documents and database and info systems
5. Project knowledge capturing and info dissemination	Government (national) officials Development partners and NGOs Citizenry and community groups	Online access to all project materials and other relevant information

Knowledge Products to be Published by the Project

SL	Title of Knowledge Products (Tentative)	Type of Publication	Tentative date of Publication	Dissemination
1.	Brochure on Project	Brochure (Bangla & English)	By Year 1	All Stakeholders
2.	Cyclone- and flood-resilient house design	Guideline &/or Manual	By year 4;	To GoB partners, NGOs, LGIs and researchers
3.	Nano-grid installation and community based management: Lessons Learned from Project	Book	By year 4;	To GoB partners, NGOs, LGIs and researchers
4.	Rainwater harvesting systems for safe drinking water and home-garden irrigation: : Lessons Learned from Project	Book	By year 4;	To GoB partners, NGOs, LGIs and researchers
5.	Solar Cold Storage: installation and community based management: Lessons Learned from Project	Book	By year 4;	To GoB partners, NGOs, LGIs and researchers
6.	Livelihood diversificaiton in Coastal and Inland Char Communities: Lessons Learned from Project	Book	By year 4;	To GoB partners, NGOs, LGIs and researchers
7.	Posters on Resilient house design	Poster	By year 3/4	To communities, LGIs, GoB partners, NGOs, and researchers
8.	Poster on Rainwater harvesting systems	Poster	By year 3/4	As above
9.	Poster on Climate Resilient Agriculture Practices	Poster	By year 3/4	As above
10.	Community Guideline for Management of Climate Resilient Infrastructures	Manual	By year 4;	As above

Annex 6: UNDP Risk Log

#	Description	Date Identified	Type	Impact & Probability	Counter measures / Mgt response	Owner	Submitted, updated by	Last Update	Status
1	Identifying climate-resilient livelihood options that are suitable to the condition of the vulnerable people.	Project formulation level	Programme Management	Moderate I=3 P=2	Success of the assignment will depend mostly on the identification of innovative livelihood options that will be suitable considering local, social, economic, ecological and climatic conditions and will be accepted by the local communities. Capacity of the vulnerable people will be carefully assessed and lessons from other projects will be reviewed and made available to the people to select from a range of options.	PMU	-	-	-
2	Uncertainty regarding the intensity of climatic events that may affect the project interventions, including housing and infrastructure.	Project formulation level	Strategic	Moderate I=3 P=2	The project will utilise all climate scenarios and invest in down-scaling them for the islands in the Bay of Bengal. The risk information will be used to design the interventions, especially for infrastructure and houses. Communities will be trained to switch their livelihoods depending on the	Project Steering Committee, Project Manager	-	-	-

#	Description	Date Identified	Type	Impact & Probability	Counter measures / Mgt response	Owner	Submitted, updated by	Last Update	Status
					changing climate. Local government and extension officials will also be trained.				
3	Current and predicted climate variability and/or extreme climate events negatively impact timeline of the project.	Project formulation level	Operational	Moderate I=3 P=2	• The project will integrate the two outputs focusing on hazard risk scenarios and early warning communication to enable strong preparedness planning. • Activities under relevant outputs will be implemented early in the project's lifespan so that the potential impacts of extreme climate events are minimised. A business continuity plan will be in place.	MOEFCC, NPSC, PMU			
4	Influence of government and local political leaders in selection of beneficiaries.	Project formulation level	Political	Moderate I=3 P=2	• In the project preparation phase, extensive consultation sessions have been conducted with government officials, including high-level officials of the ministries in Dhaka,	NPSC, PMU			

#	Description	Date Identified	Type	Impact & Probability	Counter measures / Mgt response	Owner	Submitted, updated by	Last Update	Status
					confirming their commitment to the successful implementation of the project. • Continuing stakeholder consultation and involvement will be undertaken to ensure that government agencies maintain their commitment to project implementation. Government will issue a guideline on selection criteria and a Grievance Redressal Mechanism will be established (see Annex Q).				
5	Capacity constraints of local communities and other stakeholders may limit the ability to undertake the implementation of proposed interventions.	Project formulation level	Institutional	Low I=2 P=2	• The proposed project focuses on a community-based and participatory approach. • Human resource capacity will be developed in all targeted areas. • Local adaptation measures will be specifically tailored to the communities	NPSC, PMU, TAC			

#	Description	Date Identified	Type	Impact & Probability	Counter measures / Mgt response	Owner	Submitted, updated by	Last Update	Status
					which will implement them.				
6	The beneficiaries of the proposed project are poor people in vulnerable communities who are often not integrated into decision-making processes. There is, therefore, a risk that certain community members may benefit more than others. This may result in both intra- and inter-community conflicts.	Project formulation level	Social/ Environmental	Low I=2 P=2	This risk will be mitigated through the beneficiary selection approach (Annex A), and the incorporation of community consultation for all interventions that do not achieve complete coverage of the target populations. Furthermore, both beneficiary and non-beneficiary communities will be sensitised towards the approach of prioritising the support from the proposed project to the most vulnerable communities. A grievance mechanism (see Annex Q) has also been developed to support any community members who feel they are experiencing discrimination.	PMU, TAC			
7	There is a risk that vulnerable and marginalised groups will be excluded during the implementation of project activities and have	Project formulation level	Environment / social	Low I=2 P=2	The proposed project has been designed to ensure that marginalised and vulnerable groups – especially women and people living with disabilities – will not be	PMU, TAC,			

#	Description	Date Identified	Type	Impact & Probability	Counter measures / Mgt response	Owner	Submitted, updated by	Last Update	Status
	insufficient access to the associated benefits.				adversely affected by, but will instead benefit from, relevant climate change adaptation activities. Community consultations have been incorporated for all activities that do not achieve complete coverage of the target population. This will allow for the identification of marginalised and vulnerable households.				
8	No activities are, or will be, included in the design of the proposed project that are not in line with established international human rights. Moreover, the proposed project will promote the fundamental human rights of access to food, water and information.	Project formulation level	Environment / social	I=2 P=2 Low	The project seeks to ensure that benefits of the project are shared broadly in a non-discriminatory, equitable manner through participatory processes and transparent selection criteria. Extensive stakeholder consultations were held during project preparation (Appendix A) and will be continued throughout project implementation.	PMU			

#	Description	Date Identified	Type	Impact & Probability	Counter measures / Mgt response	Owner	Submitted, updated by	Last Update	Status
9	The proposed project is targeting communities where men occupy the majority of the leadership positions. There is, therefore, a risk that women will not benefit equitably from the proposed project's climate change adaptation and capacity-building interventions.	Project formulation level	Social/ Environmental	I=2 P=2 Low	Gender equity and women's empowerment were considered across all relevant design aspects of the proposed project and gender equity will be adhered to throughout the implementation period. To this end, a gender assessment was conducted during the development of the proposal to ensure that gender considerations were fully considered during project design (see Annex O). In particular, equal rights, responsibilities, opportunities and access of women to the benefits of climate change adaptation have been considered. For example, project activities that target the most vulnerable community members (Activities 2.1.1. and 3.2.1.) are prioritised towards women-led households. For technical assessments, as well as capacity-	PMU, TAC			

