GREEN CLIMATE FUND

Funding Proposal

Version 1.1

The Green Climate Fund (GCF) is seeking high-quality funding proposals.

Accredited entities are expected to develop their funding proposals, in close consultation with the relevant national designated authority, with due consideration of the GCF's Investment Framework and Results Management Framework. The funding proposals should demonstrate how the proposed projects or programmes will perform against the investment criteria and achieve part or all of the strategic impact results.

Project/Programme Title:	**Improving the resilience of vulnerable coastal communities to climate change related impacts in Viet Nam**
Country/Region:	Viet Nam
Accredited Entity:	United Nations Development Programme (UNDP)
Date of Submission:	31/07/2015
Date of Resubmission:	21/09/2015, 28/12/2015

GREEN CLIMATE FUND

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Note to accredited entities on the use of the funding proposal template

- Sections **A, B, D, E** and **H** of the funding proposal require detailed inputs from the accredited entity. For all other sections, including the Appraisal Summary in section F, accredited entities have discretion in how they wish to present the information. Accredited entities can either directly incorporate information into this proposal, or provide summary information in the proposal with cross-reference to other project documents such as project appraisal document.
- The total number of pages for the funding proposal (excluding annexes) is expected not to exceed 50.

Please submit the completed form to:

fundingproposal@gcfund.org

Please use the following name convention for the file name:
"[FP]-[Agency Short Name]-[Date]-[Serial Number]"

A.1. Brief Project / Programme Information			
A.1.1. Project / programme title		**Improving the resilience of vulnerable coastal communities to climate change related impacts in Viet Nam**	
A.1.2. Project or programme		Project	
A.1.3. Country (ies) / region		**Viet Nam**	
A.1.4. National designated authority (ies)		**Pham Hoang Mai** **GCF NDA of Viet Nam** **Ministry of Planning and Investment (MPI)**	
A.1.5. Accredited entity		**United Nations Development Programme (UNDP)**	
A.1.5.a. Access modality		☐ Direct ☒ International	
A.1.6. Executing entity / beneficiary		Executing Entity: Ministry of Agriculture and Rural Development Other beneficiaries: Ministry of Construction, Provincial People's Committee (PPC) of participating provinces # of beneficiaries (people): 20,000 people from climate-resilient housing, 3,865,100 people in the target coastal provinces, which will benefit from the protection offered by healthy and robust mangrove regeneration, 30,000,000 coastal residents benefiting from improved planning integrating climate risk information benefiting	
A.1.7. Project size category (Total investment, million USD)		☐ Micro (≤10) ☐ Medium (50<x≤250)	☒ Small (10<x≤50) ☐ Large (>250)
A.1.8. Mitigation / adaptation focus		☐ Mitigation ☐ Adaptation ☒ Cross-cutting	
A.1.9. Date of submission Date of resubmission		31/07/2015 21/09/2015, 28/12/2015	
A.1.10. Project contact details	Contact person, position	Keti Chachibaia, Regional Technical Advisor	
	Organization	UNDP	
	Email address	keti.chachibaia@undp.org	
	Telephone number	+66 (0) 2 304 9100 ext 5091	
	Mailing address	United Nations Development Programme 4th Floor United Nations Service Building Rajdamnern Nok Avenue Bangkok 10200, Thailand	

A.1.11. Results areas *(mark all that apply)*

Reduced emissions from:

- ☐ Energy access and power generation
  (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)
- ☐ Low emission transport
  (E.g. high-speed rail, rapid bus system, etc.)
- ☐ Buildings, cities and industries and appliances
  (E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)
- ☒ Forestry and land use
  (E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)

Increased resilience of:

- ☒ Most vulnerable people and communities
  (E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.)
- ☐ Health and well-being, and food and water security
  (E.g. climate-resilient crops, efficient irrigation systems, etc.)
- ☒ Infrastructure and built environment
  (E.g. sea walls, resilient road networks, etc.)
- ☒ Ecosystem and ecosystem services
  (E.g. ecosystem conservation and management, ecotourism, etc.)

A.2. Project / Programme Executive Summary (max 300 words)

1. Poor communities living in coastal regions of Viet Nam are adversely impacted by frequent flooding. Each year approximately 60,000 houses are destroyed or damaged by floods and storms in coastal provinces. This is likely to worsen given climate change scenarios for Viet Nam. Resultant economic impacts make it increasingly difficult for vulnerable families to escape the cycle of poverty.

2. The proposed GCF project seeks to scale up interventions that are already tested to increase the resilience of vulnerable coastal communities. Building on ongoing social protection programmes related to housing for the poor and marginalized, the project will incorporate storm and flood resilient design features in new houses benefiting 20,000 poor and highly disaster-exposed people. As part of an integrated response to managing flood risks, 4,000 hectares of mangroves will be rehabilitated and/or planted to function not only as storm surge buffers, but also to provide ecosystem resources that can support coastal livelihoods. Moreover, to support and sustain both the impact of this project as well as future requisite government policy adjustments that strengthen the resilience of coastal and other communities, resources will be used to systematize climate and economic risk assessments for private and public sector application in all 28 coastal provinces of Viet Nam.

3. The project relies on grant finance as (a) the proposed interventions will benefit vulnerable families identified as poor by the government, (b) strengthens natural defenses proving public value, and (c) does not generate revenue that lends itself to providing reflows to the GCF. The project is fully aligned with the Government of Viet Nam (GoV)'s strategies and was designed following extensive stakeholder consultations. The NDA has issued a no-objection letter for the project.

A.3. Project/Programme Milestone

Expected approval from accredited entity's Board (if applicable)	N/A
Expected financial close (if applicable)	N/A
Estimated implementation start and end date	Start: 01/04/2016 End: 31/03/2021
Project/programme lifespan	5 years

B.1. Description of Financial Elements of the Project / Programme

4. The project relies on grant finance as (a) the proposed interventions will benefit vulnerable families identified as poor by the government, (b) strengthens natural defenses proving public value and (c) does not generate revenue that lends itself to providing reflows to the GCF.

Component	Sub-component (if applicable)	Amount (for entire project)	Currency	Amount (for entire project)	Local currency	GCF funding amount **million USD ($)**
Increased resilience of vulnerable coastal communities to climate change related impacts in Viet Nam	Output1: Storm and flood resilient design features added to 4,000 new houses on safe sites, benefiting 20,000 poor and highly disaster-exposed people in 100 communes	20.152	million USD ($)	454,387	million Vietnamese Dong	12.152
	Output 2: Regeneration of 4,000 hectares of costal mangrove storm surge buffer zones	12.047	million USD ($)	271,613	million Vietnamese Dong	11.530
	Output 3: Increased access to enhanced climate, damage and loss data for private and public sector application in all 28 coastal provinces of Viet Nam	7.441	million USD ($)	167,780	million Vietnamese Dong	5.841
Total project financing		39.640	million USD ($)	893,780	million Vietnamese Dong	29.523

** Please expand the table if needed.*

B.2. Project Financing Information

	Financial Instrument	Amount	Currency	Tenor	Pricing
(a) Total project financing	**(a) = (b) + (c)**	39.640	million USD ($)		
(b) GCF financing to recipient	(i) Senior Loans	……	Options	( ) years	( ) %
	(ii) Subordinated Loans	……	Options	( ) years	( ) %
	(iii) Equity	……	Options		( ) % IRR
	(iv) Guarantees	……	Options		
	(v) Reimbursable grants *		Options		
	(vi) Grants *	29.523	million USD ($)		

	** Please provide economic and financial justification in section F.1 for the concessionality that GCF is expected to provide, particularly in the case of grants. Please specify difference in tenor and price between GCF financing and that of accredited entities. Please note that the level of concessionality should correspond to the level of the project/programme's expected performance against the investment criteria indicated in section E.*

Total requested (i+ii+iii+iv+v+vi)	29.523[1]	million USD ($)	

(c) Co-financing to recipient

Financial Instrument	Amount	Currency	Name of Institution	Tenor	Pricing	Seniority
Grant	8.000[2]	million USD ($)	Ministry of Construction	( ) years	( ) %	Options
Grant	0.517[3]	million USD ($)	Ministry of Agriculture and Rural Development	( ) years	( ) %	Options
Grant	1.600	million USD ($)	UNDP		( ) % IRR	Options
Grant	……		……			Options

Lead financing institution: Not Applicable

** Please provide a confirmation letter or a letter of commitment in section I issued by the co-financing institution.*

(d) Financial terms between GCF and AE (if applicable)

In cases where the accredited entity (AE) deploys the GCF financing directly to the recipient, (i.e. the GCF financing passes directly from the GCF to the recipient through the AE) or if the AE is the recipient itself, in the proposed financial instrument and terms as described in part (b), this subsection can be skipped.

If there is a financial arrangement between the GCF and the AE, which entails a financial instrument and/or financial terms separate from the ones described in part (b), please fill out the table below to specify the proposed instrument and terms between the GCF and the AE.

Financial instrument	Amount	Currency	Tenor	Pricing
Grants	29.523	million USD ($)	( ) years	( ) %

Please provide a justification for the difference in the financial instrument and/or terms between what is provided by the AE to the recipient and what is requested from the GCF to the AE.

B.3. Financial Markets Overview (if applicable)

5. The Government of Viet Nam is requesting 100% grant resources for the proposed project, the financial market overview is therefore not applicable.

[1] While not included in this proposal as per the instructions of the GCF Secretariat, an additional cost of 10% of the value of the project will be necessary to cover quality assurance and oversight services performed by UNDP as a GCF Accredited Entity over all phases of the project cycle. This includes as follows: (i) oversight of proposal development; (ii) appraisal (pre and final) and oversight of project start-up; (iii) supervision and oversight of project implementation; and (iv) oversee project closure. UNDP awaits confirmation from the GCF Board on this matter and expect that the AE fee, over and above the project cost, will be approved by the GCF Board prior to commencement of implementation activities.
[2] This figure relates to the approximate $2000/house provided by MOC for the 4000 target houses of this proposal. The supporting confirmation letter (Annex IV) reflects the amount of the broader government housing programme.
[3] This figure refers to the 10year costs of O&M for the 4000ha of mangroves regenerated with support of the project. The supporting confirmation letter from MARD will be shared once available.

C.1. Strategic Context

6. Viet Nam has seen significant economic growth in recent years. Political and economic reforms have transformed Viet Nam from one of the poorest nations in the world to a middle-income country within a quarter of a century. With 88.5million people from 54 different ethnic groups, the country has seen growth per capita rise from below US$100 in the 1990s to an estimated at US$1,596 in 2012. This has coincided with a dramatic reduction in poverty from 58% to 14% between 1993 and 2008 and an estimated 11.8% in 2011.

7. While Viet Nam has been an incredible success story in terms of economic development over the past quarter century, its coastal communities lag behind in resilience. These communities have double the poverty rate of the nation as a whole and are increasingly vulnerable to climate change impacts due to development pressures on natural buffers, such as mangroves.

8. Per the Climate Change Vulnerability Index[4], Viet Nam is considered one of 30 "extreme risk countries" in the world. The rural poor are at especially high risk given their reliance on the natural resources for their livelihoods, particularly in agriculture and fisheries. The Mekong River Delta and Red River Delta have already suffered from saltwater intrusion, threatening agricultural productivity and the millions of people relying on these watersheds for their income. Urban populations living in informal settlements are also at risk; particularly suffering from extreme heat, and humidity, as well as floods and storms.

9. The fifth assessment report (AR5) from the Intergovernmental Panel on Climate Change (IPCC) indicates that temperature in the sub-region has been increasing at a rate of 0.14°C to 0.20°C per decade since the 1960s, and predicts increases from 0.8°C to 3.2°C by the end of this century. The report further highlights the positive trend in the occurrence of heavy (top 10% by rain amount) and light (bottom 5%) rain events, and the influence of climate change on several large-scale phenomena affecting the region. The report further highlights the positive trend in the occurrence of heavy (top 10% by rain amount) and light (bottom 5%) rain events, and the influence of climate change on several large-scale phenomena affecting the region. Future increases in precipitation extremes related to the monsoon are very likely in Southeast Asia, and increases are projected related to tropical cyclones, with medium probability and high impact, resulting in extreme precipitation near the centers of tropical cyclones making landfall along coasts of South China Sea, Gulf of Thailand, and Andaman Sea. Even under the most conservative scenario, sea level is expected to be about 40cm higher than today by the end of 21st century and this is projected to increase the annual number of people flooded in coastal populations.

10. Consistent with these findings, the Ministry of Natural Resources and Environment's (MONRE) records suggest that climate change has contributed to temperature increases in excess of 0.5°C and sea level rise of about 20cm over the past 50 years in Viet Nam. Extreme events have been increasing. Between 1990 and 2012, the country suffered annual average disaster losses of 457 lives and 1.3% per GDP. During the same period, more than 96,703 houses were totally destroyed or swept away and 996,721 were significantly damaged due to natural disaster impacts. Viet Nam's Second National Communication forecasts a 57-73cm rise in mean sea levels along the Viet Nam coast by 2100. Without major action, this would inundate approximately 30,000km^2 equivalent to 9.3% of the total national land surface. Climate projections also point to an increase in the probability of intense typhoons, or super storms, accompanied by storm surges, similar to that which devastated the Tacloban area (Typhoon Haiyan/Yolande) in the Philippines in 2013.

11. These trends place coastal and low lying delta areas in Viet Nam at particular risk. At 23%, the poverty rate in coastal areas is more than twice the national average, in part due to the increasing losses incurred annually from climate related disaster impacts. More than 500,000 people live within 200 meters of the coast. Their homes are most often directly impacted by typhoons as they make landfall and storm surges. Increasing numbers of predominantly poor and vulnerable people in coastal areas live in unsafe housing, in part due to the rapid urbanisation, the lack of suitable employment and therefore persistent poverty.

12. Coastal ecosystem assets, such as coastal mangrove forests, provide a vital buffer against storms, sea surges and salt water intrusion. However, the area of mangrove forest have reduced significantly, primarily due to ongoing population pressure and, more recently, from the expansion of poorly planned shrimp aquaculture. In 1943 there were approximately 408,500 hectares of mangroves in Viet Nam. However, the National Forest Inventory shows that the area of mangroves

[4] https://maplecroft.com/about/news/ccvi.html

in Viet Nam had been reduced to 290,000ha in 1962, 252,000ha in 1982 and 155,290ha in 2000. According to the government reports, the total area of natural mangrove forests in Viet Nam at the end of 2008 stood at only 59,760ha[5].

13. The Government of Viet Nam (GoV)'s Sustainable Development Strategy 2011-2020 states as its general objective, that: sustainable and effective growth must come along with social progress and equality, national resources and environment protection, socio-political stability, firm protection of independence-sovereignty-unification and territorial integrity of the country. Specifically, the strategy seeks:

- To ensure macro-economic stability, especially macro indexes; to firmly maintain food security, energy security and financial security. To transform the growth model into harmoniously deep and wide development; to gradually carry out green growth, low-carbon economic development; to economically and effectively use all resources.
- To develop a democratic, disciplined, harmonious, equal and civilized society; a progressive culture deeply imbued with national identity; prosperous, progressive and happy families; to ensure people's comprehensive development in all physical, spiritual, intellectual aspects, having creativeness capacity, a sense of citizenship, and a sense of law observance. To make education and training, science and technology the major driving force for development. To firmly maintain socio-political stability, firmly protect independence, sovereignty, unity and territorial integrity.
- To mitigate negative impacts of economic activities on the environment. Reasonably exploit and effectively use natural resources, especially non-renewable ones. Prevent, control and repair environmental pollution and degradation, improve the quality of the environment, protect and develop forests and conserve bio-diversity. To reduce harmful effects of natural disasters, actively and effectively respond to climate change, especially sea level rise.

14. A suitable solution to addressing climate change in vulnerable coastal areas must find a balance between economic growth, environmental protection, and social progress. Further, the Constitution of Viet Nam, under Article 59 section 3, affirms that The State shall exercise a policy of housing development and create conditions so that everyone shall have housing. As coastal provinces in Viet Nam are home to a third of the population (30million people), a suitable solution must also include climate-resilient housing to ensuring safety of households in vulnerable areas.

C.2. Project / Programme Objective against Baseline

15. Supporting the government's long term solution, the objective of the project is to increase the resilience of vulnerable coastal communities to climate change related impacts in Viet Nam, through:

- **Safe housing to protect vulnerable coastal communities from increased flooding and storms**
- **Robust mangrove coverage to provide a natural buffer between coastal communities and the sea**
- **And enhanced climate risk information to guide climate-resilient and risk-informed planning**

16. Below is a description of the baseline.

Baseline Scenario

Safe housing to protect vulnerable coastal communities from increased flooding and storms

17. While government programmes are in place to provide safer houses to vulnerable coastal communities, government engineering and construction standards for housing along flood prone regions are not currently compliant with requisite standards to safeguard the public from flood and storm impacts. Government (especially local authorities) have not yet examined the appropriate standards to apply and introduce the necessary regulatory reform that would establish standards that the public and business sector would need to adhere to; however it is acknowledged that the enforcement capacities are also weak. Local engineers and construction companies are not trained to instruct the local workers and households, and building codes have not been revised to create conditions for incorporating flood resistant features in structure designs.

18. Although best practice designs are available and tested through small pilot projects, a full scale diffusion of flood and storm resistant housing technologies has not taken place as such policies and incentive mechanisms are currently absent. As a result, each year, approximately 60,000 houses are destroyed or severely damaged by floods and storms in coastal areas of Viet Nam. Poor families have a higher vulnerability to disaster risk, as they are more likely to live in sub-standard housing. Damage, loss and related recovery costs from extreme weather events (e.g. typhoons) and natural hazards (e.g. floods), place a long term burden on the limited financial resources of already vulnerable people.

[5] Government of Viet Nam Decision No. 1267/ QĐ-BNN-KL, 2009

19. Recent studies have shown that in disaster prone areas, improving housing is often a priority for investment. However, as knowledge of safe housing technologies is generally low, without technical guidance and training, families may inadvertently make investments which further destabilize the structure in the face of storms[6]. With the rapid urbanization of coastal Viet Nam, and increasing climate change risk, action to promote safer housing and community based risk sensitive planning within communes for safe siting of the houses is urgently required.

Government Support to Safe Housing for Vulnerable Communities

20. Recognizing the need to support vulnerable families, the GoV is implementing the **National Programme to provide support policies and solutions for poor households to build storm and flood resilient houses in Central Region**[7]. Led by the Ministry of Construction (MOC), the programme has developed low cost design specifications in terms of house lay-out, materials and building technologies that can increase structural stability in the face of recurring storms, typhoons and floods. The houses are constructed next to the existing home, so there is no disruption to living arrangements.

21. This government programme helps families, categorized as 'extreme poor' and 'poor' by government criteria, to access finance to build safe houses, which conform to government design and materials standards. Specifically the programme makes available a combination of a grant and training on the approved flood and storm-resilient house design, details are as follows:

- Grant of VND12m or US$550/household, for poor households, up to VND14m (US$690) for households in particularly difficult areas or VND16m (US$735) for households in especially difficulties communities[8]. Support is provided in 2 installments (70% upon completion of the foundation and the second upon completion of the house frame meeting the design specifications)
- Training for villages/communes and provision of technical assistance to the beneficiaries

22. While a grant is available for extreme poor households, the grant amount is not sufficient to cover the total cost of the house. Therefore a concessional loan is also made available with a 3% interest rate/year from the Bank for Social Policy, payable over 10 years, with 5-year concession period. Any balance would be met through other means (i.e. their own resources or community contributions).