#	Description	Date Identified	Type	Impact & Probability	Counter measures / Mgt response	Owner	Submitted, updated by	Last Update	Status
					building activities, women will be strongly encouraged to participate.				
10	Local communities will be involved in the implementation and maintenance of climate change adaptation interventions. Therefore, local community members may be exposed to the risk of accidents while implementing the proposed project's climate change adaptation interventions.	Project formulation level	Environment / social	I=3 P=2 Medium	During implementation, the National Project Steering Committee and Management Units will ensure respect for international and national labour laws and codes, for any work that may be carried out in relation to the project. This includes the eight International Labour Organisation Convention (ILO) core labour standards related to fundamental principles and rights of workers, as well as ILO Convention No. 169, which concerns rights of indigenous and tribal peoples. Prioritisation of women participation may be used to provide fair and equal opportunity for women to seek employment as labourers. All forms of negative discrimination in respect of	PMU, TAC			

#	Description	Date Identified	Type	Impact & Probability	Counter measures / Mgt response	Owner	Submitted, updated by	Last Update	Status
					employment and occupation will be eliminated. The proposed project will not engage in child labour in any of its activities. All forms of forced or compulsory labour will be eliminated.				
11	There is a low risk that houses have been constructed in areas that conflict with the infrastructure interventions under Component 2 (Specifically Output 2.1). This may result in temporary resettlement while infrastructure	Project formulation level	Environment / social	Low I=2 P=2	The project will ensure that in-depth consultations are conducted with any households that may be at risk of requiring resettlement. The possibility of involuntary resettlement has been considered for the repair of embankments and a resettlement policy has been prepared for this possibility (see Annex M). Any involuntary relocation or resettlement will only be conducted after extensive community consultation and negotiation with any affected households. Benefits including reimbursement for the cost of the house, further livelihood support and	NPSC, PMU, TAC			

#	Description	Date Identified	Type	Impact & Probability	Counter measures / Mgt response	Owner	Submitted, updated by	Last Update	Status
					provisioning of new land will all be included in any negotiated package. A grievance mechanism has also been developed (see Annex O) and will be in place to address any concerns of affected community members.				
12	On-the-ground adaptation interventions (specifically EbA) will include the planting of species for enrichment and/or restoration of ecosystems. This could lead to long-term alteration of natural habitats in terms of species assemblages and structure, which may result in various disturbances and negative environmental impacts. Adaptation interventions involving hard infrastructure will also be constructed – for example, the rehabilitation of damaged embankments (Activity 2.1.2.). Such	Project formulation level	Environment / social	Medium I=3 P=2	The promotion of EbA interventions through the proposed project is more likely to result in the restoration, improved management and protection of natural habitats, as well as the strengthened supply of ecosystem goods and services. To ensure that this principle is adhered to, the consultation with and inclusion of relevant stakeholders (community and authority level) during project design and implementation is prioritised. All necessary impact assessments will be conducted before the implementation of	PMU, TAC		-	-

#	Description	Date Identified	Type	Impact & Probability	Counter measures / Mgt response	Owner	Submitted, updated by	Last Update	Status
	interventions may result in the disturbance of small areas of natural habitat.				interventions. Furthermore, all national environmental laws will be respected during the selection and implementation of adaptation interventions.				
13	There is a low risk that adaptation interventions involving the construction of hard infrastructure – for example, the rehabilitation of damaged embankments (Activity 2.1.2.) could negatively impact biodiversity.	Project formulation level	Environment / social	Low I=2 P=2	The project will ensure the conservation and sustainable use of biological diversity factors are considered in the process of finalising adaptation interventions. Adaptation intervention sites (specifically under Activity 2.1.1.) will be selected using a participatory approach and input from an environmental expert to ensure that activities do not cause significant loss of biological diversity.	PMU, TAC, BWDB		-	-
14	Risks have been identified that are associated with the grey infrastructure interventions (Output	Project formulation level	Environment / social	Medium I=3 P=2	The project will ensure that all relevant environmental codes and standards will be followed during the	PMU, TAC		-	-

#	Description	Date Identified	Type	Impact & Probability	Counter measures / Mgt response	Owner	Submitted, updated by	Last Update	Status
	2.2.). These interventions include raising houses on plinths, repairing flood protection embankments and the construction of dual-purpose cluster house/storm shelters.				design and construction of the grey infrastructure interventions. To comply with both national legislation and the Environmental and Social Principles of the Adaptation Fund, it is recommended that a comprehensive ESIA is undertaken at selected sites and an EMP commensurate with the identified impacts is developed prior to the construction of any greyinfrastructure.				

Annex 7: Overview of Technical Consultancies/Subcontracts

Consultant	Time Input	Tasks, Inputs and Outputs
For Project Management / Monitoring & Evaluation		
Local / National contracting		
Project Technical Staff		
Project Manager (1 Position)	60 months / over 5 years Rate: USD 200,000/year	See the full TOR in annex for details.
Project Finance cum Admin Associate (1 Position)	60 months / over 5 years Rate: USD 88,500/year	See the full TOR in annex for details.
M&E Associate (1 Position)	60 months / over 5 years Rate: USD 90,000/year	See the full TOR in annex for details.
Admin Assistant (1 Position)	60 months / over 5 years Rate: USD 52,500/year	See the full TOR in annex for details.
Community Development Assistant (3 positions)	60 months / over 5 years Rate: USD 160,000/year	See the full TOR in annex for details.
Monitoring Expert Mid-Term Review and Terminal Evaluation (MTR)	60-50 days – year 2.5 & 5 Rate:250-300 USD/days	Monitoring officer for Mid-Term Review and Terminal Evaluation (UNDP standard TOR)
International/Regional and Global Contracting		
Monitoring expert for Mid-Term Review and Terminal Evaluation	50 days – year 3 & 4 Rate:650 USD/day	Monitoring expert for Mid-Term Review and Terminal Evaluation (UNDP standard TOR)
Component 1. Enhanced climate resilience of households through climate-resilient housing, electrification and climate-proof water provisioning		
Local / National contracting		
OP 1.1: Materials and Goods: Retrofitting of 900 vulnerable char houses	@ US$1,700 per unit; total USD 1,530,000;	• Detailed TOR TBD by PMU; for greater details see Annex B and Annex C (Chapter 3) for specification and design considerations; • Tasks of retrofitting = 1st year 360 nos; 2nd year target 270 nos; 3rd year target 270 nos = 900; Qualifications of Firm/Companies/NGOs: • A minimum of 10 years of experience in architectural design, mechanical, structural and civil engineering, construction management, innovative low-cost design structures. • The Firm/NGO shall have successfully completed at least 2 (two) similar contract of similar goods and related services of amount taka 25 lac in a single contract within last ten (10) years. • The minimum amount of liquid asset or working capital or credit facility is Taka 25-50 lac