23. Selection of grant recipients is decided through consultations with villages, assessment at the commune level, then ultimate approval at the provincial and national level for programme support. Criteria for assessment include, the household's categorization as poor (as per Decision No. 09/2011/QĐ-TTg of the Prime Minister dated 30 Jan 2011) and the flood/storm resilience of their existing dwelling compared to government minimum standards. Selection is further prioritized to ensure that especially vulnerable groups in Viet Nam benefit. The prioritization is stated as follows:

- Households are of an ethnic minority group
- Households with difficult living circumstances (i.e. senior citizen-headed households, single member households particularly senior citizens, households with members with disabilities, etc.)
- Households which are living in difficult administrative (remote) locations of highly disadvantaged zones and villages of the provinces
- Households located in the most poor districts under the government poverty targeted programme, following national resolution No. 30a/2008/NQ-CP dated 27 July 2008 of the government
- Other socially vulnerable groups

24. The project selection process has been designed to be transparent, and includes review by the commune committee. The data to assess criteria for grant assistance is independently collected by the government as part of wider social services programmes. Once identified, the beneficiaries are reviewed by a committee of stakeholders, and the results are publically posted. Should concerns arise, community member are able to direct concerns to the commune for response. As residential land in Viet Nam is leased from the government, recipients are also assessed based on legality of land tenure. Recipients are not permitted to sell the property during the 10-year loan period. The loan repayment by recipients is further used as a revolving fund overseen by the government to enable replication of the approach to additional families.

[6] Sheltering from a Gathering Storm: Typhoon Resilience in Viet Nam (P. Tran, et. al., 2014)
[7] Government of Viet Nam Decision 48/2014/QĐ-TT
[8] As per Decree 1049/QD-TTg

25. The government programme has been successful in engaging civil society organizations such as, Fatherland Front, Veteran's Association and Viet Nam Youth Union to support the above prioritized groups, as well as female-headed households, in the actual construction of the houses.

Opportunities for Improvement of the Government Housing Programme

26. The **Pilot programme to support poor households improve safety conditions for accommodation, coping with floods in North and South Central coastal provinces** targeted 700 households in 7 provinces. The original design included a raised floor of 1.5m and a flat roof. The total cost of the pilot design house meeting minimum requirements was approximately US$1,300/house[9] (this is considered a very conservative estimate as it does not reflect the higher costs of materials and labor in remote areas). The house design however did not adequately consider projected flooding and increased storms due to climate change. As a result, damages to the pilot programme houses were reported. Specifically, there were cases of flooding that exceeded the height of the raised floor, and damage to the flat roofs during storms. This resulted in enhancements to the MOC house design.

27. Based on lessons learned of the pilot, MOC produced an enhanced design (see Figure 1). The enhanced design builds on the climate-resilient features of the original design (i.e. 10m^2 base and reinforced concrete frame), to a 2-story structure with a mezzanine at 3m, with a pitched corrugated metal roof. The estimate cost of the enhanced house design is estimated at US$1,500 - US$2,000, depending on costs of materials and labor in the location.

Figure 1: Flood and Storm-Resilient House Design

28. While the current design is an improvement from the pilot, the need for additional enhancements has been highlighted by MOC, to better protect vulnerable households from the increasing frequency and intensity of flooding and super storms/typhoons resulting from climate change. Specifically these include (a) a concrete roof with strengthened bracings and fittings (US$900), (b) reinforced windows, doors and sealing (US$400) and (c) improvements to drainage, siting and raising plinths (US$400). Improved monitoring is also required to ensure that the finished product is one that reflects all of the resilience features of the house design (US$300). The combined costs of these enhancements are estimated up to US$2,000/house.

29. As the grant support provided through the government housing programme does not cover the total cost of the house, the increased financial burden of these additional enhancements place vulnerable households, particularly 'extreme poor' households, in a difficult position. Additional grant support to households is needed to construct the house design with additional climate-resilience features.

[9] Final Report - Results of pilot measures supporting poor households to improve safety home, responding to floods in Northern Central and Central Coast according to Decision No. 716/QD-TTg dated 14/6/2012 of the Prime Minister (see Annex VIIIa)

30. There is also a need for more informed site selection for the new houses under the government programme. Though flood history is considered, the current risk assessment process is limited, and does not systematically include recently developed data on key risks including sea level rise and extreme typhoon related storm surge. Per GoV policy, households on sites with a history of flooding over 3.6m are not eligible through the government programme, but should instead be relocated. In such cases, households are linked to other national support programmes to support relocation.

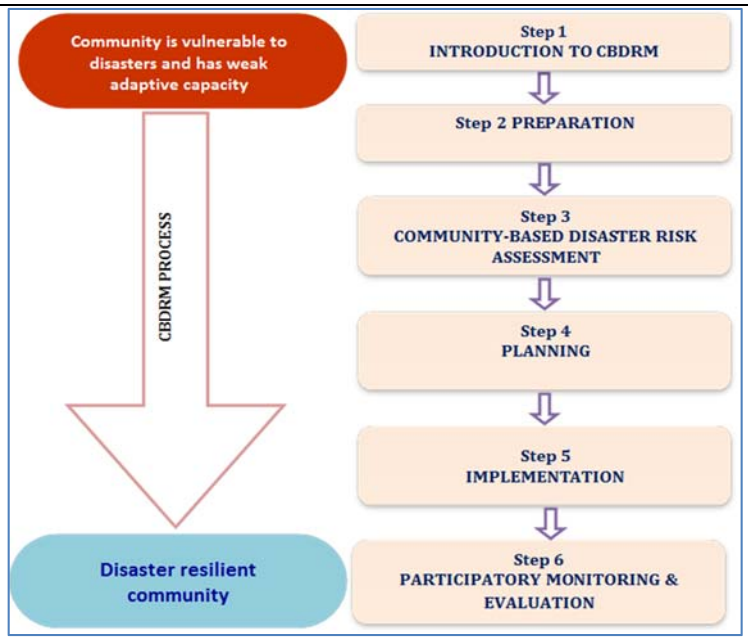
31. Further, the government housing programme has not applied available flood and storm risk data at the local level, nor has it harnessed community knowledge in siting and design decisions. In part this is because MOC lacks outreach capacity at the commune level. This means that the current investments in safe housing are detached from land use planning and annual budgeting at the community and sub-national level, thus opportunities for enhancing overall risk reduction or contributing to protective measures are missed. These may include development planning investments such as storm resistant infrastructure (e.g. safer water and sanitation supply, or dyke reinforcement, etc.) to ensure that basic public services are not destroyed and disrupted by storms or typhoons.

32. An overall vulnerability assessment/risk index was conducted for combined hazards at the national level. Additional maps indicating flood and storm risk have been included in Annex IX, these maps do not yet include climate projections, nor related river flooding.

- historical storm probability
- probability of rainfall-related flooding

33. There are, however, good practices in Viet Nam of community-based disaster risk mapping and planning, applying well-tested methods. The Community Based Disaster Risk Management (CBDRM) programme 2009-2020 promotes a six step process (see Figure 2) to actively engage communities in all activities of disaster and climate change adaptation risk management, from risk identification and analysis, to action planning, implementation and monitoring and evaluation (M&E), aiming to reduce vulnerabilities and enhancing communities' coping and adaptive capacities. The programme provides training on disaster risk reduction and climate change adaptation, as well as guidance on conducting community-based disaster risk assessments (CBDRA), resulting in community-based CBDRM plans for how communes will work to manage disaster and climate change risk more effectively. Community groups comprised of local leaders, technical experts and a cross-section of local residents and representatives from civil organizations, including the Viet Nam Red Cross, Women's Association and Association for People with Disabilities.

Figure 2: 6-Step CBDRM Process



34. The CBDRM programme aims to reach 6,000 high risk communes by 2020 (more than 60% of all communes in Viet Nam). The programme has already been successfully initiated in more than 1,700 communes. In line with the integrated disaster risk reduction and climate change adaptation (DRR-CCA) approach mandated by Viet Nam's Change Committee, the program has been designed to address both traditional disaster and added climate change adaptation requirements. The planning methods, guidance materials, trainers and monitoring and evaluation systems have been highlighted as a highly effective means of resilience building in Viet Nam's Special Report on Extreme Events submitted to the IPCC in and have been identified as a good practice example by the UN, the Red Cross, the EU and ASEAN among others. CBDRM and CBDRA guidelines are attached for information under Annex XV.

35. Evaluations of the government housing programme and the CBDRM programme can be found in the Annex VIII.

Robust mangrove coverage to provide a natural buffer between coastal communities and the sea

36. Coastal mangrove forests play a critical role in coastal protection, acting as a natural buffer between the sea and communities, absorbing some of the impact of typhoons and storm surges. Mangroves also have an important role in preventing coastal erosion (as well as great potential for carbon sequestration). In Viet Nam, mangrove forests have been dangerously degraded, from 408,500ha 1943 to only 59,760ha in 2008, leaving coastal communities exposed to co. Key factors contributing to this decline include urbanization, infrastructure development and the growth of aquaculture plantations operated by local farming cooperatives and households.

37. Successful mangrove rehabilitation is complex and, if not implemented correctly, extremely costly. For instance, examples from other countries indicate the costs to successfully restore both the vegetative cover and ecological functions of a mangrove forest to range from US$225/ha to US$216,000/ha. Unpublished data would indicate that the even higher costs, as much as US$500,000/ha, has been spent on individual projects (Lewis, 2001). This is due to the extent of degradation to the site and the level of effort needed to rehabilitate the area, and continued interventions resulting from failures. Mangrove rehabilitation in general has a high rate of failure, citing the same lessons learned from pilot projects in Viet Nam.

38. In 2008, the government launched the **Mangrove Restoration and Development Programme 2008-2015**, which has been successful in reversing the decline in coastal mangrove coverage. However, the current programme was designed to apply a monoculture planting regime, and survival rates for mangrove forests supported under the programme are only 50%. This is due to a number of factors including (a) low seedling quality, (b) a lack of protection for seedlings from the physical damage in the early stages of growth, (c) a lack of diversity in species selection, (d) planting methods not well-suited to the specific site and (e) poor community engagement for maintenance and monitoring. Government statistics indicate that 62% of the existing mangrove forests in Viet Nam are newly planted and monoculture. Inadequate community consultations and a lack of awareness raising among local residents regarding the benefits of mangrove reforestation has also resulted in low levels of community engagement in some areas hindering long term forest

management. The current government programme applies a cost norm for regeneration of mangroves of between US$800-1000 per hectare, with higher rates of US$1,000-7,000 being applied for full replanting depending on the difficulty of the site selected.

39. A number of international organizations have been contributing enhanced approaches in support of the government's targets:

Table 1: Pilot Projects on Mangrove Rehabilitation

Project Name	Source of Funds	Budget	Duration	Hectares	Locations
Mangrove reforestation program to prevent natural disasters	Japan Red Cross	1,743,938	2009 - 2015	2,296	06 districts: Nga Sơn. Hậu Lộc, Hoằng Hóa, Sầm Sơn, Quảng Xương, Tĩnh Gia
Projects for investment in development of mangrove forests in the coastal communes of Hau Loc district, Thanh Hoa province	Fund for Central Natural Hazards	925,250	2010 - 2015	200	Hậu Lộc district
Integration of coastal protection and restoration of the mangrove forests in Ca Mau province	Germany (KfW)	1,200,000	2013 - 2019	21[10]	Western part of Ca Mau (U Minh district)

40. These pilots have been implemented with official development assistance (ODA) mainly in southern Viet Nam and have aimed to rectify current challenges by applying enhanced technologies and planting methods. These improved approaches include (a) diversifying and tailoring the application of mangrove varieties to local conditions, (b) modifying planting techniques, (c) using tools, such as bamboo break waters, to encourage young plant growth, and (d) enhancing soil quality and improving maintenance of young forests. Some pilots have also sought to more actively engage communities in planning and maintenance, as well as in the site selection so that local livelihoods, such as aquaculture, and mangroves can coexist.[11] Although the cost norms for these pilots are higher than the current government rate, recent studies have shown that application of improved technological approaches can increase average survival rate to more than 80% – significantly higher than the current 50% average. The above projects, which are still ongoing, will contribute in part to the targets of the next phase of the government's mangrove programme. The Restoration of Coastal Mangrove Forest in Viet Nam Study Report, 2012, attached as part of Annex VIII (Evaluation Reports) of this document, provides assessments of previous mangrove regeneration efforts.

41. The **Project for the protection and development of coastal protection forests in response to climate change 2015-2020** was recently approved through Decision 120/QD-TTg for the 28 coastal provinces of Viet Nam. The project requires a total of US$245million (5,415billion VND) and has a planned annual investment rate of US$41.4million (902billion VND). The central government aims to provide 70% of total program cost with 25% coming from ODA and 5% from local contributions, though only a portion of the funding has been secured to date. This government project is of high priority, and is specifically cited as a cornerstone for adaptation action in Viet Nam's draft adaptation INDC. This project aims to:

- protect 310,695ha of existing coastal protection forests
- reforest 46,058ha of coastal forests (of which 29,500ha are mangroves)
- reforest 7,508ha of forests for sand and wind break and 9,050ha of production forests
- and rehabilitate 9,602ha of the poor quality forests

42. Recognizing the need to scale-up and replicate improved approaches, which promote more effective mangrove restoration, the government is considering raising the cost norm from US$800-1000 per hectare to US$1,500 for regeneration through natural recruitment processes, and applying an increased average cost of US$4,000 for replanting.

[10] The KfW project's hectare target is relatively low because the project's main focus is more on infrastructure for coastal protection.
[11] GIZ, 2012. Coastal Rehabilitation and Mangrove Restoration Using Malaleuca Fence: Practical Experience from Kien Giang Province. Conservation and Development of the Kien Giang Biosphere Reserve Project. Kien Giang.

And enhanced climate risk information to guide climate-resilient and risk-informed planning

43. A critical element, of enhancing the effectiveness of efforts to tackle coastal climate change impacts, is ensuring that decisions are underpinned by quality climate risk data. When developing maps on where to safely locate housing and other assets, and assessing which parts of the coastline require the protection of mangroves, clear information on climate change projections and risks is essential. This information needs to combine available risk assessments, storm surge maps, historical knowledge on disaster and loss, with climate change projections to guide climate-resilient and risk-informed development planning.

44. In order for this information to be convincing to policy makers, hazard impacts also need to be able to be expressed in economic and financial terms that convey the value of current and future assets at risk. This requires analyzing historical damage and loss data to better understand its current impacts on an economy, and then building the capacity to model this for likely future climate change related impacts. The GoV has recognized the need for this information, but efforts to support improved economic and financial modelling of climate change risk, within key institutions which need this information (in both the public and private sector), are fragmented and largely under-developed. The long term impact of these gaps on development potential, business development and risk management is significant.

45. Strengthened risk mapping for provinces on potential climate change and hazard risk was identified as a key need under the National Action Plan for DRM in Viet Nam and followed by a series of Decisions by the Government Office to develop detail hazard maps for different regions in Viet Nam, particularly the Decision 172/2007/QĐ-TTg in 2007 for landslide and flash flood mapping; and the Prime Minister Communication 171/TB-VPCP on 23/4/2014, and 410/TB-VPCP on 13/10/2014 for development of inundation mapping for strong storm and sea surge. This gap was also highlighted by more than 400 scientists from Viet Nam and the region as a core conclusion of the Viet Nam Special Report on Extreme Events (SREX 2014). Similarly, a 2010 World Bank study on Options for Disaster Risk Financing in Viet Nam highlighted the need for catastrophe risk modelling, risk assessment and disaster related damage assessments as key recommendations for action. At the commune level, the lessons learned workshop for CBDRM implementation at commune level conducted jointly by the Government of Viet Nam, UNDP, Viet Nam Red Cross, Women's Union and Oxfam in 2014 specifically highlighted the need for improved accessible data on risk as a key component of effective commune level planning.

46. Currently in Viet Nam climate-change projections and associated disaster risk trends are not well understood or widely disseminated, hindering their application particularly at sub-national level. The government has been working with key research institutes and government departments at the national level, to develop improved climate change projections and to conduct specific research in key areas such as storm surge risk associated with a likely increase in typhoon intensity. This however data has yet to be systematically applied. The government has recently developed Viet Nam's first coastal storm surge maps to improve coastal inundation mapping. Data quality will also be improved to include super-storm and storm surge data based on 2014-2015 models and more accurate sea level rise projections included in the fifth IPCC assessment report. Additional analysis of salt water intrusion zones using new satellite based technology is also beginning. While much of this data has been developed, or is near finalization it is not currently being systematically applied in planning or effectively disseminated.

47. Although capacity has been developed for disaster and climate change damage and loss reporting within MARD, further capacity building is required at the national and sub-national levels. Communes require technical advice on how to collect improved data on climate change damage and loss in their locality to support systematic monitoring of resilience building in coastal areas. To effectively measures changes in resilience from local to national level in the context of climate change, further upgrading of current systems is required.

48. With support from UNDP, the government already has begun to draft an improved official circular that will outline how climate and disaster damage and loss data should be collected, processed and made available for analysis and planning. The current draft circular builds on the existing DesInventar disaster damage system that was developed in 2012 with support from UNISDR and UNDP. DesInventar is a conceptual and methodological tool for the generation of national disaster inventories and the construction of databases of damage, losses and in general the effects of disasters. The system aims to develop a sustainable disaster information management system within an institution for the systematic collection, documentation and analysis of data about losses caused by disasters associated with natural hazards. MARD is now fully operating the database using existing government funds and resources, and annual disaster statistics are posted on the Central Committee for Disaster Prevention and Control Website and form the basis for Viet Nam's official disaster data reported to ISDR and IPCC.

49. Provinces and cities regularly use the DesInventar disaster report forms to report data on damage and relief needs to populate the software. However, with only 1,900 data cards for the period 1989-2010, the available disaster/loss data for Viet Nam is quite low, with little disaggregation beyond the provincial level[12]. Increasing the skills of communes to report quality data will, over time, enable national disaster data sets to become significantly more accurate and therefore useful in monitoring changes in resilience and in planning well-targeted adaptation investments. The new circular, if well implemented, can be a key means of improving disaster data collection and recording, as well as the institutional mechanism for hosting and updating the database. The scaling up of the national CBDRM programme can also be a key vehicle for increasing understanding regarding how and when disaster data should be sent for inclusion in national records. To make sure that commune level data collected is effectively processed and used, there is a need to provide support at provincial and national level to upgrade existing damage and loss databases on existing national disaster tracking data sets. This will improve the quality of national resilience building monitoring and evaluation.

50. UNDP has two ongoing programmes **Strengthening Institutional Capacity for Disaster Risk Management in Viet Nam Phase 2 (SCDM-II)** and **Capacity Building for Implementation of National Climate Change Strategy (2014-2017)** which contribute to national capacity to collect, analyze, apply and disseminate climate and disaster risk information. These programmes are supporting studies, providing training, and strengthening coordination within the National Climate Change Strategy.

51. Access to data is a key issue, and there is a need for an improved government risk data repository that can manage incoming data and make it accessible across government ministries as well as to academic institutes and other relevant stakeholders. Improved climate related damage and loss data has far reaching uses in government planning, but also in the private sector where it can help for example in the pricing of insurance products or financial risk sharing and transfer tools.

52. Finally, although the government has been proactive in developing climate scenarios to estimate future impacts, government institutions are finding it challenging to apply this information in planning and decision-making. Disaster and climate change risk data is not sufficiently linked to investment/capital expenditure planning processes at the national and provincial level ministries. Current practices involve production of meteorological (weather) data, not probabilistic forecasts of climate and climate related risks. Quantification of risks would enable costing of alternate risk reduction options. Adaptation planning has also not yet begun to factor in risks of long term loss and damage, particularly land loss due to sea level rise, which is increasingly being experienced in low-lying exposed coastal areas and deltas.

53. Through recent ADB-UNDP supported initiatives, the MARD has also been piloting integrated risk indexes for resilience that can help provincial decision making regarding adaptation priorities. These tools aggregate climate hazard risk and with local level socio-economic vulnerability data to give a more accurate understanding of not only climate impacts but local level exposure to them. Accessible indexes and maps can be used as a tool to help guide investment planning and decision-making. Replicating this type of mapping to the entire coastline, applying comparable and consistent data, would be a transformative change in Viet Nam's ability to analyse and compare climate change risks in coastal areas.

54. Another aspect of this challenge is creating enabling conditions in which the public and private sector can invest in risk reduction efforts more systematically. In order to unlock, as well as direct and redirect, public and private sector investment into risk reduction, accurate data on historical damage and loss, specific hazard risk, and downscaled climate impact data are required. These are currently inaccessible outside of government, or of insufficient quality in coastal Viet Nam, but this has not been possible due to capacity constraints.

55. Although the government has been proactive in developing climate scenarios to estimate future impacts, government institutions are finding it challenging to apply this information in planning and decision-making. Disaster and climate change risk data is not sufficiently linked to investment/capital expenditure planning processes at the national and provincial level ministries. Current practices involve production of meteorological (weather) data, not probabilistic forecasts of climate and climate related risks, nor economic analysis. Quantification of risks would enable costing of alternate risk reduction options.

[12] http://222.252.27.1:8081/DesInventar

56. The UNDP/USAID-Adapt Capacity Building Programme on the Economics of Climate Change Adaptation (ECCA[13]) is supporting Viet Nam strengthen institutional capacity to apply economic principles and techniques to inform cost-efficient and sustainable adaptation planning. The programme has provided training on economic analysis (i.e. cost-benefit analysis (CBA)) to technical staff from MPI, MONRE and MARD. As part of the programme a survey was conducted of over 600 households to gauge the impact of climate change on economic activity. Data collection was recently completely with support on analysis to be provided over the next few months. ECCA is also in the process of compiling its training materials into a course available to government staff, either online or through a local university. There is an opportunity integrate this training into the relevant institutions, as well as to link this economic survey data with the DesInventar data in order to estimate the economic impact of disasters at various sub-national levels.

57. Climate change projections suggest an increasing likelihood of major climate change related disasters in Viet Nam, such as the 2013 super typhoon which devastated neighboring Philippines, resulting in losses in excess of 3% of GDP. The ability to manage financial risk of low probability/high impact events has been identified as perhaps the largest difference between low and middle income countries' adaptation capabilities. Currently, the government directly bears the burden of virtually all major financial risks associated with extreme climate events, compensating victims through disaster relief or reconstruction projects. The GCF project will therefore also apply improved data collated above to support development a government plan for risk transfer in case of large scale coastal climate related disaster (loss of more than 3% GDP). It will support the government to identify appropriate risk transfer mechanisms, particularly looking at insurance or catastrophe bond options for financing reconstruction after a large scale typhoon. This will be based on a review of successful global and regional models and understanding of the local context for such type of instruments to be successful.

58. Although much of the potential damage and loss associated with climate impacts can be managed through effective adaptation action, including private sector risk transfer and sharing, some residual loss will remain. GCF resources also will support the design of a system to better account for the risk of long-term loss and damage due to climate change impacts in planning and policy formulation on existing systems. Technical support will also be provided to help the government to begin to define and track its long term losses associated with climate change in line with the requirements of the recent Warsaw Declaration.

59. In light of its high and varied levels of risk, public-private risk sharing will likely be a key element to long term effective adaptation in Viet Nam. Financial risk transfer and sharing mechanisms are currently underdeveloped in Viet Nam. Household insurance levels per capita are low, the Government lacks climate related risk management strategies. Solid climate and disaster data is the engine for private sector risk transfer product development. In contrast to agricultural insurance where determining the exact extent of affected areas is highly complex and costly, determining the extent of flooding and storm damage after an extreme hazard event such as a flood or storm is less complex. The challenge for insurance companies however is in being able to competitively price products based on mathematical probabilistic analysis, which requires commune level historical loss and damage data as its base. This data is not currently available in Viet Nam. Therefore, the disaggregation of historical loss and damage data (and verification of the results through the CBDRM consultation process) down to commune level to be undertaken by the project will not only support Government risk mapping but also private sector product development.

60. While there are clear areas for intervention to improve coastal resilience, there are several barriers which must be addressed.

Key barriers addressed by the project

61. In order to increase the resilience of coastal communities to the threats of storms, sea surges and sea level rise, it is necessary to address the following barriers to sustainable coastal protection and safer settlements.

Ineffective Collaboration Between Ministries and Programmes Preventing Regulations Critical for Long-term Climate Resilience

62. A key barrier to coastal resilience in Viet Nam is uninformed planning, due to lack of collaboration. As a result, available assessments of climate and disaster risks, data on permanent as well as temporary loss and damage, and monitoring and confirming land loss due to a climate induced hazards, have not begun to be factored into government planning. While data is currently limited, collaboration is critical to integrate the existing data effectively. For example,

[13] http://www.undp-alm.org/projects/ecca-asia

risk assessments from the CBDRM Programme and the storm surge maps generated by the Disaster Management Center, have not been considered in land use planning related to government housing programmes. Further, best practices of small scale pilot projects have not been integrated into existing housing designs in coastal areas to ensure the construction adequately reflects risks. Failure to make these links can result in (a) houses being built on unsafe sites and (b) higher costs related to loss and damage given projected climate and flood risk. Failure to make these links, as well as the financial limitations in domestic public sources, impacts on the GoV's ability to enhance planning and update related policy and regulations towards climate smart development.

Coastal protection measures are not informed by best practices

63. Coastal protection has been limited to hard protective structures such as sea dykes that incur high capital investment and maintenance cost, as well as significant ecological consequences that are counter-productive to their purpose. Although necessary in certain strategic locations, evidence has shown that hard structures interfere with natural sedimentation process and often aggravate coastal erosion, leading to land loss and greater exposure. In the past, strong, reliable man-made ("hard") infrastructure was used to operate effectively and efficiently,[14] although more recently, evidence suggests mixed results.

64. The GoV has begun to invest alternatively in mangrove rehabilitation as a means of coastal defense. Efforts however have had little success as effective and robust coastal protection through ecosystem-based solutions, have not been fully realized. In recent years, businesses and governments are seeing the enormous potential for "natural infrastructure" in the form of wetlands and forests, watersheds and coastal habitats to perform many of the same tasks as grey infrastructure, sometimes better and more cheaply.[15] For example, investing in protection of coral reefs and mangroves can provide a stronger barrier to protect coastal operations against flooding and storm surge during extreme weather, while inland flooding can be reduced by strategic investments in catchment forests, vegetation and marshes.[16] Evidence from coastal adaptation practices in Viet Nam and in the region further suggests that integrated solutions based on ecosystem services such as mangrove stands can serve as more effective means to protect communities from the increased incidence of storms. Although the government has recently invested in mangrove rehabilitation efforts (and as such these are tried and tested pilot solutions), these still remain nascent in scope and requires larger geographic coverage to reinforce and protect poor and marginalized communities living along the coastline.

Inadequate climate risk information preventing effective adaptation planning and resources mobilization

65. The absence of rigorous climate risk information places considerable limitations on climate-resilient planning and adaptation investments. Availability and uptake of climate risk information is lagging related to what is required for effective decision-making. Improving (a) access to high-quality meteorological data to characterize present weather, (b) climate change scenarios (including for variability) at the spatial and temporal scales to support decision-making, (c) historical and projected damage and loss data (d) technical capacity to undertake impact assessments based on loss and damage data and (e) economic appraisals of adaptation options are necessary to design sustainable, risk-informed and economically-efficient adaptation measures.

66. Currently, the government directly bears the burden of virtually all major financial risks associated with extreme climate events, compensating victims to the extent possible through disaster relief or reconstruction projects. Public expenditure, however, is not readily available for local risk finance[17]. The increasing frequency and intensity of the impacts of climate change are already straining limited public resources, as ministries are challenged to secure the necessary financing from public funds. The above limitations of skills and data therefore also prevent effective engagement of the private sector in climate hazard risk sharing and transfer. The lack of commune level data related to historical damage and loss, and ease of monitoring and confirmation of impacts, make premium setting difficult. The absence of a comprehensive weather monitoring system makes triggering payments for any market orientated solutions (e.g. insurance) prohibitively expensive. The design of the output is further detailed in section, C.3. Project / Programme Description.

C.3. Project / Programme Description

[14] UNEP-WCMC (2006) *In the front line: shoreline protection and other ecosystem services from mangroves and coral reefs*. UNEP-WCMC, Cambridge, UK 33 pp

[15] UNEP-WCMC (2006) *In the front line: shoreline protection and other ecosystem services from mangroves and coral reefs*. UNEP-WCMC, Cambridge, UK 33 pp

[16] UNEP-WCMC (2006) *In the front line: shoreline protection and other ecosystem services from mangroves and coral reefs*. UNEP-WCMC, Cambridge, UK 33 pp

[17] GoV's recent Public Climate Expenditure and Investment Review in Viet Nam, supported by UNDP, showed that domestic climate change response related spending is mainly directed towards large-scale infrastructure projects in the sectors of irrigation and transport (UNDP, 2015).

67. Recognizing the impacts of sea level rise, increased flooding and increased incidence of extreme events, the objective of the project is to **Increase resilience of vulnerable coastal communities to climate change related impacts in Viet Nam**. The project seeks to meet this objective by achieving the following complementary results:

1. Storm and flood resilient design features added to 4,000 new houses on safe sites, benefiting 20,000[18] poor and highly disaster-exposed people in 100 communes
2. Regeneration of 4,000 hectares of coastal mangrove storm surge buffer zones using successful evidence-based approaches
3. Enhanced climate, damage and loss data for private and public sector application in all 28 coastal provinces of Viet Nam

68. Each project output is critical to meeting the project objective. Implemented separately, the outputs would have limited impact on the building resilience of coastal communities. For instance, mangrove rehabilitation will absorb some of the impact of sea surges and typhoons (see Figure 3), but the poor in sub-standard houses would remain vulnerable. Construction of flood and storm-resilient houses built on high risk sites (without the integration of risk assessments) would inadvertently put already vulnerable people at continued risk. And, improving the data and information management systems will enable climate risk informed decisions about the adaptive investments in the risk exposed coastal regions. Thus the GCF project will promote a transformational impact by enabling the GoV to comprehensively tackle the issues at hand, resulting in an adaptation solution that will have significant long-term benefits for poor and marginalized communities.

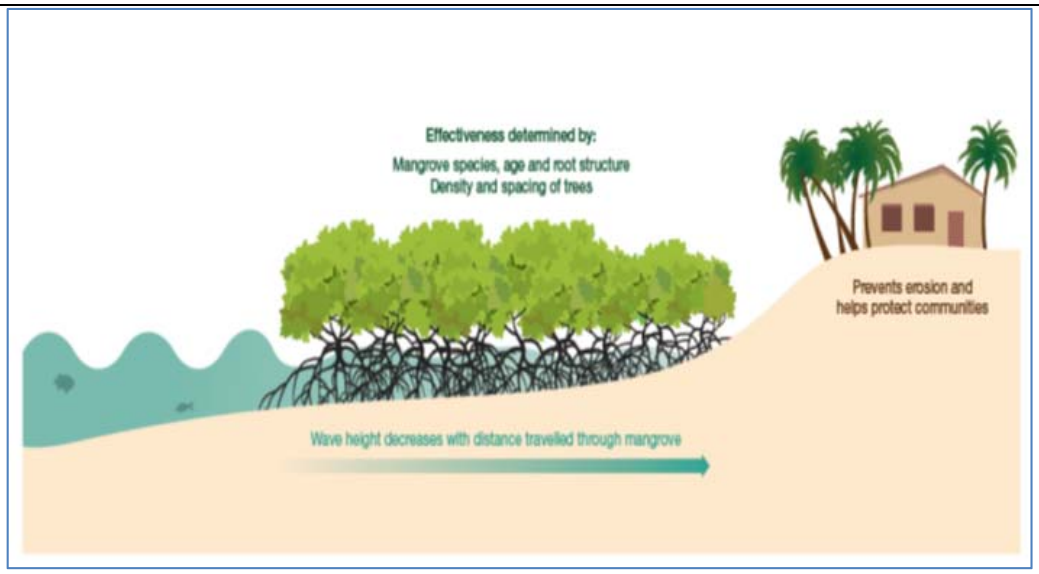
69. The Outputs work together to strengthen inter-ministerial collaboration and community engagement. For example, currently two main challenges for the mangroves and housing programmes are ensuring effective community participation and oversight. Linking these elements to scale up proven effective community based disaster risk management programme helps to address this. CBDRM planning, housing and mangrove site selection often lacks up-to-date data on hazard risk, which can be provided through local level information packs.

70. The benefits of this integration are at the core of project sustainability and transformational impact. Underpinned by sustained improved in risk data quality and management, the project directly facilitates ministries benefit from data and programmes outside their traditional siloes. As the joint planning process for the project has shown, there is often willingness to apply better data and approaches, but technical level staff seldom has the time or the specific technical knowledge on how to access it. However, these cross-ministerial links and relationships will be core to more effective long term adaptation in Viet Nam. In addition, strengthening the central and provincial government's ability to quantify, and even estimate its financial exposure to climate change risk will be key to enabling key future adaptation decisions, such as the siting of the national housing programme extension to be based to be based on comparative data rather than driven by donor or project level priorities. Over time, data from CBDRM planning and lessons learned from the project can also help improve the quality and targeting of future adaptation efforts.

Figure 3: Potential Role of Mangroves in Protecting Coastal Communities[19]

[18] Household size in target areas is estimated at 5 people/household, though reports exist that state an average of 4/household, these estimates are considered low for rural areas, as cities which tend to have smaller household sizes, were included in the calculations.

[19] The Importance of Mangroves to People: A Call to Action. van Bochove, J., Sullivan, E., Nakamura, T. (Eds). United Nations Environment Programme World Conservation Monitoring Centre, Cambridge. 128 pp. 52-53 (UNEP, 2014).



71. The project takes an integrated participatory approach working with communities to reduce the impacts of flooding, storms/typhoons and storm surge risk, by providing safe housing and increasing mangrove protection in coastal communities. At the national level, it will increase integration and effectiveness of on-going government investments in resilience, and use quality climate data to direct public sector expenditure where it is most needed and unlock private sector investment into the risk reduction. To meet its objective the project looks at the challenges faced by coastal communities from the perspectives of climate and risk informed planning, application of best practices for climate-resilient infrastructure (particularly as it relates to the most vulnerable in coastal areas), and reduction of the impacts of climate change induced events. Importantly, the overall design of the project underscores the engagement of coastal communities, as their commitment is critical to ensuring long term resilience. The outputs have been designed to promote collaboration and generate knowledge to enhance planning and improve resilience, creating a flow of data and analysis across the Outputs.

72. As agreed by MOC and MARD, ensuring complementarity with previous/ongoing/planned efforts and highlighting government priorities, 7 provinces have been selected for GCF intervention. In year one and two, activities will focus on Thanh Hoa, Thua Thien Hue, and Quang Ngai where particularly pressing needs for both housing support and mangrove regeneration exist. In year three and four, activities will be expanded to Quang Binh, Quang Nam and Ca Mau and Nam Dinh. Nam Dinh will receive only mangrove support. While not currently under the housing programme, Nam Dinh is under consideration for the next phase. The seven provinces selected for housing and mangrove regeneration support have all been identified as areas at high risk to inundation related to extreme sea-levels/ storm surges as well as losses from tropical storms/typhoons.

Output 1: Storm and flood resilient design features added to 4,000 new houses on safe sites, benefiting 20,000 poor and highly disaster-exposed people in 100 communes

73. In the flood and typhoon prone areas of coastal of Viet Nam. GCF finance will provide for the additional cost of safety features and improved monitoring (approximately US$2,000/house), to 4,000 houses constructed under the broader government housing programming benefitting the poor. Specifically these include (a) a concrete roof with strengthened bracings and fittings (US$900), (b) reinforced windows, doors and sealing (US$400) (c) improvements to drainage, siting and raising plinths (US$400) and (d) improved monitoring to ensure that the finished product is one that reflects all of the resilience features of the house design (US$300). As the GCF project will build on the existing government housing programme, the general design of the house is consistent with Figure 1: Flood and Storm-Resilient House Design.

74. Output 1 will be fully coordinated with the government housing programme, grant support to beneficiaries will follow the government's monitoring and disbursement schedule. Government financial support is provided to beneficiaries in 2 financial installments (70% upon completion of the foundation and the second upon completion of the house frame meeting the design specifications). At these critical milestones, there will be a thorough inspection of the construction by

MOC, expertise from the GCF project team and UNDP. As part of regular project management, the same team will conduct site visits to assess project progress and provide tailored support as needed to ensure the targets and the objective of the GCF project, as well as the government housing programme, are on track and ultimately met. GCF supplementary funds for housing will be managed through the project bank account and will be provided directly to households once relevant monitoring and oversight has been completed.

75. GCF finance will also support risk assessments through the established CBDRM mechanism, to ensure that house siting is on a safe location. Links will be made to existing information such as the storm surge maps generated by the Disaster Management Center.

76. The 100 target communes selected for this work will serve as learning hubs for broader dissemination in adjacent communes and provinces. Selection of communes and households to receive support will follow existing government criteria. Criteria and prioritization criteria are further detailed in Annex II: Feasibility Study.

77. GCF resources will also be used to provide training on engineering innovations for flood and storm resistant housing technologies, and to deliver hands-on advice and guidance to local authorities and affected households on safe and affordable house designs and construction.

78. A component on safe housing design will also be added to the current CBDRM risk mapping and planning process which will be rolled out extensively in all coastal provinces. A greater scale of housing schemes that embed the evidence-based good practice of siting and design of climate resilient houses will trigger greater change in family house construction.

79. Climate risk informed selection of safe locations for house construction is critical for stability and resilience. The information necessary to inform site selection is already available and will be collated quickly into information packs at the start of the project, in order to help improve the quality of site verification. While this information is already available, it is not currently well presented and shared, therefore not applied. For example, storm surge hazard maps for large scale typhoons are being finalized by the government for all coastal provinces, but data has not yet been applied at the commune level. Similarly, climate change and sea level rise data is available centrally, but not regularly shared at local level, and even historical disaster data availability is uneven.

80. Based on the information packs, communities will also develop climate sensitive Community Based Disaster Risk Management (CBDRM) action plans, and ranking priorities for community-based risk reduction investments that will be budgeted into the local commune and provincial budgets. Completed commune plans will be approved by the People's Committee and actions that require additional funding can be recommended for inclusion in the government's regular annual socio-economic planning and budgeting (SEDP) process. Climate risk informed commune plans will enable future housing schemes to be climate risk informed in terms of siting decisions and other protective and risk reduction measures. Such risk reduction measures may include reinforcing local dykes, improving local drainage canal networks and other risk reduction measures for excess flood water diversion away from the houses and other units of public infrastructure critical for local service provision and commune development.

81. Existing government-approved planning methods, trainers and monitoring and evaluation systems already developed through the national CBDRM program will be used, applying methodologies which have reached more than 1,700 communes since 2009 and have been identified as a good practice example by the UN, Red Cross, EU, ASEAN among others. This will ensure that implementation costs will be minimized as GCF resources will be used to complement an already ongoing government led programme.

82. Activities for this output thus include:

- Activity 1.1. Grant support for cost of additional flood/storm resilient features to 4,000 houses
- Activity 1.2. Community-based climate and disaster risk mapping and planning
- Activity 1.3. Knowledge products, developed based on lessons learned, for policy makers and communities

83. Further breakdown of the activities is provided in Section H.1.2. Outcomes, Outputs, Activities and Inputs at the Programme/Project level.