Consultant	Time Input	Tasks, Inputs and Outputs
OP1.1: National consultants or technical specialists to conduct training workshops on cyclone and flood resilient housing design	44 days @ 250 USD/day total: USD11,000 UNDP 1st year at 10 training workshops to local construction workers;	• Detailed TOR TBD by PMU; • Prepare simple, pictorial training materials, such as user guides and handbooks on structural design • Conduct 10 training workshops at local communities on identified structural interventions Qualifications • Master's degree or above in architecture, civil engineering related discipline • Proven experience in disaster resilient designs, specifically related to the impacts of climatic phenomenon in coastal and char areas • Experience working with communities at local level • Excellent verbal and written skills
OP 1.2: Contractual Services-Companies for - 30 Solar Units + installation	@ US$4,927 per unit = USD 147,828;	• Detailed design of nano-grid is given in Annex – C Chapter - 4; Detailed TOR TBD by PMU • Identify a group of 10 nos suitable households for installing the community-based nano-grid facility • Provide detail design, as per specifications provided, cost estimates along with the operation and maintenance of the interventions • Provide training to hh group for basic operation and maintenance • Install nano-grid: 1st year 10 nos; 2nd year target 10 nos; 3rd year target 10 nos = total 30 nos; Qualifications for Firm/Companies/NGOs: • A minimum of 10 years of experience in renewable energy, specifically solar electricity, construction management, innovative low-cost design structures. • The firm/company/NGO shall have a minimum of 7 years of overall experience in the supply and installation of related services. • The firm/company/NGO shall have successfully completed at least 2 (two) number contracts of similar goods and related services of amount taka 25 lac in a single contract within last 5 (five) years • The minimum amount of liquid asset or working capital or credit facility is Taka 50 lac
OP 1.2: - National consultants to conduct assessment of electricity needs	44 days @ US$250 per day (TS) = 11,000; UNDP	• Detailed TOR TBD by PMU • Identify 30 groups of 10-15 nos suitable households/group for installing the community-based nano-grid facility for household purpose and irrigation purpose, closer the specification • Assess suitability of potential sites based on basic technical and environmental factors e.g. possibility of river erosion, vulnerability to cyclone and flood

Consultant	Time Input	Tasks, Inputs and Outputs
		• Discuss with groups of hhs for affordability and willingness to pay as community groups for maintenance of nano-grid • Provide site location (including GIS mapping) and design, cost estimates along with necessary specification for about 30 nos solar nano-grid covering 10-15 cluster houses/grid Qualification: • Experience in renewable energy and/or distribution projects is required. • The consultant should ideally have university degree at least at the Masters level in an appropriate field (e.g., electrical engineering, renewable energy) • at least ten years successful, senior level experience. • Solid expertise and extensive (five plus years) experience with stand-alone renewable energy generation using solar photovoltaics/biomass gasification technology/hybrids is required. • Solid expertise and extensive experience on rural electrification (grid and mini-grid projects) is required. • Relevant experience with the design, successful implementation, and operation and maintenance of low-cost electrification projects • Experience and expertise in preparation of bid specifications, bills of goods, and project cost estimates for rural electrification schemes is require
OP 1.2: - National consultants or specialists to train community maintenance groups on maintaining solar units	44 days @ US$250 per day; UNDP = 11,000; UNDP	• Detailed TOR TBD by PMU • Training to be carried out in 10 workshops for community members • 1st year before and/or during the installation begins through training workshops; • Prepare training materials, such as user guides and handbooks on adaptation • Provide training to community maintenance groups on basic operations, maintenance and safety features Qualifications • Master's degree in electrical engineering or related discipline • Proven experience in conducting training • Experience working with national, district, and local government partners • Excellent verbal and written English skills
OP 1.3:- Firms / NGOs to install rainwater harvesting units	Companies: 500 rainwater harvesting units + installation @ US$510 per unit = 255,000; UNDP	• Detailed design of rainwater harvesting units is given in Annex – C Chapter 5; • Detailed TOR TBD by PMU • 1st year 162 nos; 2nd year target 169 nos; 3rd year target 169 nos = 500 nos;

Consultant	Time Input	Tasks, Inputs and Outputs
OP 1.3: - National consultant for assessment of water demand	-44 days @ US$250 per day (TS) = 11,000; UNDP	• Detailed TOR TBD by PMU • Assess water demand of targeted community households • Develop specification for rainwater harvesting units of the targeted community households (500 nos units) • Identify targeted households (500 nos) along with GIS maps / address / site location and design specification of 500 nos untis • Discuss with targeted hhs for operation and maintenance Qualifications: • Master degree in: Water resource engineering, civil engineering, geology, hydrology, sanitation engineering, or a field relevant. • Additional training in Water, Sanitation and Hygiene and Emergencies is considered an asset. • Minimum five years experiences in water demand assessment, community-based water supply and sanitation. • Rainwater harvesting system construction and sanitation • Experience in rainwater harvesting and community mobilization. • Experience working in the water sector in Coastal or in land char area is an advantage.
OP 1.3: - National consultants to conduct training workshops	44 days @ US$250 per day: undp	• Detailed TOR TBD by PMU • Conduct training through 10 nos workshops for targeted beneficiary hh members • 1st year before and/or during the installation begins through training workshops; • Prepare training materials, such as user guides or handbooks • Conduct training for targeted households on rainwater harvesting system management Qualifications: • Master's degree in: Water resource engineering, civil engineering, geology, hydrology, sanitation engineering, or a field relevant. • Additional training in Water, Sanitation and Hygiene and Emergencies is considered an asset. • Minimum five years experiences in water demand assessment, community-based water supply and sanitation. • Rainwater harvesting system construction and sanitation • Experience in rainwater harvesting and community mobilization. • Experience working in the water sector in Coastal or in land char area is an advantage.
Component 2: Increased climate resilience of communities through infrastructure that is resilient to cyclones and floods, climate risk mapping and inclusive cyclone preparedness		
Local / National contracting		

Consultant	Time Input	Tasks, Inputs and Outputs
OP 2.1:- Contractual Services-Companies: - Cluster house construction materials + labour	@ US$40,000 per unit = usd 800,000; moefcc	• Detailed design of cluster house is given in Annex – C, Chapter 6; • Detailed TOR TBD by PMU • Cluster house construction targets - 1st year 5 nos; 2nd year target 7 nos; 3rd year target 8 nos = 20 nos; Qualifications of Firm/Companies/NGOs: • A minimum of 10 years of experience in architectural design, mechanical, structural and civil engineering, construction management, innovative low-cost design structures. • The Firm/NGO shall have successfully completed at least 2 (two) similar contract of similar goods and related services of amount taka 25 lac in a single contract within last ten (10) years. • The minimum amount of liquid asset or working capital or credit facility is Taka 25-50 lac
OP 2.1: Local Consultant; Engineer to provide support / assessments for location and construction of cluster houses	33 days @ US$250 per day = USD 8250; undp	• Detailed TOR TBD by PMU • 1st year before the construction starts in consultation with communities • Consultation with communities and identification of 20 nos sties for construction of cluster houses (see design specification in Annex – B and Chapter – 3 of Annex - C) • Assess suitability of potential sites based on basic technical and environmental factors e.g. possibility of river erosion, vulnerability to cyclone, flood, wind, storm surge level etc • Discuss with local government entities especially for government land to build cluster houses • Consult with vulnerable household groups willingness to move • Provide site location (including GIS mapping) and design, cost estimates along with necessary specification for about 20 nos cluster houses Qualifications • Master's degree in civil engineering, environmental engineering, or a field relevant. • Additional training in climate change, environmentally friendly designs is considered an asset. • Minimum five years experiences in community-based infrastructure management. • Experience in climate change impact assessment and community mobilization. • Experience working in the housing sector in Coastal or in land char area is an advantage.
OP 2.2: Contractual Services-Companies - Embankment repair	@ US$30,000 per km = USD 375,000; MOEFCC	• Further information on technical details on the embankment repair are provided in Annex C – Chapter 7) • Detailed TOR TBD by MOEFCC/PMU/WDB • Task - 1st year 3 km; 2nd year target 5 km; 3rd year target 4.5 = 12.5 km;

Consultant	Time Input	Tasks, Inputs and Outputs
OP 2.2:- Contractual Services-Companies: - Embankment strengthening through EbA	@ US$14,400 per km = USD 208,800; MOEFCC	• (further information on technical details on the embankment repair are provided in Annex C – Chapter 7) • Detailed TOR TBD by MOEFCC/PMU/WDB • Task - 1st year 3.5 km; 2nd year target 6 km; 3rd year target 5 = 14.5 km;
Op 2.2: Local Consultant - - National consultant to train communities on community management of embankments	22 days @ US$250 per day (TS) = usd 5,500; undp;	• Detailed TOR TBD by PMU • Conduct training = 1st year 5 days; 2nd year target 9 days; 3rd year target 8 days = 22 days; • Prepare training materials, such as user guides and handbooks on embankment structure and management • Conduct training in local communities on embankment management techniques Qualifications • Master's degree in civil engineering, environmental engineering, or a field relevant. • Additional training in climate change, environmentally friendly designs is considered an asset. • Minimum five years experiences in community-based infrastructure management. • Experience in climate change impact assessment and community mobilization. • Experience working in the housing sector in Coastal or in land char area is an advantage.
OP 2.2: Local Consultant; - National consultant or specialist to assess and develop livelihoods to be connected to embankment management and conduct trainings	22 days @ US$250 per day (permanent staff employed under output 3.1) = USD 5,500; UNDP	• See Climate Change Livelihood Specialist TOR in Annex – J; detailed TOR to be developed by PMU • During first year of the construction
OP 2.2: Contractual Services-Companies: Environmental management plan and environmental monitoring	USD 37,500; within 3 years of the construction	• Detailed TOR TBD by MOEFCC/PMU Qualifications of Firm/Companies/NGOs: • A minimum of 10 years of experience in environmental management, environmental impact assessment, development of environmental management plan and monitoring. • The Firm/NGO shall have successfully completed at least 2 (two) similar contract of similar goods and related services within last five (5) years.
OP 2.3: Contractual Services-Companies - Contract company to develop/produce hazard maps for vulnerable char islands	8 chars @ US$2000 per char = USD 16,000; MOEFCC	• Detailed TOR TBD by PMU • During first (6 nos) and 2nd year (2 nos) of the construction

Consultant	Time Input	Tasks, Inputs and Outputs
OP 2.4: Materials and Goods - CPP Equipment	7 packs @ US$55,000 per pack = USD 385,000; UNDP	• Detailed TOR TBD by PMU • Specification of CCP equipment packs is given in Annex - • Can be procured throughout the project lifetime (i.e, 2,2,1,1,1 pack) or all 7 packs at a time;
OP 2.4: Local Consultant- National consultant or CPP representative to conduct training workshops	64 days @ US$250 per day = USD 16,000	• Detailed TOR TBD by PMU • Speciation of CCP equipment packs is given in Annex – D. • Training for CPP members during 64 nos one-day workshop • Prepare training materials, such as user guides and handbooks on CPP programs • Conduct training in local communities on CPP activities Qualifications • Master's degree in environmental science, disaster management, or related discipline • Proven experience in CPP programme • Experience in training
OP 2.4: Materials and Goods: - Cost to procure and equip mobile ambulances	: 8 ambulances @ US$26,522 per ambulance = USD 212,176	• Detailed TOR TBD by PMU • Design specification is given in Annex- C, Chapter 10 • Procured throughout the project life time, however earlier the better.
<u>Component 3:</u> Improved income and food security of communities by innovating and providing assistance to selected households for climate-resilient livelihoods practices.		
Local / National contracting		
OP 3.1: Contractual Services-Individual: - Establish and maintain demonstration plots	4 demonstration plots @ US$3,571 per plot = usd 28,568;	• Detailed TOR TBD by PMU • Tasks = 1st year 4 plots, rest year 1 plot each. • Establish demonstration plots on (but not limited to) – hydroponics, fish farm, vertical gardens, climate resilient cultivars, and climate resilient adaptation techniques Qualifications • Master's degree in agriculture, agricultural extension • At least 5 years of experience and expertise in facilitating sustainable agriculture / livelihood; • Prior experience in formation/facilitation/ training of farmer field schools • Experience of working in coastal and floodplain regions;
OP 3.1: Local Consultant -	- Farmer field schools: 65 workshops @ US$2,500 per workshop = usd 162,500; Per year 13 workshops need to be organized.	• Detailed TOR TBD by PMU • Organize workshop in close coordination of project officials, DAE • Identify successful farmers in the locality • Facilitate experiential learning i.e., sharing and discussion among members • Facilitate learning by doing, group trials and experimentation through use of demonstration plots