Output 2: Regeneration of 4,000 hectares of coastal mangrove storm surge buffer zones using successful evidence-based approaches

84. GCF funds will support regeneration of approximately 4,000 hectares of mangroves, in coastal areas vulnerable to climate change impacts. GCF resources will enable scale up of good practices from various pilots and integrate a field proven successful methods of natural recruitment as a best practice approach. Supplementary funds will allow for the application of improved planting and maintenance technologies outlined above, and implement the measures to ensure that livelihoods are maintained (such as relocating communal shrimp ponds to where the pressures on the mangrove stands will be minimized and the shrimp production can be well maintained).

85. Specific sites within the province for project intervention will be identified/assessed through various criteria, namely (a) exposure to climate change induced events (i.e. typhoons, storm surges, sea level rise, coastal flooding), (b) potential for mangrove restoration, and (c) complementarity with ongoing government or partner support to maximize the impact of combined resources. Regeneration and rehabilitation efforts will be implemented in phases. While the techniques to be used are based on best practices of previous mangrove rehabilitation efforts, given the low success rate of such interventions, a phased approach will allow time for monitoring and assessment of techniques, as well as success of risk mitigation measures. Adjustments will be made as needed to maximize the success rate.

86. As the project will focus on scaling up existing good practice to a transformational scale, regeneration will focus on low to moderate difficulty sites, directly applying evidence-based best practices from efforts in sites with similar challenges. Once the sites are selected, target communes will set up a community committee incorporating both local government and a cross-section of residents to complete a CBDRM risk assessment and planning process using the same six-step methodology outlined under the output 1. Additional sessions on coastal mapping, mangrove regeneration and livelihoods maintenance will be added. The community CBDRM plans will therefore include location specific actions to support implementation and maintenance of the mangroves.

87. The project will then roll out mangrove regeneration actions, complementing the government's baseline funding with support to enable application of improved techniques to increase survival rates. This will be community driven process as part of the commune planning and implementation using the CBDRM process for community mobilization and engagement.

88. Interventions will particularly replicate efforts in southern and Northern provinces of Viet Nam which are currently the main priority area for implementation under the government mangrove regeneration project and where mangrove forests are most naturally suited. They will aim to duplicate good practices in replanting and restoring mangroves considering local conditions of target areas for restoration of mangroves; promote sustainable management of mangroves through community based management; support livelihood development for local people in the mangrove forested areas; and consolidate capacity building, awareness raising and participatory monitoring. GCF funds will also be used to provide additional training to enable Government technical experts to learn about enhanced approaches for potential wider application in other areas. Community groups mobilised through the CBDRM program will also receive training in sustainable mangrove forest management that will support their coastal livelihoods and enhance their protection from coastal storms and flooding.

89. Activities supporting this output are as follows:

- Activity 2.1. Regeneration or replanting of 4000 hectares of mangroves in coastal areas vulnerable to climate change
- Activity 2.2. Community-based programme on mangrove rehabilitation, maintenance and monitoring for target communities
- Activity 2.3. Knowledge products, developed based on lessons learned, for policy makers and communities

90. Further breakdown of these activities can be found in H.1.2. Outcomes, Outputs and Inputs at Project/Programme level.

Output 3: Increased access to enhanced climate, damage and loss data for private and public sector application in all 28 coastal provinces of Viet Nam

91. MARD with assistance of UNDP has worked to establish the first natural disaster loss and damage database, strengthened early warning system design and meteorological service capacity. MONRE with assistance of UNDP has strengthened climate change data and analysis and has completed its own Special Report on Extreme Events (SREX)

submitted to the IPCC in 2014. The government has recently developed Viet Nam's first coastal storm surge maps to improve coastal inundation mapping.

92. Building on this body of work, GCF funds will be used by MARD and MONRE to make this improved information more accessible to government decision makers especially at the sub-national level, on-going national programs and the private sector. This will be done by developing integrated risk maps at the sub-national level using the established methodology that Viet Nam has already applied to produce maps in 20 out of 63 provinces. With GCF funding, Viet Nam will be able to produce, risk mapping of the entire coastal area combing local level knowledge with the best scientific data. This would be a transformative change in Viet Nam's ability to analyse and compare climate change risks in coastal areas.

93. Data quality will also be improved by including super-storm and storm surge data based on 2014-2015 models and more accurate sea level rise projections included in the fifth IPCC assessment report. Additional analysis of salt water intrusion zones using new satellite based technology will also be included. Although this data has been developed, or is near finalisation it is not currently being systematically applied by the Government at any level.

94. To help support financial analysis of potential climate related damage and loss, existing damage and loss databases will be upgraded. GIS-based socio-economic risk model for loss and damages assessment will be developed and used at all tiers of government institutions. This will aggregate climate risk and socio-economic data into accessible indexes and maps to guide investment planning and decisions. These tools will help make a link between climate data and investment/capital expenditure at provincial or national level.

95. GCF resources will enable specific products to be designed to directly support the development of Viet Nam's next five year planning cycle (2020-2025) but will also include additional information on longer term climate change trends up to 2050. In relation to this skills and methods for cost and benefit analysis of a range of risk reduction and adaptation options will be introduced at key government institutions at all levels. A web-based version of climate change risks will enable public access to risk information. The net result will be a significantly more accurate datasets on, and improved management of, all major climate change related risks and hazards for the entire coastal regions of Viet Nam.

96. Activities supporting this output include:

- Activity 3.1 – Update disaster database and establish risk data repository, with mechanisms established for sharing/disseminating information
- Activity 3.2 – Policy support for planning/line ministry staff at the national and sub-national levels to apply disaster/loss information to inform climate resilient planning
- Activity 3.3 – Analysis of risk transfer mechanisms for insurance, including for cases of large scale coastal climate related disaster (loss of more than 3% GDP).

97. Further breakdown of these activities can be found in H.1.2. Outcomes, Outputs and Inputs at Project/Programme level.

C.4. Background Information on Project / Programme Sponsor (Executing Entity)

98. The Ministry of Agriculture and Rural Development (MARD) is the project sponsor (i.e. executing ministry, or Line Ministry in accordance with the Harmonized Programme and Project Management Guidelines (HPPMG)), signed between the Government of Viet Nam and UN in Viet Nam).

99. MARD is a governmental agency with mandated responsibility in the fields of agriculture, forestry, salt production, fishery, irrigation/water services and rural development nationwide, including state management functions with regard to delivery of public service in accordance with legal documents. MARD performs its tasks and authorities based on Decree No.178/2007/ND-CP dated 3rd, December, 2007 issued by the government.

100. Following UNDP National Implementation Modality (NIM) guidelines, the executing entity or Implementing Partner/Executing Entity (UNDP terminology)/Executing Entity (GCF terminology) is the entity responsible and accountable for managing a project, including the monitoring and evaluation of project interventions, achieving project outputs, and for the effective use of UNDP resources. A single Implementing Partner/Executing Entity is designated to manage each UNDP-supported project. The Implementing Partner/Executing Entity may enter into agreements with other organizations or entities to assist in successfully delivering project outputs.

101. Under MARD, the Water Resource Directorate (WRD) will be appointed as the National Implementing Partner/Executing Entity according to HPPMG. WRD has been directly responsible implementation of key National Programmes, such as the national CBDRM programme and the super storm surge and flood mapping projects for all coastal provinces, which the GCF project will complement. WRD already works closely with provinces, MONRE, MOC and MPI including at the commune level. MARD, through WRD, will also tap into on-going partnerships with development partners (e.g. GIZ, JICA, World Bank, ADB, etc), CSO, INGOs and private sectors to mobilize and catalyze resources, maximizing the impact of combined resources. Nationally, WRD serves as the Standing Office for Central Committee for Natural Disaster Prevention and Control, which is an inter-ministerial coordination body with strong capacity to mobilize across sectors, line ministries and provinces.

102. UNDP provides the required financial resources to the Implementing Partner/Executing Entity to carry out project activities during the annual cycle. These arrangements will be clearly stated in the annual work plan. Under the Harmonized Approach to Cash Transfer (HACT), three cash transfer modalities are available: direct cash transfer, direct payment, and reimbursement. Additional information about financial management is provided in section F.4. of the proposal.

103. Engagement with MOC, as a Responsible Party, will be formalized through a Letter of Agreement (LoA). A Responsible Party is defined as an entity that has been selected to act on behalf of the Implementing Partner/Executing Entity on the basis of a written agreement or contract to purchase goods or provide services using the project budget. In addition, the Responsible Party may manage the use of these goods and services to carry out project activities and produce outputs. All Responsible Parties are directly accountable to the Implementing Partner/Executing Entity in accordance with the terms of their agreement or contract with the Implementing Partner/Executing Entity. Implementing Partners/Executing Entities use Responsible Parties in order to take advantage of their specialized skills, to mitigate risk and to relieve administrative burdens.

C.5. Market Overview (if applicable)

104. As Output 3 includes the generation of climate risk information products for the private and insurance sectors, a brief summary of the potential for these products is provided below.

105. More than 30 million people live in coastal provinces in Viet Nam that face increasing storm and flood risk. GDP growth rates for these areas averaged more than 5% annually in recent years, and there is a strong demand from provincial authorities to make sure that people's houses and public infrastructure is climate resilient and to maintain natural mangroves to buffer against storm surge risk. Viet Nam needs a better integrated coastal master planning and coastal defence management to protect development gains from climate change related impacts. Improved historical disaster databases at commune level and improved data on loss and damage are required to increase public planning quality and financial risk modelling.

106. To act upon improved data, communities require access to proven resilience building technologies which are available but which have not been widely disseminated or applied at commune level.

107. Viet Nam's emerging middle class and rapid pace of development suggest significant untapped potential for the insurance sector, as long as products are able to be appropriately priced, tailored to client needs, and policy systems and safeguards are in place for consumers. Per the Ministry of Finance's annual Insurance Market report, from in the period 2005 to 2012, insurance business revenue increased by an average annualised rate of 13 percent to 15 percent a year, totalling approximately US$2 billion by the end of 2012. However, only about 20% of this market covers housing and property and less than 1% agricultural product insurance

108. Government staff has requested technical skills development in risk transfer and loss and damage accounting to enable them better apply financial planning parameters in their planning at national and provincial level. It is envisaged that this GCF funded project will lay the foundations for these types of financial services to be developed and unleased. Without this type of barrier removal intervention, Viet Nam will not be able to tap into the potential of such financial services.

C.6. Regulation, Taxation and Insurance (if applicable)

Permits for Construction, Land Use and Reforestation

109. Residential land in Viet Nam is leased from the government. The existing methods for checking the legality of land tenure for the ongoing government housing programme will be applied to sites of the GCF-supported interventions. Similarly mangrove forests are government property; sites selected for mangrove regeneration activities will reflect government conservation policies and priority areas.

Tax Management Under UN-supported Projects in Viet Nam

General Provisions

110. Procurement for UN-supported projects is VAT-refundable. In principle, VAT is paid from counterpart funds. In case such counterpart funds are not yet available, the PMU pays VAT to the supplier from the cash transfers received from the UNCO and the amount of VAT is to be refunded to the project budget.

VAT Accounting

111. VAT shall be accounted for in a separate account. VAT of the fourth quarter of each year is accounted for in the following year.

VAT Refund

- On a quarterly basis, the Project Director is responsible for clearing the claims for VAT refund for each quarter, in accordance with current State rules and regulations. If the project has completed all the procedures for tax refund but VAT has not been refunded at the time when a scheduled audit is conducted, the UNCO will not deduct the VAT value from the amount of cash to be transferred for project activities in the following quarter.
- VAT refunds are deposited at the bank account of the project.

112. The timelines, procedures and supporting documents necessary for claiming VAT refunds and the tax authority responsible for VAT refund are specified in the Project Accounting Handbook.

Foreign Exchange and Insurance Policies

113. UNDP's currency hedging policy is based on the use of natural hedges (matching cash flows (i.e. revenues and expenses) in non-USD currencies) to the extent possible. UNDP Country Office bank account balances are managed not to exceed approximately one month's disbursement requirements to minimize risk.

114. The Government of Viet Nam signed a Standard Basic Assistance Agreement (SBAA) with UNDP in 1978. Consistent with the Article III of the SBAA, the responsibility for the safety and security of the Implementing Partner/Executing Entity (executing entity) and its personnel and property, and of UNDP's property in the Implementing Partner/Executing Entity's custody, rests with the Implementing Partner/Executing Entity (executing entity).

C.7. Institutional / Implementation Arrangements

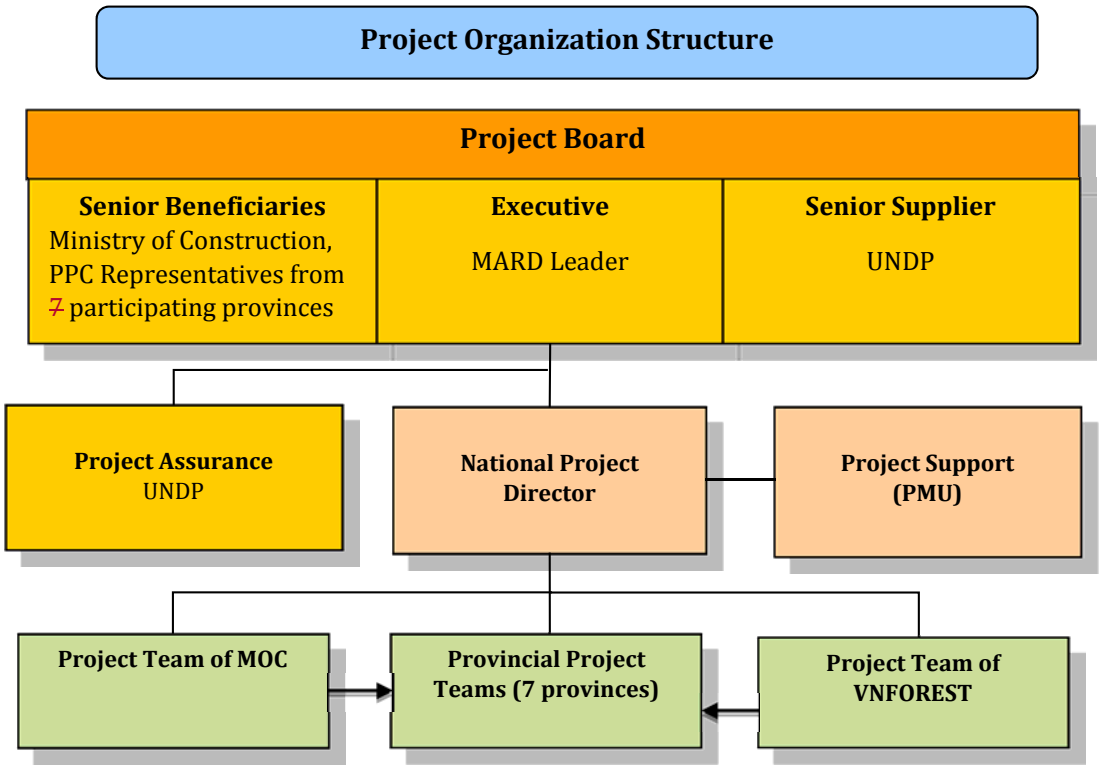
115. The project will be implemented following UNDP's National Implementation Modality (NIM), according to the Standard Basic Assistance Agreement between UNDP and the Government of Viet Nam, the One Plan (2012-2016), and the policies and procedures outlined in the UNDP POPP (see https://info.undp.org/global/popp/ppm/Pages/Defining-a-Project.aspx).

116. The national executing entity - also referred to as the national 'Implementing Partner/Executing Entity' in UNDP terminology - is required to implement the project in compliance with UNDP rules and regulations, policies and procedures, including the NIM Guidelines. These include relevant requirements on fiduciary, procurement, environmental and social safeguards, and other performance standards. In legal terms, this is ensured through the national government's signature of the UNDP Standard Basic Assistance Agreement (SBAA), together with a UNDP project document which will be signed by the Implementing Partner/Executing Entity to govern the use of the funds. The SBAA was signed with the Government of Viet Nam in 1978.

117. **The (national) Implementing Partner/Executing Entity** for this project is the Water Resource Directorate (WRD) in the Ministry of Agriculture and Rural Development (MARD, Line Ministry) which is accountable to UNDP for managing the project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources.

118. The following parties will enter into agreements with WRD to assist in successfully delivering project outputs and are directly accountable to WRD as outlined in the terms of their agreement: the Ministry of Construction (MOC), the Viet Nam Administration of Forestry (VNFOREST) and the Provincial People's Committees (PPCs) of seven provinces (Thanh Hoa, Thua Thien Hue, Quang Ngai, Quang Binh, Quang Nam, Nam Dinh and Ca Mau).

Figure 3: Schematic of the Management Arrangements for the Proposed Project



119. **UNDP's overall role** as an Accredited Entity is to provide oversight and quality assurance through its Headquarter and Country Office units. This role includes: (i) project preparation oversight; (ii) project implementation oversight and supervision, including financial management; and (iii) project completion and evaluation oversight. It also includes oversight roles in relation to reporting and knowledge-management. The '**project assurance**' function of UNDP is to support the Project Board by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. Project assurance has to be independent of the Project Manager; therefore, the Project Board cannot delegate any of its assurance responsibilities to the Project Manager. A UNDP Programme Officer, or M&E Officer, typically holds the Project Assurance role on behalf of UNDP. The 'senior supplier' role of UNDP is to represent the interests of the parties which provide funding and/or technical expertise to the project (designing, developing, facilitating, procuring, implementing). The senior supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project. The senior supplier role must have the authority to commit or acquire supplier resources required. If necessary, more than one person may be required for this role. Typically, the Implementing Partner/Executing Entity, UNDP and/or donor(s) would be represented under this role.

120. The **Project Board** is comprised of the following organizations: Ministry of Agriculture and Rural Development (MARD, Ministry of Construction (MOC), UN Development Programme in Viet Nam, and the Provincial People's Committees (PPCs) of seven provinces (Thanh Hoa, Thua Thien Hue, Quang Ngai, Quang Binh, Quang Nam, Nam Dinh and Ca Mau). The Project Board is responsible for making, by consensus, management decisions when guidance is required by the National Project Director. Project Board decisions will 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 a consensus cannot be reached within the Board, final decision shall rest with the UNDP Programme Country Director. The Project Board will meet every six months.

121. The **National Project Director** will run the project on a day-to-day basis on behalf of WRD within the parameters laid down by the Project Board. The National Project Director will end when the final project terminal evaluation report, and other documentation required by the GCF and UNDP, has been completed and submitted to UNDP. National Project Director is responsible for day-to-day management and decision-making for the project. The National Project Director's prime 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.

122. In accordance with HPPMG and Viet Nam's ODA regulations, MARD's Minister will delegate authority to the Ministry of Construction and PPCs of seven participating provinces to take the roles and responsibilities of the Line Ministry (executing ministry) for outputs/activities designed for their ministry and provinces, respectively.

123. On behalf of MARD, WRD will be coordinating MOC and seven PPCs on planning, management, implementing and M&E of the project based on the signed agreements. A standard template of the agreement and working modality are specified in the HPPMG.

C.8. Timetable of Project/Programme Implementation

See Annex X

D.1. Value Added for GCF Involvement

124. The GoV invests heavily in disaster risk reduction. Climate related disasters in Viet Nam have caused an average annual loss of US$1.8 billion or 1.5% of GDP (UNDP, 2014). In response, the government allocates budgetary resources through targeted government programmes to minimize losses and to protect the population and economic assets. The recent CPEIR outlined that 18% of spending in five key government ministries could be linked to climate adaptation benefits.

125. Despite these investments, the performance of government programmes is often sub-optimal, disconnected and geographically scattered. The below table summarizes strengths of ongoing government programmes and areas where GCF support would provide needed value.