Consultant	Time Input	Tasks, Inputs and Outputs
		• Use successful farmers as facilitators • Develop a system of regular meetings of the group members, discussing their problems, and trying to develop solutions together Qualifications • Master's degree in agriculture • At least 5 years of experience and expertise in facilitating sustainable agriculture / livelihood; • Prior experience in formation/facilitation/ training of farmer field schools • Experience of working in coastal and floodplain regions;
OP 3.1: Contractual Services-Companies: - solar cold storage facilities + installation	4 facilities @ US$50,000 per unit = usd 200,000; 2nd and 3rd year of the project	• Detailed TOR TBD by PMU • Specification of CCP equipment packs is given in Annex – C, Chapter 8 Qualifications of Firm/Companies/NGOs: • A minimum of 10 years of experience in renewable energy, installation of solar equipment's, solar powered pump installations. • The Firm/NGO shall have successfully completed at least 2 (two) similar contract of similar goods and related services of amount taka 25 lac in a single contract within last ten (10) years. • The minimum amount of liquid asset or working capital or credit facility is Taka 25-50 lac
OP 3.1: Contractual Services-Companies: - Solar powered pump and associated equipment (e.g. piping, drip irrigation systems)	6 units @ US$85,500 per unit = usd 513,000; 2nd and 3rd year of the project	• Detailed TOR TBD by PMU/MOEFCC • Specification is given in Annex – C, Chapter 9 Qualifications of Firm/Companies/NGOs: • A minimum of 10 years of experience in renewable energy, installation of solar equipment's, solar powered pump installations. • The Firm/NGO shall have successfully completed at least 2 (two) similar contract of similar goods and related services of amount taka 25 lac in a single contract within last ten (10) years. • The minimum amount of liquid asset or working capital or credit facility is Taka 25-50 lac
OP 3.1: Local Consultant: - National consultants to assess water needs for irrigation in Lakshmitari	44 days @ US$250 per day (TS) = usd 11,000; During 1st year of the project	• Detailed TOR TBD by PMU • Assess irrigation needs in targeted project site upon consultation with communities • Identify six (6) sites for project intervention along with detailed maps • Develop specification for solar powered irrigation pumps and associated equipment's and systems (e.g. piping, drip irrigation systems) • Develop bid specifications, bills of goods, and project cost estimates Qualifications:

Consultant	Time Input	Tasks, Inputs and Outputs
		• Master's degree in: Agriculture, water resource engineering, hydrology, or a field relevant. • Additional training in Water irrigation is considered an asset. • Minimum five years experiences in water demand assessment, community-based water supply and irrigation. • Experience working in the water sector in Coastal or in land char area is an advantage • Experience and expertise in preparation of bid specifications, bills of goods, and project cost estimates
OP 3.1: Local Consultant- National consultants or specialists to conduct training workshops for cold storage units	44 days @ US$250 per day (TS) = USD 11,000; undp	• Detailed TOR TBD by PMU • 2nd and 3rd year of the project • Prepare training materials, such as user guides and handbooks on cold storage • Provide training on operation of cold storage; handling of commodities and combination of commodities, storage requirement of different commodities; mechanism and system of air conditioning Qualifications • Minimum Diploma degree on electrical engineering, training on air conditioning, cold storage, solar cold storage • Experience working with national, district, and local government partners
OP 3.2: Materials and Goods- Financial assistance to provide inputs for alternative livelihoods 6500 beneficiaries	@ US$450 per beneficiary = total USD 2,275,000; MOEFCC; All year round from beginning to end; yearly beneficiary target is rough above 1000 per year;	• Detailed TOR TBD by PMU Qualification of Firm/ NGO: • A minimum of 10 years of experience in livelihood improvements of communities living in coastal island and inland char land • Have existing set up in targeted project sites • Experience in livelihood assessment, vulnerability assessment of communities • Experience in livelihood diversification, • The Firm/NGO shall have successfully completed at least 4 (two) similar contract of similar services within last ten (10) years.
OP 3.2: Contractual Services- Individual: - 2 permanently employed national consultants or livelihood specialists to conduct needs assessment, develop alternative livelihoods as well as support and capacitate implementing NGO	2 consultants for 120 months (5 years) @ US$1500 per month/consultant = usd 180,000	• Tentative TOR is given in Annex – J (Livelihood specialist); • Detailed TOB to be developed by PMU

Consultant	Time Input	Tasks, Inputs and Outputs
Component 4. Enhanced knowledge and capacity of communities, government and policymakers to promote climate resilient development on chars.		
Local / National contracting		
OP 4.2: Contractual Services-Companies: Materials and construction of innovation centres	4 centres @ US$45,000 per centre = USD 180,000;	• Detailed TOR TBD by MOEFCC/PMU Qualifications of Firm/Companies/NGOs: • A minimum of 10 years of experience in architectural design, mechanical, structural and civil engineering, construction management, innovative low-cost design structures. • The Firm/NGO shall have successfully completed at least 2 (two) similar contract of similar goods and related services of amount taka 25 lac in a single contract within last ten (10) years. • The minimum amount of liquid asset or working capital or credit facility is Taka 25-50 lac
OP 4.2: Contractual Services-Individual: Knowledge management and communication consultant	2 consultants for 54 month @ US$1200 per month = $129,600; Time input = 1st Year 10 days, 2nd, 3rd, 4th year 25 days, and 5th year 23 days in total for 2 consultants.	• Detailed TOR TBD by PMU • Provide professional knowledge management and communication support for the project, in line with UNDP communication strategy using a broad range of media, including video, web pages, and social media; • Providing research support on a broad range of climate change adaptation and climate resilient infrastructure and other related issues, • Supporting the development of policy/advocacy papers, studies, reports, briefing notes as requested by the project; • Recommendations on the design, and planning and the on-going development of project communication materials for the dissemination of programme information, best practices, lessons learned for sharing with target audiences • Design and develop the story line for project fact sheets and stories from the field and case studies as assigned; • Develop video story lines, conduct video interviews and provide video interview segments with English and Bangla sub-titles; • Develop contents for publication of project fact sheets and case studies in form of ready-for-printing materials, and webpage • Produce content for project website, including news and updates, events, story writing, video segment preparation, etc.; • Supports social media initiatives; Qualification: • Postgraduate degree in Communication, Environmental Science or Management, Climate Change, Development Studies or other related fields

Consultant	Time Input	Tasks, Inputs and Outputs
		• At least 5 years of professional experience in the fields of rural development and/or environment and climate change adaptation with a specific emphasis on either climate change adaptation and rural development planning • Previous experience and understanding of development and climate change issues; • Experience working with different stakeholders. • Strong analytical and writing skills and track record in producing relevant reports and other communications and knowledge material. • Excellent communication skills both written and oral.
OP 4.2: Contractual Services-Individual: 1 Community facilitator to each manage innovation centres	4 local consultants for 4 years @ US$300 per month: USD 57,600: UNDP	• Detailed TOR TBD by PMU • Collect local best practices and adaptation innovations and disseminate knowledge across each target area. • Facilitate hosting the farmer field schools established under Activity 3.3.1 and promote community-based leering • Raise awareness and facilitate critical analysis of community issues related to climate change adaptation, best practices and opportunities. • Promote innovation in climate-resilient agriculture, household-level food production and other adaptation measures. • The centres will also communicate national best practices to community members in the target areas. • Support the establishment of outreach mechanisms including: i) group learning; ii) radio programmes; iii) project websites; iv) brochures; v) public events; vi) social media; vii) new paper; • Actively participate in feedback, reflection and learning activities • Establish community-based management of innovation center **Qualifications** • Bachelors' degree or equivalent in Social Works, Agric and Rural Development, Sociology or related field • Demonstrate ability to work and mobilize communities to implement development project • Ability to work with minimum supervision • Have good interpersonal and Organization skills • At least 3 years' experience as community development agent • Training on climate change, adaptation, climate resilient livelihood is an added advantage • Demonstrated ability to successfully conduct research and manage projects in remote rural location with minimum supervision