Table 1*:* Synergy of Impacts of Existing Programme Strengths

	Strengths of Current Government Support	GCF Value Added
Mangrove Rehabilitation	MARD's experience in mangrove rehabilitation, and firm commitment by government to scale up current programme using evidence supported approaches to improve mangrove survival rates.	GCF intervention will scale-up the good practices from various pilots and integrate successful methods of natural recruitment as a best practice approach to regenerate 4,000 hectares of mangroves. Funds will allow for the application of improved regeneration and maintenance technologies outlined in above sections, and implement support measures to ensure that temporary disruptions to livelihoods are addressed (i.e. relocating communal shrimp ponds impacted by plantations as part of the regeneration plan). Improved approaches will also include support activities to engage participation by communities, through the CBDRM programme, at all stages of mangrove regeneration (i.e. nurseries, planting, monitoring), and to support communities as necessary to ensure livelihoods are not adversely impacted by project interventions. Technical and financial support will also be provided to enable MARD to upgrade official technical guidelines and policies to integrate proven approaches as standard in future mangrove regeneration plans and programmes.
Government Housing Programmes	MOC's strong technical expertise in house design and construction, experience in rolling out large scale projects, and functioning financial model to support vulnerable households.	The proposed GCF intervention will combine the approved CBDRM methodology for community risk mapping with the application of the enhanced MOC building designs + climate resilience features, to increase the effectiveness and scale up of safe housing schemes for the most vulnerable in coastal areas. This critical link will ensure that homes, often the sole asset of the poor, are located on a safe site and can withstand, not only current climate change related impacts, but also those of projected increased intensity in the years to come.
Community Based Adaptation/ Disaster Risk Management	Participatory, inclusive and accountable structures that can reach communities and has strong, sustained ownership. Communities are also the generators or valuable data on loss and damages as well as other climate change impacts. Programme includes mechanism to develop community-based adaptation plans	

	and includes support needs into regular provincial planning processes.	GCF support will also ensure training for stakeholders in all 28 coastal provinces on improved climate resilient housing design, which (a) address the incremental increases in risk associated with projected climate change and extreme events, and (b) apply improved risk data and community knowledge to ensure that selected sites are safe. At the national level, GCF support will enhance technical standards and regulatory frameworks for future government disaster-resilient housing programmes.
Climate Risk information	The government has been proactive in working with national and international institutions to promote strengthening of data for climate change projections and key risks such as super-typhoon storm surge.	GCF support will build on past and ongoing efforts to collect and record disaster and loss data, and to build a cadre of technical government staff with the necessary skill set to analyze the data, as well as train policy makers on applying the analysis into planning. Overall, actions are designed to contribute to a transformation of the Government of Viet Nam's current approach to supporting and facilitating adaptation. GCF funds will enable the government to pursue a long term strategy that combines current risk reduction approaches with improved probabilistic climate change risk management approaches to protect development gains. To ensure that data is provided in a format and means that is useful for the private sector, and to increase government understanding of how it can create incentives for risk manage product in the future, the project will support dialogue between the private sector and relevant national and provincial government actors. This will include technical dialogue with the private sector on improving the application and accessibility of hazard and damage and loss data. Industry wide consultations on current barriers and solutions for increasing private sector risk sharing and transfer engagement in managing climate is in Viet Nam will also be supported.

126. GCF involvement is critical twofold: (i) climate change projections suggest that coastal threats will likely to increase in Viet Nam. Floods, sea swells, storms and typhoons will likely increase in occurrence and intensity. Therefore additional investment in generating climate risk information to inform and improve the current government programmes in safe housing and coastal protection is necessary; and (ii) climate related threats also require additional climate finance to increase the scale of climate risk reduction investments to protect the coastal settlements (people and their main assets – the homes) as well as improve the methods and application of a good practice, GCF involvement will considerably enhance the ongoing government programmes with climate risk information, employing best practices and scaling-up achievement of successful pilots and good international practice. As a result the proposed investment will be transformational. More specifically, the value addition of the GCF funding is discussed further under each output.

Output 1: Storm and flood resilient design features added to 4,000 new houses on safe sites, benefiting 20,000[20] poor and highly disaster-exposed people in 100 communes

127. The current government housing programme prioritizes the security and safety of the poorest segments of society, particularly those residing in the most exposed coastal regions. However, methods of siting and designs of houses are not well established, and lack the sufficient technical rigor to withstand increasing coastal threats. While enhanced designs exist and have been tested, MOC is unable to apply the improved design due to budgetary constraints. GCF funds will cover the incremental costs of the additional safety features, based on lessons learned from previous housing programme designs and the successful design piloted in Da Nang, estimated at $2000/house. GCF involvement will also link the housing programme to community based approaches for risk assessment to inform safe siting for the new constructions. Engagement of the community is essential for behavioral change and long term adoption of construction methods and standards for greater stability and safety. The GCF funds will thus facilitate the dissemination of potentially life-saving data on extreme zones for storm surges, sea level rise and flooding to communities for the first time.

128. This improved linkage between national level data and communes will be essential for land-use decision making and for reducing the exposure of assets to potential climate change impacts as Viet Nam's rapid development continues. By introducing climate smart CBDRM across the entire coast (covering all 28 provinces and 500 communes), GCF assistance will enable the risk information to be compared across the entire coast, triangulating central and local data spatially to provide critical risk information inputs into the planning and decision-making. Improvements in trade-off assessment, cost-benefit analysis will only be possible with robust statistics to improve coastal planning and investment decisions. Given a high degree of exposure of the coastal area, such full coverage in risk information will transform the government planning and budgeting process.

Output 2: Regeneration of 4,000 hectares of coastal mangrove storm surge buffer zones using successful evidence-based approaches

129. Mangrove areas create a vital buffer between the sea and coastal communities. Storm and flood resilient homes protect families and their productive assets from the impacts of climate change. Mangrove rehabilitation efforts have a high failure rate in many countries. This is also a challenge the GoV is facing. The government has invested in rehabilitation of mangroves, however the current survival rate is only 50%. By providing technical assistance to replicate successful approaches, specifically natural generation, GCF funding will increase the survival rate to 80%. Similar to Output 1, GCF resources will link mangrove regeneration to participatory community-based approaches to mapping, planting and monitoring, to ensure sustainability of mangrove regeneration efforts. Importantly, mangrove regeneration will be preceded by research and analysis to ensure that soil conditions and community pressures are taken into account. Where necessary, critical livelihoods which interfere with mangrove growth (i.e. aquaculture) will be relocated to a more suitable and sustainable location.

130. Each of the above outputs will be implemented in phases, to allow for the further generation of best practices and lessons learned, to inform the continued roll-out of existing programmes, as well as to enhance related policies and future planning.

Output 3: Increase access to enhanced climate, damage and loss data for private and public sector application in all 28 coastal provinces of Viet Nam

131. Existing climate risk information databases are currently weak in Viet Nam. The critical data and analysis generated from Outputs 1 and 2 will be collected and documented for use in mainstreaming CCA and DRR into broader government investment planning, at the national and local level. Further, improved climate risk information both in terms of quality and accessibility will enable additional public and private finance to flow into climate risk reduction and climate resilient solutions in the coastal region. Tailored climate risk products will be developed and made available to the private/finance sector to improve their planning and to incentivize their investment in climate change adaptation and disaster risk reduction activities. Given the ongoing investment to adapt to climate change, the GoV is not financially prepared for a major climate event. Given the increased likelihood of a major event, such as a typhoon, the GoV requires

[20] Household size in target areas is estimated at 5 people/household, though reports exist that state an average of 4/household, these estimates are considered low for rural areas, as cities which tend to have smaller household sizes, were included in the calculations.

support in identifying and exploring risk sharing options, such as catastrophe bonds. GCF funds will therefore not only improve public planning, but also open opportunities for cost and risk sharing.

D.2. Exit Strategy

132. The activities undertaken through this project are embedded in ongoing government programs, government staff will therefore be centrally involved in implementing activities, thus ensuring sustainability of interventions and retention of knowledge beyond the duration of GCF involvement. The project aims to build upon and enhance existing government programmes in key areas including safe housing, mangrove restoration and community based disaster risk management and assessment. Evidence-based best practices established by the GCF project will continue to inform subsequent phases of the programmes as well as enhance policy and planning, extending beyond the duration of the project. This is ensured through a collaborative partnership with UNDP, MARD, MOC and other stakeholders throughout implementation. Related costs are therefore already captured in the programme budget.

133. The housing output builds on the well-established government resilient housing programme. Best practices and lessons learned from the proposed activities will inform the planned subsequent phases of programme, as well as broader infrastructure planning, ensuring continued project impacts in the longer term. GCF funds will cover only the incremental costs of additional safety features (i.e. mezzanine above the project flood level, and walls and roof reinforced with concrete). The main investment is a grant/loan combination provided under the government programme. As programme recipients commit to a 10-year loan under the government programme, there is already vested interest on their part to maintain the structure. This is already evident in the current phase of the programme as families further invest in personal touches (e.g. paint color on exterior walls and other embellishments) to add personal touches to the flood and storm-resilient structures. In addition, as housing is often the sole major asset of poor families, the ability of families to protect their productive assets (e.g. seeds, livestock, etc.) during a flood or strong storm will reduce the damages and losses they would otherwise incur. These avoided damages and losses will relieve some of the financial pressure of recovering from climate change events.

134. The housing designs to be applied through the project have been developed to incur low on-going maintenance costs. Designs features also aim to ensure that the more vulnerable structural elements, such as roofs and corner bracings are reinforced during construction, reducing potential repair costs. (Due to their concrete construction, annual maintenance costs are often lower than in thatch and bamboo construction which requires significant annual care and investment). In addition, the project will also disseminate information on how to prepare for storms to reduce potential damage based on existing MOC materials (i.e. securing items, use of sandbags, etc.). In the event that a house should be damaged during a storm despite these efforts, households will be eligible for limited compensation for repairs through existing disaster response assistance schemes operating at the provincial level.

135. Community-based planning processes undertaken through the project will ensure that mangrove regeneration is only supported in areas where long term maintenance is feasible. As most areas to be selected will already have been designated as protected forests in some form, regular maintenance budgets will be provided through existing government budget lines for maintenance after the end of the project, by the community. A community-based approach to regeneration and monitoring will ensure a sense of ownership by the community, as well as a financial incentive to maintain the mangrove areas and, in some cases, change behavior which would otherwise interfere with mangrove growth (e.g. aquaculture). Similar to the above, the best practices and lessons through GCF involvement will feed into MARD planning processes to inform future investments/programs on protected areas and mangrove regeneration.

136. For Output 3 on climate risk information, data will be collected and documented in government disaster and loss database. To ensure that the database is being actively populated and maintained after GCF involvement, a successful model will be employed which has been used by UNDP in previous efforts to establishing disaster databases in the region. Indonesia[21], Cambodia[22] and Sri Lanka[23] are considered best practices, as extensive work has been done to populate and verify their disaster databases. In each of these cases, the government has now assumed full responsibility

[21] http://dibi.bnpb.go.id
[22] http://camdi.ncdm.gov.kh
[23] http://www.desinventar.lk

for maintaining it going forward. In preparation, UNDP provided financial support for a database manager and assistant to support with establishing the database and populating it with historical data.

137. Training was provided to the designated disaster agency in the country on how to collect, verify and document data. Training was also provided to planning and line ministries on how to apply the data in planning. This project will use this same approach. Given the prioritization of this activity by government, there is little to no risk that the database would not be maintained going forward, provided that adequate support and training is provided through implementation of the GCF project.

138. Skills training provided by the project (e.g. CBA training and application of climate risk information into planning) and will be made available on web-based platforms, to ensure that learning opportunities are available as refreshers, as well as to offer the training to a greater number than those targeted by the project. In this way, the project supports the development of a cadre of experts on economic analysis and the integration of climate risk information into planning. The tailored climate risk information products and de-risking mechanisms of Output 3 will seek to incentivize greater engagement and investment with the private and finance sectors, thus relieving some of the financial pressure the GoV faces, and will continue to face, related to responding to current and projected climate change.

139. Further, Outcome 3 seeks to incentivize engagement by the private and finance/insurance sector. Where necessary, legal arrangements will formalize interventions and partnerships. This will be decided, as necessary, during project implementation upon discussion and negotiation with relevant parties.

140. Overall, the common thread across the project outputs is the integration of enhanced climate risk information and application of best practices in broader planning, thereby ensuring sustainability and introducing a paradigm shift.

E.1. Impact Potential

Potential of the project/programme to contribute to the achievement of the Fund's objectives and result areas

E.1.1. Mitigation / adaptation impact potential

141. The GCF funds will benefit a number of different constituents in Viet Nam. This includes:

- 20,000 highly vulnerable people directly benefit from safer, more climate resilient housing (direct beneficiaries, 60% female)[24]
- The total population of 3,865,100 people in the target coastal provinces will benefit from the protection offered by healthy and robust mangrove areas (indirect beneficiaries, 50% female)[25]
- More than 30million people living in 28 coastal provinces benefit from improved climate risk mapping and participatory disaster risk management planning and risk reduction practices (indirect beneficiaries, 50% female)

142. In addition, the 500,000 people will have access to safe low cost flood and storm resistant housing technologies through further dissemination of CBDRA and safe housing designing and training though the CBDRM programme.

143. Registered members of the Association of Viet Nam Insurers gain free access to improved disaster and climate change risk data.

144. At least 4 government institutions ministries will benefit from targeted institutional capacity development in the area of climate risk management: Ministry of Planning and Investment (MPI); Ministry of Agriculture and Rural Development (MARD); Ministry of Construction (MOC) and Ministry of Natural Resources and Environment (MONRE)

145. At least 4 of national academic institutions will benefit from improving their human resource and knowledge base in the area of climate change adaptation: Institute of Meteorology, Hydrology, Environment and Climate Change (official technical focal point for climate projections) and Viet Nam Academy of Water Resources (official technical focal point for flood risk and mapping), the Institute for Building Science and Technology (IBST) (official technical focal point for building code and housing standards and the Viet Nam Academy of Forest Sciences (as technical focal point for forestry, including site assessment for tree species selection, technical measures for restoration of mangroves).

E.1.2. Key impact potential indicator

Provide specific numerical values for the indicators below.

GCF core indicators	*Expected tonnes of carbon dioxide equivalent (t CO_2 eq) to be reduced or avoided (Mitigation only)*	*Annual*	93,036
		Lifetime	1,860,720
	• *Expected total number of direct and indirect beneficiaries, disaggregated by gender (reduced vulnerability or increased resilience);* • *Number of beneficiaries relative to total population, disaggregated by gender (adaptation only)*	*Total*	30 million people who live in coastal provinces of Viet Nam (15 million female), indirect beneficiaries
		Percentage (%)	30%

[24] Average household size in target areas is 5/household, targeting 4,000 houses
[25] There are an estimated 4,000 – 10,000 people/commune. The conservative 4,000 was used for the target 25 communes.

Other relevant indicators	*Examples include:* • *Expected increase in the number of households with access to low-emission energy* • *Expected increase in the number of small, medium and large low-emission power suppliers, and installed effective capacity* • *Expected increase in generation and use of climate information in decision-making* • *Expected strengthening of adaptive capacity and reduced exposure to climate risks* • *Others*

146. The estimation of carbon sequestration in the project is based on a review of studies on carbon stock in mangroves (Y. Okimoto et al 2013 for Nam Dinh and Thanh Hoa; Vu Tan Phuong et al 2012 for Kien Giang and Ca Mau provinces; GIZ 2012 for Kien Giang and Soc Trang province). The studies estimated the annual biomass increment varies from 15 – 20 ton/ha/year depending on the sites (in the South, the biomass increment is higher). Information is not available for degraded mangroves. To be conservative, an increment rate of 15 ton/ha/year for estimation carbon sequestration. The carbon fraction used is 0.5; emission associated with mangroves regeneration comes mainly from seedlings production (e.g. emissions caused by fertilizers) and transportation of seedlings to the site (i.e. gasoline) and is estimated at 80tCO2 eq/ha/year. The estimation of emission reductions in mangroves activities is as follows:

Total area of mangrove regenerated (ha)	4,000
Mean biomass increment (ton/ha/year)	15.4
Carbon fraction	0.5
Lifetime/rotation (year)	20[26]
Carbon sequestration per hectare in lifetime (tCO2 eq/ha)	565
Net carbon sequestration (emissions deducted) (tCO2 eq/ha)	485
Total emission reduction for regenerated areas (tCO2/20 years)	1,860,720
Costs for reduction (US$/t CO2 eq)	6.18

147. Carbon sequestration of mangroves in Viet Nam varies from site to site and depends on species composition. In the South, mangroves have the highest growing stock, thus carbon sequestration capacity is higher compared to the North. Several studies indicated that annual biomass increment of mangrove is 20 tons/ha/year for the North (Nam Dinh and Thanh Hoa province; Okimoto 2013) and 25-40 tons/ha/year in the South (Ca Mau, Kien Giang, Can Gio; Tan 2002; Nam 2010; Wilson 2010). This value is about 36 tons/ha/year in Malaysia (Ong 1993), and is 28-70 tons/ha/year in Thailand (Christensen 1978). This indicates that biomass increment rate of mangrove in the South of Viet Nam is quite similar to that of Malaysia and Thailand.

148. Estimation of carbon dioxide equivalent to be reduced or avoided is based on biomass increment generated by restoration of mangroves. The formula for the estimation is: CO2eq = biomass*CF*44/12.

149. Where biomass is dry mass generated by forest growing; CF is carbon fraction (considered as 0.5) and 44/12 is conversion from carbon to carbon dioxide. As the biomass increment varies from sites to site, a “conservative estimation” was used (i.e. an estimated minimum biomass increment value).

150. The biomass increment is estimated for 20 years as the minimum lifetime of the mangroves and the increment rate is estimated based on ages of mangrove. For age < 5 year, biomass increment is 5 tons/ha/year; age of 5-10, increment is 17 tons/ha/year; age of 11-15 is 21 tons/ha/year; age of 16-20 is 14 tons/ha/year.

[26] The project is 5 years in duration, but mangroves will be at least maintained for 20 years - it is estimated that mangroves become stable at 20. Emissions are therefore counted for whole lifetime of mangroves. As an estimate, within 5 years, the project will generate: 15.5 ton biomass* 4000ha*0.5*3.67 = 565,180 ton CO2

151. The reduction of 1,860,720 tCO2e over 20 years though the rehabilitation of 4,000 hectares of coastal mangroves is captured in section E.3.1. Environmental, social and economic co-benefits, including gender-sensitive development impact.

E.2. Paradigm Shift Potential

Degree to which the proposed activity can catalyze impact beyond a one-off project/programme investment

E.2.1. Potential for scaling up and replication (Provide a numerical multiple and supporting rationale)

152. The project will catalyse a paradigm shift in government climate change resilient investment, moving from top-down sector investment towards participatory, integrated risk-informed approaches. Two complementary transformative effects are expected: First, increased community participation and strengthened synergies between on-going Government programs will increase their effectiveness and sustainability. Second, increases in quality and access to data will support more accurate risk planning and contribute to a more conductive environment for risk transfer product development in Viet Nam.

Increasing effectiveness of on-going Government resilience programs

153. The project interventions will scale-up an integrated model of change, working in all 28 coastal provinces in Viet Nam. The activities will directly complement on-going government investment programs, aiming to creating a multiplier effect where government investments are made more sustainable and effective through project co-finance. Project actions will directly enhance implementation of national programs on safe housing and national disaster preparedness, coastal mangroves and CBDRM.

154. The Constitution of Viet Nam, under Article 59 section 3, affirms that the State shall exercise a policy of housing development and create conditions so that everyone shall have housing. As third of the population (30million people) reside in coastal provinces, there is significant potential for further upscaling, both to equally vulnerable groups or to further enhance homes of middle income families. The design can also be tailored as needed to reflect the key concerns of other vulnerable areas (e.g. the Mekong delta).