Consultant	Time Input	Tasks, Inputs and Outputs
OP 4.2: Contractual Services-Individual: National consultant to develop an advocacy strategy based on the lessons from project	80 days @ US$250 per day (TS) = usd 20,000; Budgetary allocation is for 5 years as follows for 1 consultant: 1st Year 8 days, 2nd, 3rd, 4th, and 5th year 18 days for each year.	• Detailed TOR TBD by PMU • Assist the PMU in knowledge management, communications and advocacy work on targeted results to be achieved • Plan and design data / information collection for best practices and lesson (to be) learned by implementation of project key activities for communications and outreach focused on impact and results on adaptation and/or resilience, transparency, stakeholder engagement; • Plan / formulate to highlight project's different key adaptation activities to relevant audiences and mobilize partners, stakeholders, and the beneficiaries to advocate on results achieved through the portfolios • Design and create an advocacy campaign on climate change adaptation; • Periodic (yearly) review of collected data, information, success stories, lesson learned by project staff, partners, NGOs, community members etc. • Periodically draft, summarize and edit succinct advocacy pieces of varying length for different internal and external audiences in close cooperation with UNDP project manager; • Compile / prepare advocacy strategy for scaling up the project **Qualifications** • Hold at least Bachelor's degree in Communication Studies, Communication for Development Results, Advocacy or related discipline • Demonstrate at least 5 years of relevant professional experience • Demonstrate ability to work with multiple stakeholders in developing strategies. • experience working in the development sector on multi-sectoral issues related to climate change adaptation

Annex 8: Terms of Reference

These terms of reference will be finalized during the Project Inception Workshop.

Terms of Reference for the Project Steering Committee (PSC)
The Project Steering Committee (PSC) will serve as the project's decision-making body. It will meet according to necessity, at least twice each year, to review project progress, approve project work plans and approve major project deliverables. The NPSC is responsible for providing the strategic guidance and oversight to project implementation to ensure that it meets the requirements of the approved Project Document and achieves the stated outcomes. The NPSC's role will include:

- Provide strategic guidance to project implementation;
- Ensure coordination between various donor funded and government funded projects and programmes;
- Ensure coordination with various government agencies and their participation in project activities;
- Approve annual project work plans and budgets, at the proposal of the Project Manager;
- Approve any major changes in project plans or programmes;
- Oversee monitoring, evaluation and reporting in line with AF/UNDP/BGD requirements;
- Ensure commitment of human resources to support project implementation, arbitrating any issues within the project;
- Negotiate solutions between the project and any parties beyond the scope of the project;
- Ensure that UNDP Social and Environmental Safeguards Policy is applied throughout project implementation; and, address related grievances as necessary.

Project Implementation Committee (PIC):

A Project Implementation Committee (PIC) will be formed to guide and enhance performances and functional during the implementation period. The PIC will be headed by the DG, DoE.

The Project Implementation Committee formation will be as follows:

TOR of the committee is as follows: -

a. Provide guidance and direction to the PMU for proper implementation of the project
b. Review the implementation and financial progress of the project
c. Monitoring and evaluation of financial and physical progress of the project as per work plan
d. The PIC will sit at least quarterly.
e. In case of important events, the committee may visit the field to assist successful implementation of the project.

Terms of Reference for the Technical Advisory Committee (TAC)
The TAC will provide technical advice and inputs relating to project implementation and will be chaired by the PD with support from the PM. The members of the TAC will consist of representatives from Government Ministry, UNDP, other relevant government agencies, research and educational organizations, NGOs, technical experts and other relevant stakeholders to be agreed by the PSC. Technical experts may be invited in to discuss specific issues. Indicative Terms of Reference are as follows. TOR may be extended as necessary.

- Review planned activities and ensure that they are technically sound and that, wherever possible, there is integration and synergy between the various project components during planning and implementation;
- Promote technical coordination between institutions, where such coordination is necessary and where opportunities for synergy and sharing of lessons exist;
- Provide technical advice, guidance and recommendations on technical issues concerning specification, designs, construction, management of all climate resilient infrastructures or technologies or services to be established by the project;
- Provide technical advice, guidance and recommendations on any changes or modification concerning specification, designs, construction, management of all climate resilient infrastructures or technologies or services to be established by the project;
- Assign relevant members for Sub-committee(s) and evaluate technical proposals of NGOs/ Firms of all climate resilient infrastructures or technologies or services to be established by the project;
- Review deliverables provided by the NGOs/ Firms of all climate resilient infrastructures or technologies or services and provide recommendation to PD
- Share information on project progress and lessons learned with related stakeholders at the national level;
- The TAC or a subset of its members may be requested to undertake specific project-related tasks, such as preparing or reviewing analytical reports, strategies and action plans, etc.;
- Other tasks as indicated by the PSC

Terms of Reference for National Project Director

Background

The National Project Director (NPD) is not below the rank of Director of Department of Enviornment, who will be accountable to the MoEFCC and UNDP for the achievement of objectives and results in the assigned Project. The NPD will be part of the National Project Steering Committee and answer to it. The NPD will be financed through national government funds (co-financing), whose appointment will be recommended by the Director General of Department of Environment and approved by Secreatry, MOEFCC.

Duties and Responsibilities

- Serve as as a Member Secretary of the NPSC.
- Supervise compliance with objectives, activities, results, and all fundamental aspects of project execution as specified in the project document.
- Supervise compliance of project implementation with Government policies, procedures and ensure consistency with national plans and strategies.
- Facilitate coordination with other organizations and institutions that will conduct related activities.
- Participate in project evaluation, testing, and monitoring missions.
- Coordinate with national governmental representatives on legal and financial aspects of project activities.
- Coordinate and supervise government staff inputs to project implementation.
- Coordinate, oversee and report on government cofinancing inputs to project implementation.

Terms of Reference for Key Project Technical Staffs

1. Project Manager

Background

The Project Manager (PM), will be locally recruited,appointed by following UNDP procedure and funded entirely from the Project. The PM will be responsible for the overall day to day management of the Project, including the mobilisation of all project inputs, supervision over project staff, consultants and sub-contractors. The PM will report to the NPD in close consultation with the assigned UNDP Programme Specialist/ Deputy Resident Representative for all of the Project's substantive and administrative issues. Generally, the PM will support the NPD who will be responsible for meeting government obligations under the Project, under the NIM execution modality. The PM will perform a liaison role with the government, UNDP and other UN agencies, CSOs and project partners, and maintain close collaboration.

Duties and Responsibilities

- Plan the activities of the project and monitor progress against the approved work-plan.
- Supervise and coordinate the production of project outputs, as per the project document in a timely and high quality fashion.
- Coordinate all project inputs and ensure that they are adhere to UNDP procedures for nationally executed projects.
- Supervise and coordinate the work of all project staff, consultants and sub-contractors ensuring timing and quality of outputs.
- Coordinate the recruitment and selection of project personnel, consultants and sub-contracts, including drafting terms of reference and work specifications and overseeing all contractors' work.
- Manage requests for the provision of financial resources by UNDP, through advance of funds, direct payments, or reimbursement using the UNDP provided format.
- Prepare, revise and submit project work and financial plans, as required by NPSC and UNDP.
- Monitor financial resources and accounting to ensure accuracy and reliability of financial reports, submitted on a quarterly basis.
- Manage and monitor the project risks initially identified and submit new risks to the NPSC for consideration and decision on possible actions if required; update the status of these risks by maintaining the project risks log.
- Liaise with UNDP, NPSC, relevant government agencies, and all project partners, including CSOs and communities for effective coordination of all project activities.
- Facilitate administrative support to subcontractors and training activities supported by the Project.
- Oversee and ensure timely submission of the Inception Report, Project Implementation Report, Technical reports, quarterly reports, and other reports as may be required by UNDP, AF and GOB.
- Disseminate project reports and respond to queries from concerned stakeholders.
- Report progress of project to the steering committees, and ensure the fulfilment of NPSC directives.
- Oversee the exchange and sharing of experiences and lessons learned nationally and internationally.
- Assist community groups, municipalities, CSOs, staff, students and others with development of essential skills through training workshops and on the job training thereby increasing their institutional capabilities.
- Encourage staff, partners and consultants such that strategic, intentional and demonstrable efforts are made to actively include women in the project, including activity design and planning, budgeting, staff and consultant hiring, subcontracting, purchasing, formal community governance and advocacy, outreach to social organizations, training, participation in meetings; and access to program benefits.

- Assists and advises the Project Implementation Units responsible for activity implementation in the target sites.
- Carry regular, announced and unannounced inspections of all sites and the activities of the Project Implementation Units.

Required skills and expertise

- A university degree (MSc, MBA or PhD) in a subject related to climate change adaptation, natural resource management, Agriculture or environmental sciences, Business Management.
- At least 10 years of experience in natural resource management (preferably in the context of wildlife conservation and law enforcement).
- At least 5 years of demonstrable project/programme management experience.
- At least 5 years of experience working with ministries, national or provincial institutions that are concerned with natural resource and/or environmental management.

Competencies

- Strong leadership, managerial and coordination skills, with a demonstrated ability to effectively coordinate the implementation of large multi-stakeholder lalprojects, 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 Indonesian protected area system, biodiversity conservation and law enforcement at national and subnational levels.
- Excellent command of English and local languages.

2. Project Finance and Admin Associate

Under the guidance and supervision of the Project Manager, the Project Finance and Admin Associate will have the following specific responsibilities:

- Preparation of periodic accounting records, financial requests and expenditure statements;
- Oversee all day to day administrative, budgetary and financial management of the project;
- Maintain complete set of books of account according to the principle of accounting and update it on daily basis;
- Provide support to prepare annual and quarterly work plans and budgets in consultation with Project Manager;
- Assess the budget heads and ensure its expenditure is as per the approved annual/quarterly work plans; Maintain expenditure statement and support in budget processes;
- Provide assistance to prepare periodic accounting records, maintain delivery records, make program transactions in UNDP format, prepare draft budget revisions, shadow budgets, cost sharing and other financial and accounting reports;
- Review all payments/claims of staff and other service providers and ensure on time settlement of claims as per UNDP rules;

- Assist Project Management in settlements of DSA and other claims of staff and other service providers as per UNDP rules
- Prepare financial advance requests to be submitted to Donors/UN agencies on quarterly basis and maintain bank reconciliation, financial transaction and certification of expenditure reports;
- Follow up on the activities and monitor advance balances of resource disbursed, verify availability of funds for project activities and recommend for changes in budget line if needed. Draft budget for budget revision;
- Review financial statements, expenditure as stated in the financial reports of partner organization
- Monitor fund disbursement and adjustment of partner organization
- Verify Combine Delivery Report (CDR) for Certification;
- Ensure all Atlas related transaction i.e. budget analysis, upload budget, monitor project budget, and enter necessary GLJE in Atlas etc.
- Supervise the Finance Assistant work in preparing vouchers and process payments for all the financial transaction and process payment request including to UNDP country office.
- Prepare quarterly Fund Authorization and Certification of Expenditures (FACE) and ensure timely submission to UNDP
- Assist the Project Team for preparation of monthly, quarterly and annual progress reports to UNDP
- Act as a Project focal Point and support to prepare monthly Project Financial Reporting to Government, IMED, ADP, iBAS++ etc. report for the project and ensure timely submission to the Government
- Assist in setting up internal control system and financial data as per GoB and UNDP guidelines
- Undertake project financial closure formalities including submission of terminal reports, transfer and disposal of equipment, processing of semi-final and final revisions, and support professional staff in preparing the terminal assessment reports
- Management of cash receipts and petty cash.
- Assist Project Management in day to day administrative support for smooth operation of the project;
- Maintain inventory of program assets and provide logistic support to workshop/seminar and other program activities
- Ensure the proper maintenance of the record keeping and filing system related to administration, logistics, equipment and vehicles of the project;
- Supervise and maintain equipment, vehicles and assets of the Project for security and proper functioning; if required assist transfer of title of assets on behalf of UNDP.
- Ensure that proper inventory of all components of vehicles are maintained and checked frequently;
- Ensure full compliance of UN rules and regulations, policies and strategies on travel management and ensure that vehicles are used in accordance with UN rules and regulations and that vehicle usage date is correctly recorded;
- Assist staff evaluation, contract extension, recruitment & other HR related issues.
- Maintenance of proper filing system for HR records and documents.
- Assist Project Management in contract management
- Drafting of Letter of Agreements, Memorandum of Understandings, Cost-sharing agreements, Contracts with National Executing Agencies s, and other such documents as per UNDP's rules, regulations, and formats in close coordination with project administration and finance associate;
- Oversee the management of various contracts with National Executing Agencies —government entities, NGOs, UN agencies, etc.
- Ensure the compliance of all the provisions of guidelines regarding personnel management, sub contract and financial management;

The Project Admin and Finance Associate will be recruited based on the following qualifications:

MBA/Master's degree in accounting/finance and technical expertise in financial management/accounting. The candidate should possess the following qualification to compete for the announced position:

- Minimum 5 years relevant experience in Administration and Financial management in development projects. Experience of working with international/donor agency is an asset.
- Understanding of budgeting, accounting and bookkeeping, particularly under NEX procedures.
- Experience of using financial software programme.
- Knowledge on Tax & VAT is desired.
- Experience of UN/UNDP funded project will be preferable.
- Fluency in written and spoken English; and
- Experience in handling of Atlas or web-based enterprise resource management systems.
- Independent auditing skills.