155. The GCF project targets 4,000ha of mangroves. The potential for further upscaling is significant given the large scale loss of mangroves in Viet Nam - from 408,500ha 1943 to only 59,760ha in 2008. Evidence-base best practices will be made available to other countries. Timor-Leste for example is also facing challenges in maintaining its mangrove areas due to rapid coastal development and can benefit from the knowledge generated by this project.

156. Target provinces have been selected as being at particularly high risk to sea level, storm surge and/or mangrove loss. Using existing maps of CBDRM coverage as a base, GCF resources will be used to ensure that more than 95% of all coastal communes in 28 provinces have CBDRM plans. These plans include priorities for investments to adapt to climate change and build resilience. As the ensuring integration of priority actions outlined in the plans into the annual socio-economic development plan and budget is one of the key steps of CBDRM plan development, this coverage density will also significantly influence annual provincial planning processes along the entire coast of Viet Nam. The risk assessments as part of the CBDRM process can be applied for various purposes, the methodology will be disseminated through the CBDRM programme to reach the target 6000 communes, and more beyond the GCF project duration.

Promoting access to quality data to strengthen planning and private sector product development

157. Improving the quality and accessibility of data can have a transformative effect on risk management planning and practice in Viet Nam. Decision making regarding investment planning and adaptation project prioritization currently does not benefit from probabilistic risk analysis either in terms of likelihood or in terms of financial exposure. In addition to enhancing implementation of projects already under implementation up to 2020, early provision of improved risk data to all coastal and delta provinces can catalyse the Government to replicate this integrated approach in the design of its 2020-2025 planning cycle.

158. Solid historical extreme event data and other climate related risk information is also the engine for private sector risk transfer product development. GCF resources will generate and make accessible data and tools such as risk maps and financial models to support more accurate decision making in climate change adaptation at all levels.

159. Strengthened systems for collecting commune level data on disaster damage and losses will also greatly enhance long term datasets that are also used in generating IPCC and other national analysis.

160. In numerical terms this transformation can be summarized as:

- All 28 coastal provinces of Viet Nam will have up-to date, comparable risk maps that are able to account for risks such as storm surge as well as potential long term climate change impacts (currently no provinces have such maps, and where data is available at provincial level it is not comparable).
- Average success rates for coastal mangrove regeneration in coastal areas will be increased from an average of 50% to more than 80% and capacity to technically execute this standard will be transferred from a the current handful of successful pilot project provinces to provincial staff from all coastal provinces;
- Government flood resistant housing projects will for the first time be integrated in wider resilience building efforts, and will differentiate between extensive and super-typhoon/ storm surge risk, directly applying lessons learned from the Philippines post-Tacloban experience. Future generations of housing projects will include analysis of improved risk maps, as well as CBDRM practices in planning and executions.

161. Finally, in all coastal provinces, lessons learned, as well as potential project gaps will be directly analyzed during annual budget planning processes (during Step 5 of the CBDRM process) resulting in likely increases in regular investments for resilience building, and key Governments standards, plans and policies will be upgraded.

E.2.2. Potential for knowledge and learning

162. At the commune level, local residents and officials will for the first time have an opportunity to share and learn about the climate change risks in their communes, combining participatory local knowledge based CBDRA processes with data from scientifically robust information packs containing up-to-date climate change and risk data. Communes will also be able to learn about safe housing options, and the benefits of mangrove regeneration in reducing storm surge risk and strengthening ecosystems. Community capacity to translate learning in action will be enhanced through support to influence provincial annual budget processes, and through documentation of good practice regularly throughout the project.

163. At the provincial level, provincial technical capacity will be directly enhanced in relation to all three project outputs. Cumulatively this will help replicate lessons learned from successful coastal pilot projects more widely, as well as directly increasing application in land use and other planning processes.

E.2.3. Contribution to the creation of an enabling environment

164. Output 3 will increase access to enhanced climate, damage and loss data for private and public sector application.

165. In order for this information to be convincing to policy makers, hazard impacts also need to be able to be expressed in financial terms that can estimate the value of current and future assets at risk. To do this requires analysing historical damage and loss data to better understand its current impacts on an economy, and then building the capacity to model this for likely future climate change related impacts. Viet Nam has recognised the need for this information, but efforts to support improved financial modelling of climate change risk are fragmented and largely under-developed. The long term impact of this gap on development potential is significant. The ability to manage financial risk of low probability, high impact events has been identified as perhaps the largest difference between low and middle income countries' adaptation capabilities.

166. In order to help make sure data is provided in a format and means that is useful for the private sector, and to increase Government understanding of how it can create incentives for risk manage product in the future, the project will also support dialogue between the private sector and relevant national and provincial government actors. This will include technical dialogue with the private sector on improving the application and accessibility of hazard and damage and loss data. Industry wide consultations on current barriers and solutions for increasing private sector risk sharing and transfer engagement in managing climate is in Viet Nam will also be supported.

167. In order to unlock the public and private sector investment into the risk reduction solid data on historical loss, and downscaled climate impact data are required. These are currently inaccessible outside of government, or of insufficient quality in coastal Viet Nam. Investments in this output therefore directly contribute to creating enabling conditions in which the public and private sector can invest in risk reduction efforts more systematically.

E.2.4. Contribution to regulatory framework and policies

168. The project specifically aims to enhance the implementation of existing government plans and programs, and each output has a specific technical capacity building built in. In addition, each output also includes a specific policy strengthening element, which will support the government with technical inputs to enhance or upgrade official policy documents and directions.

169. Improved risk mapping for provinces is critical for upgrading climate-responsive planning in Viet Nam. Improved quality data generated will also directly enhance the quality of future climate projections and IPCC inputs.

170. Scaling up mangrove regeneration is a key priority of the government in the draft INDC for Viet Nam in part due to the considerable mitigation and adaptation co-benefits achieved. Improved standards and cost norms for applying approved technologies will enhance the ability of the government to meet key targets to increase forest coverage in storm impacted areas.

171. Strengthening community participation at commune level, and piloting the integration of national CBDRM efforts with other national programs also presents considerable potential for using these commune level groups as vehicles for awareness raising green growth, energy efficiency and other areas. Within the Government, potential to include specific additional activities in safer housing programs that could address the energy efficiency, potential solar power or other green growth related needs of poor households will also be considered during policy support in the drafting of the next round of national programs.

E.3. Sustainable Development Potential

Wider benefits and priorities

E.3.1. Environmental, social and economic co-benefits, including gender-sensitive development impact

172. Project objectives have been designed to build directly build on and strengthen the implementation of existing government projects and plans and to raise the skills of existing government staff and community leaders. These factors will significantly increase the long term contribution of interventions. The project will also contribute to sustainable development through other co-benefits summarized below:

Economic benefits

- Improved planning integrating climate risk information, benefiting 30,000,000 coastal residents
- Reduced disaster losses in key sectors including agriculture and housing in coastal and delta communes
- Increased accuracy of climate data reduces economic uncertainty and increases the economic feasibility of risk management products and services
- Financial plan in place for the government to manage financial risks from major coastal disaster (in excess of 3% of GDP)
- Increase in access to affordable climate risk insurance products for coastal and delta populations

Social Benefits

- Safe housing for 20,000 people, in high risk, low income households
- Improved access to safe housing for 500,000 people, particularly in high risk, low income households
- The total population of 3,865,100 people in the target coastal provinces will benefit from the protection offered by healthy and robust mangrove areas.
- Reduced injury and loss of life due to extreme climate disasters
- Strengthened inclusive planning in target communes that ensure representation from vulnerable groups including those with disabilities, minority groups, youth and the elderly.
- Improved two-way communication mechanisms and inclusion of resilience building projects in the socio-economic planning process.
- Enhanced community engagement to protect natural heritage

Environmental Benefits

- Greenhouse gas reductions of 1,860,720 tCO2 over 20 years though rehabilitation of 4,000 hectares of coastal mangroves
- Protection of biodiversity in state managed rehabilitated mangroves
- Skills development among local populations for bio-engineering protection
- Use of environment friendly materials for 4,000 homes, taking account the full risk understanding of the eco-system of the coastal population
- Improve application of environmental safeguards and environmental assessments, and environmental resources in target communes.
- Protection of sea dyke systems by reducing sea wave energy and thus reduction of costs associated with maintenance of sea dykes.

Gender Considerations and Benefits

- Commune level CBDRM advisory groups include at least 30% women including in decision making positions
- Loss and damage databases track gender disaggregated data for key disaster related statistics
- Increased role of Viet Nam Women Union in community planning and consultation processes.

E.4. Needs of the Recipient

Vulnerability and financing needs of the beneficiary country and population

E.4.1. Vulnerability of country and beneficiary groups (Adaptation only)

173. According to Climate Change Vulnerability Index (CCVI), Viet Nam is ranked 23rd of 193 countries and is one of 30 “extreme risk” countries. The CCVI evaluates 42 social, economic and environmental factors to assess national vulnerabilities across three core areas, including (a) exposure to climate-related natural disasters and sea-level rise; (b) human sensitivity, in terms of population patterns, development, natural resources, agricultural dependency and conflicts; and (c) future vulnerability considering the adaptive capacity of a country’s government and infrastructure to address climate change effects. The countries most at risk are characterized by high levels of poverty, dense populations, exposure to climate-related events; and their reliance on flood and drought prone agricultural land.

174. With more than 3,260 km of coastal line, approximately 30% of Viet Nam's population of 90 million people lives in Viet Nam's 28 coastal provinces. These areas are particularly vulnerable to sea level rise and the associated risks of salt water intrusion and super storm surge and flooding. Viet Nam's Second National Communication forecasts a 57-73cm rise in mean sea levels along the Viet Nam coast by 2100. Without major action, this would inundate approximately 30,000km2 equivalent to 9.3% of the total national land surface. Climate projections also point to a likely increase in the probability of intense typhoons, or super storms, accompanied by storm surge similar to that which devastated the Tacloban area of the Philippines in 2013.

175. These trends place coastal and low lying delta areas in Viet Nam at particular risk. At 23%, the poverty rate in coastal areas more than twice the national average, in part due to the increasing losses incurred annually from climate related disaster impacts. More than 500,000 people live within 200 meters of the coast. Their homes are most often directly impacted by typhoon landfall and storm surge. Increasing numbers of predominantly poor and vulnerable people in coastal areas live in unsafe housing, in part due to the rapid urbanisation and persistent poverty.

176. Viet Nam experiences an average of 6-8 typhoons annually. During ENSO years typhoons appear to be more intense, stronger and with landfall over a wider area. Past observations do not bear out a change in the typhoon pattern or in intensity in the Western Pacific/Southeast Asia as a result of climate change but intensification of hurricanes (typhoons) has been observed in the Southern Atlantic/Caribbean region. Nevertheless, the possibility of gradual intensification of tropical storms and typhoons exists, according to an update of the IPCC's fourth assessment of 2007, also in Southeast Asia. Furthermore, damage potential from tropical storms and typhoons appears to increase as a result of increasing population density in exposed areas and higher value economic infrastructure in these areas. The Government has placed strong emphasis on structural measures, such as dykes and seawalls. The country has over 10,600km of 6-9m high river dykes and 2,600km of 3.5-5m high sea dykes that need further expansion and reinforcement. The Government has invested considerably in the dyke system and has ambitious plans for the next decade to expand upon this.

177. Shelter accounts for the highest amount of monetary losses in climate related disasters. Housing is often the single largest asset owned by individuals and families. It is also the location where other family-owned assets (tools, furniture, stored food, etc.) are concentrated and where many activities fundamental to livelihoods and education occur. Resilient shelters are central to the adaptive capacity of most households. Adaptive capacity is the ability to retain and deploy assets to meet emerging needs as conditions change.

E.4.2. Financial, economic, social and institutional needs

178. Adaptation needs are expected to increase significantly as climate change impacts and sea level rise increase. There is an urgent need to find cost effective, community driven adaptation mechanisms. According 2015 INDC estimates, Viet Nam currently can cover only 30% of the requested funding for existing approved adaptation projects annually from existing government revenues and loan portfolios. Currently the gap must be met through ODA or extra provincial funding sources, and even when these are taken into account significant funding gaps remain at all levels. A 2015 climate change investment review for Viet Nam outlined required unmet investments in the water sector alone of US$120m annually (CPEIR 2015).

179. Not only do local capital markets lack depth, but risk transfer and risk sharing markets are almost non-existent, particularly in rural areas. In effect the Government of Viet Nam directly bears virtually the entire liability for covering the costs of climate change related extreme events. In light of Viet Nam's climate change projections, and current national development trends that see heavy investments in infrastructure and services in coastal areas, protecting development gains through risk transfer and sharing is an increasing priority. However development of risk transfer markets has been significantly impeded by low data accessibility and quality

180. Institutionally, Viet Nam has built up a strong institutional capacity and legal framework for disaster risk reduction and climate change adaptation. However, implementation capacities limit momentum for upscaling implementation, particularly in term of financial and technology and cross-sectorial planning

181. GCF funding will support technical capacity building for national and key provincial officials on climate change adaptation and on risk mapping and planning. Part of this work will also focus on raising the capacity of Government

staff with regards to risk and probability assumptions in the context of climate change. This will include identifying the impacts and enhanced approaches for risks where recovery/rehabilitation is possible and highlighting impacts for which recovery and rehabilitation is not possible and alternative strategies are required.

E.5. Country Ownership

Beneficiary country (ies) ownership of, and capacity to implement, a funded project or programme

E.5.1. Existence of a national climate strategy and coherence with existing plans and policies, including NAMAs, NAPAs and NAPs

182. The project was designed to address specific challenges highlighted as priorities in the country's key strategic plans.

183. Through the National Green Growth Strategy 2011-2020, Viet Nam seeks to achieve a low carbon economy and to enrich natural capital. Green Growth is the guiding principal direction towards sustainable economic development, and the reduction of greenhouse gas emissions and increased capability to absorb greenhouse gas are gradually becoming compulsory and important indicators in socio-economic development. In areas which are highly vulnerable to climate change, Sustainable urbanization –infrastructure should be adapted to climate change to minimize economic losses.

184. The Sustainable Development Strategy 2012-2020 states as its general objective that sustainable and effective growth must come along with social progress and equality, national resources and environment protection, socio-political stability, firm protection of independence-sovereignty-unification and territorial integrity of the country. Specifically the strategy seeks to reduce the harmful effects of natural disasters, and to actively and effectively respond to climate change. This includes the prioritization of resources for poverty reduction and improvement of living conditions of people in most disadvantaged areas, as well as support to poor people and households to build houses.

185. The National Strategy on Climate Change 2011-2020 seeks to proactively cope with natural disasters and monitor climate. The strategy further details within its mission, mitigating damages caused by natural disasters by:

- reviewing and designing development planning schemes and standards of construction in the regions regularly suffering natural disasters in response to the increase of natural disasters due to climate change
- improving the quality of forests and afforestation, including to turn bare lands and hills green, to effectively exploit different kinds of forest to secure and improve resistance against natural disasters, preventing desertification, land erosion and degradation, to enhance protection, management and development of mangrove forests and flooded ecosystems, and to raise the forest coverage to 45% by 2020.

186. The National Strategy on Environment Protection to 2020 with Vision to 2030 details solutions to recover and regenerate natural ecosystems, especially mangroves, as well as solutions to increase forest coverage and improve forest quality. These include:

- to survey and evaluate deterioration and degradation of specific or representative natural ecosystems, especially mangroves, then design the planning schemes for their recovery
- to conduct programmes on investing and mobilizing official development assistance (ODA) sources and other resources from economic sectors and organizations at home and abroad for recovering natural ecosystems, increasing their resistance against climate change, founding mechanisms for payments of ecosystem services towards boosting recovery, regeneration and protection of natural ecosystems
- to localize and protect natural forests, especially mangroves, forests for special use, protective forests, and watershed forests, and at the same time preventing deforestation and illegal exploitation
- to continue afforestation and forest protection while securing a sustainable forestry; to closely manage the renting of forest land, especially protective and watershed forests

187. The National Strategy on biodiversity conservation toward 2020 and vision to 2030: focuses on conserving and sustainably managing important forest ecosystems, endangered species and gene sources. The objective of this policy is to increase the area of natural ecosystems in the mainland to 9% of the country's land area; 45% of forest

cover; 15% of degraded ecosystems area is restored. The objective by 2030 is to achieve 25% of natural ecosystem with international and national importance.

188. Solution 7 of the Socio-economic Development Plan for the 2011-2015 Period focuses on improving and enhancing the effectiveness and efficiency of policies and laws on natural resources and environment protection to ensure sustainable development. Importantly, the plan encourages larger social involvement in protecting the environment, which is reflected strongly in the community-based approaches of the GCF project.

189. While policies are in place and national institutions are strong, missing is the critical inter-ministerial collaboration which would ensure risk-informed and climate-resilient development planning. The GCF proposal not only addresses multiple challenges, but its integrated approach fosters this needed collaboration.

E.5.2. Capacity of accredited entities and executing entities to deliver

190. Since it began operations in Viet Nam in 1977, UNDP has contributed significantly to environmental protection and climate change responses, especially in facilitating formulation of policies, strategies, laws, coordination and information sharing. UNDP possesses a qualified team of experts including international and national experts, helping UNDP to deliver a comprehensive approach in the climate change area.

191. UNDP is a long-term partner of Viet Nam's government. UNDP has supported the various related policy formulation processes in Viet Nam, including:

- National Target Programme to Respond to Climate Change (NTP-RCC 2008)
- Climate Change Scenarios (2009 and 2011)
- Climate Change Strategy (2012),
- Green Growth Strategy (2012) and Green Growth Action Plans (2014)
- National Strategy for DRM (2007) and its Action Plan 2009
- National Biodiversity Strategy and Action Plan (2012)

192. UNDP has built strong relationships with decision-makers, and proven its strengths as an impartial provider of technical advice and support. Priority development areas for Viet Nam serve as the foundation for UNDP action on policy support. UNDP also plays an advisory role in the process of preparation and approval of regulations and relevant codes and laws in Viet Nam. UNDP is recognized as an experienced agency in institutional development and capacity building, bringing a long-term and institutional and people-centred focus to capacity development.

193. With its central role in the UN system, UNDP facilitates a multi-sectoral approach to help the government respond to complex issues such as climate change and green growth. UNDP has been instrumental in providing technical UNDP has provide technical inputs to the preparation and consultations for a number of key legal frameworks, including Biodiversity Law 2008, Energy Efficiency and Energy Conservation Law 2010, Law on Natural Disaster Prevention and Control 2012, Law on Environmental Protection 2014 which includes a chapter on climate change and green growth, and implementation of Law on Environmental Protection Tax, the Royalties Law concerning natural resources management.

194. With the characteristics of multilateral organization, UNDP can promote the dissemination of international norms and standards, bring technical assistance, experience and good practices to bear in Viet Nam. UNDP has demonstrated its long-term commitment to the provision of technical assistance to affect and sustain the institutional changes required in realizing tangible improvements in institutional capacity. UNDP has a portfolio of six technical assistance projects on climate change with key ministries such as MPI, MARD, MOC and MOIT. UNDP also works closely on energy efficiency with MOST and MOT, linking policy makers to a global community of practice in key policy issues and providing a platform for sharing lessons and experiences internationally.

195. By supporting the four Ministries playing the main role on disaster risk management, climate change and green growth issues, UNDP is already in position to help improve capacity in organizational and interdisciplinary coordination, and to encourage harmonious approaches toward climate change issues of the government, private sector, donors and other organizations.

196. UNDP exercises results-based activities and ensures Implementing Partners/Executing Entities are adequately equipped with knowledge and skills to achieve expected project activities and outputs. Strengthening and expanding analytical work in key sectors and advancing the knowledge-base on disaster risk management and climate change within the broader context of sustainable development, UNDP supports networks and research institutions that are crucial for prompt advice and technical expert support to the Government of Viet Nam.

197. The project will also benefit from the expertise and resources of the on-going UNDP projects with MPI, MARD, MONRE and MOC including:

- The MPI Project on "Strengthening Capacity and Institutional Reform for Green Growth and Sustainable Development in Viet Nam" (CIGG)
- The MARD Project on "Strengthening Institutional Capacity for Disaster Risk Management in Viet Nam Including Climate Change Related Risks" (SCDM Phase II);
- The MONRE-MARD project "Capacity Building for Implementation of the National Climate Change Strategy" (CBICS Project);
- The MARD Project on "Promoting Climate Resilient Infrastructure in Northern Mountain Provinces of Viet Nam"
- The MOC Project on "Promoting Energy Efficiency in Commercial and High Rise Residential Building"
- The MOST-MOC Project "Promoting the production and utilisation of non-firebricks in Viet Nam"

198. MARD is the executing entity for the project. Given its cross-cutting mandate related to natural disaster prevention and control, it is the appropriate ministry to lead this project. MARD plays a strategic coordination role on the inter-ministerial Central Committee for Disaster Prevention and Control. MARD has undergone the capacity assessment required under UNDP's national implementation modality (NIM). The assessment considers managerial, technical, administrative and financial management capacity. In each category MARD met UNDP requirements. It should be noted that the capacity assessment indicated regular high delivery performance (80%) with a history of unqualified audits. UNDP and MARD also have a history of successful collaboration, including the CBDRM programme and UN-REDD.

E.5.3. Engagement with NDAs, civil society organizations and other relevant stakeholders

199. The proposed project is designed in close with government (both national and provincial), civil society organizations, development partners and beneficiaries. Key consultation meetings include:

- UNDP and MPI, MARD and GCF meeting on concept and proposal design and workplan, 12-16 Jan 2015
- UNDP and MPI concept note screening, 2 Apr 2015
- UNDP and MARD experts concept refinement and proposal development, 7 May 2015
- UNDP ROAP and MARD experts and leader consultation in Bonn early June 2015
- UNDP, MARD and MOC Project Preparation Write-shop 25 Jun 2015
- UNDP, MARD, MOC and MPI Project Document Design Review 10 July 2015
- UNDP, MARD and Provinces consultation and feasibility appraisal workshop 13-14 July 2015
- UNDP, MARD and Provincial Field Mission to Da Nang and Quang Nam
- UNDP Local Project Appraisal Committee meeting (LPAC), (13-16 July 2015)

200. The NDA, based at MPI, was also routinely briefed on the progress of the proposal development.

201. The proposed GCF project will build on existing initiatives which already engage multiple partners including NGOs and INGOs, such as Viet Nam Red Cross, Viet Nam Women's Union, and Oxfam. During the inception phase of the project, UNDP, MARD and MOC will continue to consult with INGOs, NGOs and the private sector to formulate a concrete partnerships roadmap and action plan, benefiting from the current good practices and working relationships with and the established technical between MARD, MOC and INGOs and NGOs.

202. To ensure the views of women were captured, specific efforts were made to consult with women groups, and to collect information regarding the impacts of climate change on women, in the design of this project proposal. The Viet Nam Women's Union was specifically consulted at both the national and local level, and field missions took care to consult with both women and men regarding lessons learned to date. The project also benefits from important lessons learned in previous pilot projects that have specifically aimed to increase the participation of women, senior

citizens, youth and other vulnerable groups. Feedback and lessons learned from previous project reviews and policy reviews have been applied in the design of activities. The application of community based approaches during implementation will also ensure that regular communication is maintained throughout implementation with commune level representatives, at least 30% of which will be women.

203. The project will also draw on the skills and expertise of the academic community. Technical bodies and academic institutions including IMHEN (official technical focal point for climate projections), Viet Nam Academy of Water Resources (official technical focal point for flood risk and mapping), the Institute for Building Science and Technology (IBST) (official technical focal point for building code and housing standards and the Viet Nam Academy of Forest Sciences (as technical focal point for forestry, including site assessment for tree species selection, technical measures for restoration of mangroves).will be involved project implementation. Private sector actors, particularly from the insurance sector will also be consulted with regards to the strengthening of damage and loss databases.

204. At the inception of the project, MARD and MOC will have a number of consultations with NGOs, academia, and the private sector to formulate a concrete partnership roadmap and action plan, including its current good practices of MARD/MOC and NGO technical working groups. The project will aim to work in partnership in supporting targeted provinces in implementation of the project initiatives, monitoring and promotion of the good practices across national programmes.

205. A stakeholder consultation plan will be developed for the project during the initiation phase. This will consider:

a) consultations (type and frequency) already undertaken during the design phase, details of the issues discussed, including the views of the relevant stakeholders and beneficiaries;
b) proposed consultations during project implementation regarding to ensure project remains relevant and up-to-date to impacts of the project at the national, provincial, commune and community level;
c) details regarding how the consultations will specifically target vulnerable groups such as women, people with disabilities, elderly and squatter settlements and what impact the project will have on them in the short, medium and long term with details how they were included in the decision making process;
d) complementarity with related or relevant programmes to maximize the impact of combined resources;
e) details on how affected parties comments received during consultations have been addressed; and
f) regular review of plan to ensure new stakeholders are captured in the plan as relevant

206. The plan will demonstrate how stakeholder engagement has been an inclusive and continuous process throughout the life of a project and what level of corporate responsibility and transparency will occur as part of the ongoing process during construction and operation. The plan will outline how it will encourage local stakeholders including women to participate in the project, and to empower them to do something practical to address any issues that affect their lives.

207. The project board further provides a formal structure for MPI, MARD, MOC, MOF, provincial focal points and beneficiaries to guide implementation towards a collaborative achievement of the project objective.

E.6. Efficiency and Effectiveness

Economic and, if appropriate, financial soundness of the project/programme

E.6.1. Cost-effectiveness and efficiency

208. The project will directly support scale up of the proven methods and technologies which have received official endorsement from the Government of Viet Nam and which are being actively prioritized for scale up and replication. A summary of effectiveness and efficiency data on these approaches is provided below:

209. **Climate resilient housing:** Base case scenarios for investments in the resilient housing options prioritized through the project assume that the frequency and intensity of typhoons will remain similar to the past 25 years. The benefit from the climate resilient housing is the avoided damage when there is a typhoon. The housing design competition and study Sheltering From a Gathering Storm (see Annex XV) indicates a desirable IRR for new housing constructions with typhoon resilient features.

210. **Mangrove regeneration:** The costs of restoring mangrove forests includes propagules/saplings and long-term management necessary for high rates of mangrove survival. Regeneration of mangroves will apply a cost norm of US$1,500 USD per hectare. Replanting will be considered in a smaller areas if required, applying a cost norm of US$6,000 per hectare. The best practices to be applied to mangrove regeneration under this project have had a success rate of 80%, a significant improvement from the 50% using other approaches.

211. **Community based disaster risk management, vulnerability assessment and planning processes** approved by MARD in 2014. Globally investments in disaster preparedness a have been estimated to be more than four times more cost effective than disaster response, while also reducing injury and loss of lives in target areas.

212. In terms CO sequestration benefits, a 2011 study of above- and below-ground, including soils capture rates for mangroves across a broad zone (spanning 30° of latitude and 73° of longitude) of the Indo-Pacific region found that the total carbon storage is very high relative to most forest types, with a mean value of 1,043 and range of 437 to 2,186 Mg C ha-1 (metric tons of carbon per hectare per year). The SNV study is attached as part of Annex XV (Additional Supporting Documents). Studies in Viet Nam have shown that mature mangroves in similar locations are able to absorb in the range of 20-25100 t CO2 per hectare per year, suggesting that annual benefits from the project to be in the range of 84,000-105,000 t per year, minus any emissions caused by activities associated with replanting/regeneration. (Phuong, 2015)

E.6.2. Co-financing, leveraging and mobilized long-term investments (mitigation only)

213. Co-financing related to the three GCF project outputs are as follows:

- Under Output 1, the GCF project will support the additional costs of climate resilient features ($2,000) to 4000 houses under the National programme to provide support policies and solutions for poor households to build storm and flood resilient houses. The target 4000 houses will received support from MOC based on the existing house design, estimated at $2000/house. Co-financing related to the specific 4,000 homes targeted by the project is therefore estimated at $8M, or $2,000/house without the additional features.
- For Output 2 (mangrove regeneration), $516,600 is counted as co-financing. This relates to O&M costs for mangrove rehabilitation efforts, provided by MARD, for the duration of the project plus 5 years. This figure is an estimate, and may be adjusted based on the confirmation letter expected from government. An O&M plan is provided in Annex XIII, with letters of confirmation to be provided once available.
- UNDP's co-financing to Output 3 contributes to improving disaster and climate information and integration in to planning. As such, $1,600,000 can be considered direct co-financing.

E.6.3. Financial viability

214. The project relies entirely on grant finance as (a) the GoV's policy is that adaptation should be financed by grant resources; (b) the proposed interventions are public goods and (c) there is no revenue generating activity. As the proposed project is non-revenue generating, a traditional financial viability assessment is not appropriate.

E.6.4. Application of best practices

215. Design of project elements directly builds on existing successful pilot projects for all outputs as outlined above.

216. The approved housing design under output 1 is the result of enhancement to the pilot government housing programme, and is reinforced by the **Sheltering from a Gathering Storm: Typhoon Resilience in Vietnam, 2014** (see Annex XV). This report details the pilot housing project in Da Nang, where house designs were enhanced to include a mezzanine above the projected flood level to provide protection from flood waters, and reinforced walls and roof to withstand greater strength storms and typhoons. Economic analysis is also provided indicating results of the quantitative CBA where the returns on investment in typhoon resilient housing are high in some scenarios, meaning that investment in typhoon housing can be economically viable. The quantitative CBA results also show that typhoon

resilient housing exhibits high BCRs in some scenarios, and encourages the government to pursue means to support households that agree to undertake appropriate climate resilient housing measures. This type of additional support is what is being proposed in the GCF proposal, to cover the incremental costs of additional safety features.

217. The **Restoration of Coastal Mangrove Forest in Viet Nam Study Report** (attached under Annex VIII) includes a thorough study of the current mangrove coverage in Viet Nam and related pressures. Importantly, it also includes an assessment of previous mangrove regeneration efforts and provides recommendations to improve the mangrove regeneration success rate of efforts going forward. The report stresses that robust mangrove forests have a diverse structure in both vertical and horizontal sides, as well as in species composition. To ensure successful regeneration, the report suggests improvement through tree breeding (nurseries to ensure a certain level of growth before planning), site selection and planting methods. These enhancements are captured in the mangrove regeneration approach of the GCF project.

218. Further, project development has been directly aided by lessons learned and incorporated in the National Climate Change and Disaster Prevention and Control Strategies of the Government. In addition, findings of key international studies such as the Climate Public Expenditure and Investment Review (CPIER) and as well as the recommendation of the 2010 World Bank Study Weathering the Storm: Options for Disaster Risk Financing in Viet Nam. A summary of applicable documents is provided below is available under Annex XIII.

219. Also, please see Annex II for the Feasibility Study conducted for this project.

E.6.5. Key efficiency and effectiveness indicators

GCF core indicators

Estimated cost per t CO_2 eq, defined as total investment cost / expected lifetime emission reductions (mitigation only)

(a) Total project financing	US$__N/A_____
(b) Requested GCF amount	US$__N/A_____
(c) Expected lifetime emission reductions overtime	_____ tCO_2eq
(d) Estimated cost per tCO_2eq (d = a / c)	US$___**6.18**____ **/ tCO_2eq**
(e) Estimated GCF cost per tCO_2eq removed (e = b / c)	US$___**N/A**____ **/ tCO_2eq**

Mitigation impacts are an indirect benefit of this project and as such, full analysis is not provided for this section. However, analysis completed based on Viet Nam specific data for the mangrove output alone based on project costs norm estimate the costs per tCO2eq reduction at 6.18 US$/t CO2 eq.

Expected volume of finance to be leveraged by the proposed project/programme and as a result of the Fund's financing, disaggregated by public and private sources (mitigation only)

220. N/A

Other relevant indicators (e.g. estimated cost per co-benefit generated as a result of the project/programme)	

F.1. Economic and Financial Analysis

221. The project relies on grant finance as (a) the proposed interventions will benefit vulnerable families identified as poor by the government, (b) strengthens natural defenses proving public value and (c) does not generate revenue that lends itself to providing reflows to the GCF. As the proposed project is non-revenue generating, a traditional financial analysis is not appropriate

222. Economic analysis of the proposal, conducted during the design phase, indicates that the expected economic internal rate of return is 14.6% for this project which exceeds 10%, the economic opportunity cost of capital. The proposed investments are still economically feasible using the minimum value of the mangroves with no VSL and "worst case" scenarios of costs increasing by 20% or benefits reducing by 20%. The EIRR under those scenarios are 11.2% and 11.8% respectively, which are higher than 10% assumed discount rate. It should be noted that the estimates used in the economic analysis are conservative estimates with minimum benefit values used in all the benefit calculations. Keeping every other assumption, the same but including the Value of Statistical life in the cost benefit analysis results in a discounted present value of about 66,944,868 USD. The economic rate of return under this assumption is 36.7%. The details of the economic analysis are presented in Annex XII of this proposal.

223. The use of 10% discount rate is based on the nature of the benefits from the project. Normally for environmental goods we will like to argue for discount rate lower than the conventional 10% but because of the cost of capital in the country we cannot justify using a lower rate. In line with the MOC in Viet Nam and expert opinion, 20 – 25 useful life of the houses and mangroves is suggested. To be conservative we use 20 years as the lifespan of the houses and mangroves.

224. The economic benefits that are valued in the economic analysis of the project are based on the project reducing hazards from flooding and storms and typhoons. Economic analysis was prepared for this base case of avoided damages as a result of the project.

225. Other benefits such as value of improved data on climate, security of lives and property and other social benefits due to better housing are not easily quantifiable and in some cases confidence in the values may be lower. The implication of ignoring these additional benefits is that the estimates of the economic IRR and NPV will be the lower bound and provide conservative estimates of the value of the project.

F.2. Technical Evaluation

226. This section focuses on the two main technical solutions chosen related to the housing and mangrove outputs.

227. The house design to be supported by GCF finance stems from lessons learned from the pilot housing programme, the project design was also informed by a study from a successful pilot in Da Nang. The report **Sheltering from a Gathering Storm: Typhoon Resilience in Vietnam, 2014** (see Annex XV) details the results of analysis and housing design competition in Da Nang. Building off the winning design, the design supported by the project, will incorporate essential features, while at the same time keeping it affordable for the beneficiaries which are the poorest of Viet Nam, as affordability is an important element for scalability, potential for replication.

228. The report also supports building new houses, as opposed to retrofitting an existing house. Per the report the lifetime of a new house is 15-20 years, as opposed to 7-10 years for a retrofitted house. Winning house designs included those where houses design include a mezzanine above the projected flood level to provide protection from flood waters, and reinforced walls and roof to withstand greater strength storms and typhoons. Economic analysis in the report indicating results of the quantitative CBA where the returns on investment in typhoon resilient housing are high in some scenarios, meaning that investment in typhoon housing can be economically viable. The quantitative CBA results also show that typhoon resilient housing exhibits high BCRs in some scenarios, and encourages the government to pursue means to support households that agree to undertake appropriate climate resilient housing measures.

229. The **Restoration of Coastal Mangrove Forest in Viet Nam Study Report, 2012,** includes a thorough study of the current mangrove coverage in Viet Nam and related pressures. Importantly, it also includes an assessment of

previous mangrove regeneration efforts and provides recommendations to improve the mangrove regeneration success rate of efforts going forward. The report stresses that robust mangrove forests have a diverse structure in both vertical and horizontal sides, as well as in species composition. To ensure successful regeneration, the report suggests improvement through tree breeding (nurseries to ensure a certain level of growth before planning), site selection and planting methods. These enhancements are captured in the mangrove regeneration approach of the GCF project, and are expected to improve the mangrove regeneration success rate from 50% to 80%. The full report is included in Annex VIII.

230. The technical feasibility study was also conducted during proposal development. The study can be found in Annex II: Feasibility Study.

F.3. Environmental, Social Assessment, including Gender Considerations

231. This project has completed the UNDP social and environmental screening procedure (see SESP attached as Annex VI). This screening was undertaken to ensure this project complies with UNDP's Social and Environmental Standards. UNDP's Social and Environmental Standards were reviewed by the GCF accreditation panel and deemed sufficient to accredit UNDP to submit low and medium risk projects. The overall social and environmental risk category for this project is **Moderate,** as highlighted below if the recommended mitigation measures are undertaken. Specific project risks are listed in Section G below. Appropriate mitigation measures are included within the following section.

232. The project will have a number of environmental impacts, which will be managed and impacts limited. During mangrove planting, it will be necessary to undertake earth works to re-stabilize areas where aquaculture facilities have been established. The earth works will move sediment that, if not properly contained, may enter the marine environment. To ensure that the sediment is not mobilized through either wind, or more specifically, through water movement, an erosion control sediment plan will be prepared. The plan will contain aspects including but not limited to the installation of sediment curtains to reduce sediment movement and the covering of sediment where practicable.

233. Any sediment movement may also expose acid sulfate soils within the mangrove areas. Acid sulphate soils and/or potential acid sulphate soils occur in areas of mangrove and are known to occur in large areas of the coastal delta in Viet Nam[27]. Deposits of acid sulphate soils are commonly found less than five meters above sea level, particularly in low-lying coastal areas which is where the interventions will occur. Mangroves, salt marshes, floodplains, swamps, wetlands, estuaries and brackish or tidal lakes are ideal areas for acidic sulphate soils formation and therefore there is the potential for it to observe in the project's location. Controls would potentially be required for the management of acid sulphate soils and/or potential acid sulphate soils due to their locations of the projects within mangrove areas. The presence of acid sulphate soils may not be obvious on the soil surface as they are often buried beneath layers of more recently deposited soils and sediments of alluvial or Aeolian origin. These soils contain iron sulphide minerals (predominantly as the mineral pyrite) or their oxidation products. In an undisturbed state below the water table, acid sulphate soils are benign. However if the soils are drained, excavated or exposed to air by a lowering of the water table, the sulphides react with oxygen to form sulphuric acid. The release of this sulphuric acid from the soil can in turn release iron, aluminium and other heavy metals (particularly arsenic) within the soil. Once mobilized, the acid and metals can create a variety of adverse impacts including killing vegetation, seeping into and acidifying groundwater and water bodies, killing fish and other aquatic organisms and degrading concrete and steel structures to the point of failure. Prior to any excavation, sediments will be tested for their presence of acid sulphate soils and/or potential acid sulphate soils. If the analysis proves positive, the sediment can be treated by a range of techniques including but not limited to liming the sediment. Reference will be made to appropriate standards and guidelines[28]. Every effort will be made to ensure there is no direct or residual impact following treatment.