3. Monitoring and Evaluation Associate:

Under the direct supervision of UNDP and the Project Manager, the incumbent is responsible to develop and implement a monitoring system to capture the project activities, results and outcomes under the supervision of Project Manager. S/he will be responsible specifically for

- Developing and setting up the overall framework for project monitoring and evaluation (M&E)
- Prepare the monthly, quarterly and annual monitoring plan for project activities
- Monitor and evaluate the compliance of actual progress and performance against the planned work plan and expected quality,
- Analysis of the effect of current actual performance to the project timetable and budgets,
- Prepare reports for project management including identification of problems, causes of potential bottlenecks (if any) in project implementations,
- Recommendations on how to reduce the impact of deviations vs. work plans,
- Prepare the ToRs for mid-term and final evaluation in accordance to UNDP and AF guidelines,
- Design and implement a system to identify, analyze, and disseminate lesson learned,
- Assist the PM in preparation of various progress report, Annual Report,
- Coordinate with the international and national consultants and other stakeholders,
- Facilitate exchange of experiences by supporting and coordinating participation in any existing network of UNDP sharing common characteristics,
- Identify and participate in additional networks, for example scientific or policy-based networks that may also yield lessons that can benefit project implementation
- Assist the PM in reviewing and updating Project Quarterly Risk, Issue logs
- Monitor local and international press coverage and monitor effectiveness of the communications strategy. Provide feedback to inform ongoing public relations activities and future programmes;
- Travel to the field to get to know projects and capture success stories for dissemination through website, outreach folders and to media;
- Share Project's progress through social media page like face book, twitter etc. under guidance of UNDP Communication;
- Produce reports highlighting program developments, achievements and success stories under guidance of UNDP Communication;
- Maintain a picture data-base.
- Any other related activities as assigned by Project Manager.

The Project Monitoring and Evaluation Associate will be recruited based on the following qualifications:

Master's degree in natural resources management/environment/environmental engineering / economics/ statistics. The candidate should possess the following qualification to compete for the announced position:

- Minimum 5 years relevant experience in monitoring in development projects.
- Experience of working with international/donor agency is an asset.
- Understanding of climate change and variability, resilience, adaptation and climate change impacts.
- Experience of using statistical software programme.
- Experience of UN/UNDP funded project will be preferable.
- Language Requirements: Proficient in English and Bengali languages, spoken and written.

4. Administrative Assistant

S/he will be responsible specifically for:

- Establish administrative systems and procedures consistent with the government's and UN's existing guidelines for PMU staff, consultants and subcontractors;
- Develop and implement a proper archiving system for all programme and administration related files, reports and correspondence for easy access and future reference;
- Maintain an updated inventory of all supplies and equipment and prepare guidelines for the proper use and maintenance of office equipment and properties;
- Facilitate travel and transportation requirements of the programme staff and other stakeholders involved in the Programme;
- Assist with recruitment of programme staff, and procurement of goods and services and ensure applicable rules and regulations are followed;
- Prepare and process administrative reports required by the Participating UN Organizations;

The Project Admin Assistant will be recruited based on the following qualifications:

A minimum of 5 years' experience in project management/administration/office management; knowledge of UN administration procedures is an advantage; excellent computer skills, including proficiency in the use of basic office software packages, electronic email and experience in handling web-based communications and management systems. A degree in Bachelor of Business Administration, Management and/or other Professional Qualifications in the above areas; Language Requirements: Proficient in English and Bengali languages, spoken and written.

5. Community Development Associate (3 nos in 3 sites):

CDA will report to the Project Manager and receive guidance for day-to-day project activities from the PMU. They will be responsible for facilitating participating agencies, partners, LGIs and community mobilization and coordination of all project activities at the site level and will act as focal points.

Responsibilities
Coordination

- Coordinate participating agencies/partners at the site level, working with partners' site-level representatives to implement project activities and complement ongoing activities
- Monitor activities implemented by the partners agencies, local GoB, firm, NGO etc service providers and ensure adherence to the quality
- Serve as project representative with all concerned Government of Bangladesh (GoB) officials at Upazila and district levels, NGOs, and local government bodies
- Organize and conduct monthly meetings, workshops, seminars, and other meetings in collaboration with Government, Stakeholders, and the District Committee on Environment and Disaster Management, and present monthly progress reports to the partners and PMU
- Mobilize communities in forming community management groups for various infrastructures to be established by the project

Training and Awareness Programmes

- Support and facilitate capacity building training programmes for communities, partner agencies, LGIs
- Organize awareness programs, meetings, workshops etc. and develop programme for visitors as required

Monitoring and Reporting

- Prepare progress and other monitoring reports-based format provided by the M&E officer,
- Prepare and submit monthly and all other types of progress reports and case studies on various surveys, good practices, and field programs
- The CDA will also perform any other jobs as requested and required by the NPD, Project Manager, PMU, or other project authority from time to time as and when required.

Qualifications

- Postgraduate degree in environmental sciences, social science, biological sciences, disaster management, geography and/or relevant disciplines
- Extensive experience in vulnerability and adaptation needs assessments at the community level and regarding the formulation and implementation of community-based climate change adaptation measures
- Previous demonstrated experience working in a project team
- Excellent verbal and written English skills
- Familiarity with the administrative, social and environmental context of the Upazila
- Experience working with the government, NGOs, CBOs, and other partners in the area
- Experience mobilizing community members for development projects and activities
- Good verbal and written English and Bangla skills

National Consultants

6. Climate Resilient Livelihood Specialist (2 nos; OP 3.2)

The National Consultant on Climate Resilient Livelihood Specialist will report to the Project Manager. A detailed TOR will be prepared by the PMU during the project implementation.

Responsibilities

- Generate information on existing agriculture practices (traditional and modern), disaggregated sub sectors, and women's involvement in agriculture;
- Use climatic (variables and extremes) impacts on existing agricultural practices and adaptation mechanisms (traditional and modern);
- Identify further needs (sex disaggregated and sub-sector wise) of technology, knowledge, and information for climate resilient agriculture practices;
- Develop an inventory of climate resilient technologies and adaptation options available (public institutions, NGOs, community) and identify applicability or gaps to fulfill the identified needs;
- Recommend a set of context specific climate resilient agricultural technologies and practices;
- Assess institutional arrangement, service options and their effectiveness to support climate resilient agriculture and identify gaps and capacity building needs of institutions;
- Provide skill development training programmes to members of farmers field schools, relevant institutions (DAE) and partner NGOs.

Qualifications

- At least 5 years of experience and expertise in conducting research in the area of climate change management (adaptation or mitigation), especially in the agriculture / livelihood sector;
- Experience of working in coastal and floodplain regions;
- Excellent English written communication skills, with analytic capacity and ability to synthesize issues and relevant findings for the preparation of quality reports;

Note: Requirements of other consultants will be assessed during project inception workshop and reflected in inception report.