[27] Tri LQ, van Mensvoort MEF (2004) Decision trees for farm management on acid sulfate soils, Mekong Delta, Viet Nam. *Soil Research* **42**, 671–684; Minh, L.Q. Tuong, T.P. van Mensvoort, M.E.F., Boumaa, J., (1997) Contamination of surface water as affected by land use in acid sulfate soils in the Mekong River Delta, Viet Nam, *Agriculture, Ecosystems & Environment* **61** (1) 19-27

[28] For example, refer to Ahern, C.R., Ahern, M.R. and Powell, B. (1998) *Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) in Queensland* QASSIT, Department of Natural Resources, Resource Sciences Centre, Indooroopilly; Ahern, C.R., McElnea, A.E. and Sullivan, L.A. (2004) *Acid Sulfate Soils Laboratory Methods Guidelines*. In Queensland Acid Sulfate Soils Manual. Department of Natural Resources, Mines and Energy, Indooroopilly, Queensland, Australia; and Dear, S.E., Moore, N.G., Dobos, S.K., Watling, K.M. and Ahern, C.R. (2002). *Soil Management Guidelines. In Queensland Acid Sulfate Soil Technical Manual*. Department of Natural Resources and Mines, Indooroopilly, Queensland, Australia.

234. The programme may also produce waste associated with the construction of new houses, though the quantities are unlikely to cause a significant environmental impact. All waste such as glass, damaged concrete and metal sheeting will be stored in an appropriate manner to reduce the impacts on the environment. Additional waste will also be generated from the construction of new homes. Where possible, materials should be prefabricated and cut to size prior to being moved to the relevant communities.

235. Overall, it is expected that the program will have some environmental impacts although these can be mitigated effectively through appropriate management measures. The program will have significant environmental benefits in the short to long term through the improvement of water quality, coastal protection, the absorption of greenhouse gas emissions and most importantly, through providing communities with climate resilient houses.

236. There are limited social impacts associated with the project.

237. Sites for house construction, receiving GCF support, will be informed by risk assessments undertaken prior to site selection. In cases where risk assessments indicate that the proposed site would be unsafe, existing government programmes will support relocation. The GCF project will not support house construction on unsafe sites.

238. Related to mangrove regeneration, there is the limited possibility that the project could result in the displacement of people's livelihoods if careful planning is not undertaken. There will be a reduction in the availability of land and aquatic environments through the rehabilitation and planting of mangroves. Careful planning and stakeholder consultations will be undertaken prior to the site selection for planting to ensure that any temporary interruption to livelihoods (e.g. relocation of aquaculture) is addressed by existing government programmes benefiting the poor or by other means. In such cases, a livelihood restoration plan will be developed to ensure households have been provided financial means equal to their existing livelihoods income during any interruption. To the extent possible, the CBDRM mechanism will be used to engage and compensate communities to undertake propagation, planting and maintenance of the mangroves, thereby providing a social benefit to the community. While the project may impact socially in the short term, the project will overall improve the livelihoods of people working in and around the mangroves and increase their income potential. Further, the mangroves will act as a buffer and therefore reduce the potential loss of lives and assets resulting from climate change induced events.

239. In 2012, UNDP, UNWomen, Oxfam and UNISDR developed a policy brief to look at gender equity issues in climate change adaptation and disasters. (See http://www.un.org.vn/en/publications/doc_details/268-policy-brief-gender-equality-in-climate-change-adaptation-and-disaster.html). Key recommendations from this analysis have been included in the design of project activities at all levels, especially:

- UN agencies should be engaged actively to continue to provide technical assistance to the government and other stakeholders to promote gender mainstreaming in CCA/DRR related policies and programmes
- CCA/DRR actions at all levels should be developed in a participatory way, involving both men and women of all age groups and different backgrounds using the CBDRM approach.
- Ensure that the collection and collation of sex-disaggregated data and related gender information from the local level, specifically damage and needs assessments post climate or weather related disasters, reaches the national level, is disseminated widely and is publically accessible, and is used to inform, monitor, and evaluate new policies and programmes.

240. Under the 3 project outputs, specific gender equality policies and practices as recommended in the gender analysis/policy brief paper will be applied. To realize this, the project will apply 2 approaches in promoting gender equality:

- Ensuring gender considerations are captured in enhancements to policies
- Engaging women through the community-based programme activities (i.e. risk assessments, mangroves regeneration/monitoring, housing)

F.4. Financial Management and Procurement

241. The financial management and procurement of this project will follow UNDP financial rules and regulations available here: https://info.undp.org/global/documents/frm/Financial-Rules-and-Regulations_E.pdf

242. Further guidance is outlined in the financial resources management section of the UNDP Programme and Operations Policies and Procedures available at https://info.undp.org/global/popp/frm/Pages/introduction.aspx

243. UNDP has comprehensive procurement policies in place as outlined in the 'Contracts and Procurement' section of UNDP's Programme and Operations Policies and Procedures (POPP). The policies outline formal procurement standards and guidelines across each phase of the procurement process, and they apply to all procurements in UNDP. See here: https://info.undp.org/global/popp/cap/Pages/Introduction.aspx

244. The project will be implemented following the National Implementation Modality (NIM) following NIM guidelines available here: https://info.undp.org/global/documents/_layouts/WopiFrame.aspx?sourcedoc=/global/documents/frm/National%20Implementation%20by%20the%20Government%20of%20UNDP%20Projects.docx&action=default&DefaultItemOpen=1

245. UNDP will ascertain the national capacities of the Implementing Partner/Executing Entity by undertaking an evaluation of capacity following the Framework for Cash Transfers to Implementing Partners/Executing Entities (part of the Harmonized Approach to Cash Transfers - HACT).

246. All projects will be audited following the UNDP financial rules and regulations noted above and applicable audit guidelines and policies.

247. The NIM Guidelines are a formal part of UNDP's policies and procedures, as set out in the UNDP Programme and Operations Policies and Procedures (POPP) which are available here: https://info.undp.org/global/popp/Pages/default.aspx. The NIM Guidelines were corporately developed and adopted by UNDP, and are fully compliant with UNDP's procurement and financial management rules and regulations.

248. The NIM Guidelines are a formal part of UNDP's policies and procedures, as set out in the UNDP Programme and Operations Policies and Procedures (POPP) which are available here: https://info.undp.org/global/popp/Pages/default.aspx. The NIM Guidelines were corporately developed and adopted by UNDP, and are fully compliant with UNDP's procurement and financial management rules and regulations.

249. The national executing entity is MARD - also referred to as the national 'Implementing Partner' in UNDP terminology - is required to implement the project in compliance with UNDP rules and regulations, policies and procedures (including the NIM Guidelines). In legal terms, this is ensured through the national Government's signature of the UNDP Standard Basic Assistance Agreement (SBAA), together with a UNDP project document which will be signed by the Implementing Partner to govern the use of the funds. Both of these documents require compliance. Prior to signature of the project document, all national Implementing Partners need to have undergone a Harmonized Approach to Cash Transfer (HACT) assessment by UNDP to assess capacities to implement the project. During implementation, UNDP will provide oversight and quality assurance in accordance with its policies and procedures, and any specific requirements in the Accreditation Master Agreement (AMA) and project confirmation to be agreed with the GCF. This may include, but is not limited to, monitoring missions, spot checks, facilitation and participation in project board meetings, quarterly progress and annual implementation reviews, and audits at project level or at Implementing partner level on the resources received from UNDP.

250. The Harmonized Approach to Cash Transfer (HACT) framework consists of four processes: (1) macro assessments; (2) micro assessments; (3) cash transfers and disbursements; and (4) assurance activities. Assurance activities include planning, periodic on-site reviews (spot checks), programmatic monitoring, scheduled audits and special audits. During micro-assessment, there can weaknesses identified for which actions are required to addresses the gaps. When a spot check finds that the gaps are not addressed it will mean that the level of assurance activities will have to remain higher and modalities of engaging with that implementing partner will have to be reviewed if necessary. All details are available here: https://undg.org/wp-content/uploads/2015/02/2014-UNDG-HACT-Framework-English-FINAL.pdf.

251. The project will be audited in accordance with UNDP policies and procedures on audits, informed by and together with any specific requirements agreed in the AMA currently being negotiated with the GCF. According to the current audit policies, UNDP will be appointing the auditors. In UNDP scheduled audits are performed during the programme cycle as per UNDP assurance/audit plans, on the basis of the implementing partner's risk rating and UNDP's guidelines. A scheduled audit is used to determine whether the funds transferred to the implementing partner were used for the appropriate purpose and in accordance with the work plan. A scheduled audit can consist of a financial audit or an internal control audit.

252. GCF resources will be provided to the implementing partner, less any agreed cost recovery amount. Under UNDP's national implementation modality, UNDP advances cash funds on a quarterly basis to the implementing partner (executing entity) for the implementation of agreed and approved programme activities, in accordance with UNDP standard policies and the NIM Guidelines. The implementing partner reports back expenditure via a financial report on quarterly basis to UNDP. Any additional requirements will be as in accordance with the AMA as and when it is agreed.

G.1. Risk Assessment Summary

253. As this proposal builds on the successes of existing programs, and benefits from the lessons learned from previous efforts, its design has been able to reduce exposure to risks. In addition, UNDP's relationship with government partner agencies is well established, with financial and programme monitoring systems in place to provide on-going technical and other oversight. As such, risks for the project are considered mainly low or moderate. In addition, the project has been formulated based on consultations at national and provincial level, and project design has been reviewed by stakeholders at all level, including a sample of community representatives, ensuing buy-in. That notwithstanding, a number of potential risks have been detailed below along with mitigation measures.

G.2. Risk Factors and Mitigation Measures

Please describe financial, technical and operational, social and environmental and other risks that might prevent the project/programme objectives from being achieved. Also describe the proposed risk mitigation measures.

Selected Risk Factor 1

Description	Risk category	Level of impact	Probability of risk occurring
Capacity of MARD to absorb and to deliver as planned, given other pressures, including management and delivery of other programmes and projects, inexperienced staff and insufficient equipment.	Technical and operational	Low (<5% of project value)	Low

Mitigation Measure(s)

Probability of risk is low due to mitigation measures:

- Close integration of project with on-going priorities.
- Delegation of project activities to co-Implementing Partner/Executing Entities, who will work directly with provincial partners.

Capacity support to partner by UNDP (see NIM description in section F.4.)

Selected Risk Factor 2

Description	Risk category	Level of impact	Probability of risk occurring
Complexity in coordination and communication: many of the activities will involve more than one partner, which require regular coordination and frequent communication.	Technical and operational	Low (<5% of project value)	Low

Mitigation Measure(s)

Probability of risk is low due to mitigation measures:

- Roles and responsibilities between partners clearly specified in matrix, with lead partner responsible for budget and coordination/communication with other partners. Regular progress meetings held with Senior Level officials to ensure any challenges are addressed in a timely manner.
- Project Officer in PMU specifically responsible for Project implementation, coordination and M&ENPD and UNDP will monitor the Project implementation and if necessary will provide technical assistance at cost to improve coordination/ communication.

Monthly coordination meeting with all national project coordinators organized by PMU.

Selected Risk Factor 3

Description	Risk category	Level of impact	Probability of risk occurring
Ineffective implementation of M&E, including reporting.	Technical and operational	Low (<5% of project value)	Low

Mitigation Measure(s)			
Probability of risk is low due to mitigation measures: • At the start of the project, tailored orientation sessions and training for all national and sub-national staff involved in M&E will be organized • Project Officer in PMU specifically responsible for project M&E providing day-to-day guidance and technical support Sufficient budget and budget source for M&E will be agreed at the start of the project			
Selected Risk Factor 4			
Description	Risk category	Level of impact	Probability of risk occurring
Low survival rates of mangroves due to factors including community deforestation, pollution or other factors	Social and environmental	Medium (5.1-20% of project value)	Low
Mitigation Measure(s)			
Probability of risk is low due to mitigation measures: Approaches will replicate successfully diversified approaches and will be implemented using a community based methodology that will ensure clear consultation. This includes establishment of CBDRM committees involved at all stages of the project. Technical site verification will assess potential pollution risk in advance, and community groups may in some cases wish to undertake advocacy or action to reduce risk, or suggest alternative sites to reduce pollution exposure.			
Selected Risk Factor 5			
Description	Risk category	Level of impact	Probability of risk occurring
Lack of participation of women and other vulnerable groups in project design and implementation	Social and environmental	Low (<5% of project value)	Low
Mitigation Measure(s)			
Probability of risk is low due to mitigation measures: Replication of CBDRM methodologies that require at least 30% participation of women at all levels, and actively require participation from vulnerable groups and people of all ages. Formal monitoring and promotion of sex and age disaggregated data.			
Selected Risk Factor 6			
Description	Risk category	Level of impact	Probability of risk occurring
Grant for housing does not result in a completed storm-resilient construction or houses fall into disrepair	Technical and operational	Medium (5.1-20% of project value)	Low
Mitigation Measure(s)			
Probability of risk is low due to mitigation measures: While the incidence is very low, there are a small number of cases where house construction was started but never completed. The GCF project approach will follow the risk mitigation measures of the government's housing programme - 70% of the grant is provided at the completion of the foundation, and the remaining 30% upon completion of the house frame meeting design requirements. The housing designs to be applied through the project have been developed to incur low on-going maintenance costs. Designs features also aim to ensure that the more vulnerable structural elements, such as roofs and corner bracings are reinforced during construction, reducing potential repair costs. (Due to their concrete construction, annual maintenance costs are often lower than in thatch and bamboo construction which requires significant annual care and			

investment). In addition, the project will also disseminate information on how to prepare for storms to reduce potential damage based on existing MOC materials (i.e. securing items, use of sandbags, etc.). In the event that a house should be damaged during a storm despite these efforts, households will be eligible for limited compensation for repairs through existing disaster response assistance schemes operating at the provincial level.

Selected Risk Factor 7

Description	Risk category	Level of impact	Probability of risk occurring
Earthworks related to mangrove restoration has any adverse impacts on the biodiversity (flora and fauna) of the area.	Technical and operational	Medium (5.1-20% of project value)	Low

Mitigation Measure(s)

There is the potential for sediment movement during planting of the mangroves. To ensure that the sediment is not mobilized through either wind or more specifically water movement, it will be necessary to prepare an erosion control sediment plan and install silt curtains to restrict sediment movement. The plan shall contain aspects including but not limited to the installation of sediment curtains to reduce sediment movement and the covering of sediment where practicable.

Other Potential Risks in the Horizon

Please describe other potential issues which will be monitored as "emerging risks" during the life of the projects (i.e., issues that have not yet raised to the level of "risk factor" but which will need monitoring). This could include issues related to external stakeholders such as project beneficiaries or the pool of potential contractors.

** Please expand this sub-section when needed to address all potential material and relevant risks.*

H.1. Logic Framework.

H.1.1. Paradigm Shift Objectives and Impacts at the Fund level[29]

Paradigm shift objectives						
Increased climate-resilient sustainable development	The project through an integrated approach with ensure more climate-resilient homes, strengthen natural defenses through the regeneration of mangroves, and improve planning through the integration of climate risk information					
Expected Result	**Indicator**	**Means of Verification (MoV)**	**Baseline**	**Target**		**Assumptions**
				Mid-term (if applicable)	Final	
Fund-level impacts						
A3.0 Increased resilience of intrastructure and the built environment to climate change	*3.1 Number and value of physical asset made more resilient to climate variability and change, considering human benefits*	Site visits, progress reports by executing entity, coastal mapping by communities	4,000 houses not meeting safety/ resilience criteria established by government	2,000 houses valued at 4,000,000 USD ($)	4,000 houses valued at 8,000,000 USD($)	Government housing programme, targeting a total of 26,500 houses continues as planned.
A4.0 Improved resilience of ecosystems and ecosystem services	*4.1 Coverage/scale of ecosystems protected and strengthened in response to climate variability and change*	Site visits, reports	0	2,000ha	4,000ha	Extreme weather event does not destroy fragile seedlings. (Measures will be taken to protect mangroves in early growth stages, e.g. bamboo fencing to protect from storm surges)

[29] Information on the Fund's expected results and indicators can be found in its Performance Measurement Frameworks available at the following link (Please note that some indicators are under refinement):
http://www.gcfund.org/fileadmin/00_customer/documents/Operations/5.3_Initial_PMF.pdf

H.1.2. Outcomes, Outputs, Activities and Inputs at Project/Programme level

Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term (if applicable)	Final	
Project/programme outcomes	**Outcomes that contribute to Fund-level impacts**					
A6.0 Increased generation and use of climate information in decision-making	*6.2. Use of climate information products/services in decision-making in climate-sensitive sectors*	Reports	Climate products integrating risk information not regularly available	2 (enhanced risk maps)	5 (enhancement to policies, tailored climate risk information for various stakeholders)	Data collection efforts in first years of project are successful
Project/programme outputs	**Outputs that contribute to outcomes**					
1. Storm and flood resilient design features added to 4,000 new houses on safe sites, benefiting 20,000 poor and highly disaster-exposed people in 100 communes	*Number of households provided with resilient homes (disaggregated to indicate male/female headed households)*	Results of commune selection process, site visits, progress reports by executing entity, community monitoring	4,000 houses not meeting safety/ resilience criteria established by government	2,000 households	4,000 households	Government housing program, targeting a total of 26,500 houses, continues as planned.
2. Regeneration of 4,000 hectares of coastal mangrove storm surge buffer zones using successful evidence-based approaches	*Hectares of land or forests under improved and effective management that contributes to CO2 emission reductions*	Site visits, progress reports by executing entity	0	2,000ha	4,000ha	Extreme weather event does not destroy fragile seedlings. (Measures will be taken to protect mangroves in early growth stages, e.g. bamboo fencing to protect from storm surges)
3. Increase access to enhanced climate, damage and loss data for private and public sector application	*Number of disaster database established/supported and number of climate policy/regulatory*	Reports	Climate products integrating risk information not	2 (enhanced risk maps)	5 (enhancement to policies, tailored climate risk	Data collection efforts in first years of project are successful

	frameworks supported		regularly available		information for various stakeholders)	
Activities	**Description**		**Inputs**		**Description**[30]	
1.1 Grant support for cost of additional flood/storm resilient features to 4,000 houses	Activity 1.1 focuses on the additional cost of climate-resilient safety feature to house construction under the government housing programme. Importantly, site selection will be linked to risk assessments conducted through the CBDRM programme and DMC surge maps to ensure safe siting for the houses. Training on safe housing will be provided through the CBDRM programme to extend the knowledge to other communities.		1.1.1. Guided by MOC, identify project sites against vulnerability criteria for project intervention, for approval by the Project Board as necessary 1.1.2. (Commune selects individual dwellings within commune for grant support based on poverty index established by government and storm resilience of existing dwelling). Inform commune selection of grant recipients by cross-checking against CBDRM risk assessments to ensure construction grants do not support building in high risk areas. (Risk assessments to be conducted where they are lacking, see Activity 1.2). 1.1.3. Collate available data, including CBDRM risk assessment and surge maps, into information packs to inform safe site verification (complementary to Output 2). 1.1.4. Grant delivery for house construction, for incremental cost of additional safety measures. Lump sum based on agreed safer home design for maximum of $2,000 per house will be transferred to MOF. Distribution to the recipient will follow MOC housing programme grants mechanism - grants are provided to home-owner, home-owner then uses funds to procure materials and labor.		Consultations at provincial, commune and community levels Investments in additional cost for climate-resilient safety features, for 4,000 houses Training activities to communities on safe house design Training activities to support capacity strengthening for provincial officials Technical expertise to strengthen legal and policy framework	

[30] Across the 3 outputs the project various workshops and consultations, these are estimated below and will be further defined in the project initiation phase. At commune level, the project will support to deliver approximately 650 trainings and consultations with the local communities and vulnerable groups. The actual consultation should be more as part of the Government co-financing training and consultation processes. At provincial and national level, the project will support to deliver approximately 65 core trainings and policy workshops provinces and national government agencies to serve the transformation agenda of the GCF project. Aside from this, there are various technical workshops / consultations and writeshops that will also be organized to facilitate the deliberations of the project designs, interventions, reviews and drawing lessons.

		1.1.5. For especially vulnerable grant recipients, such as female-heads of household, disabled or elderly, support to identify additional/potential means of support for construction, such as youth organizations 1.1.6. Support policy and legal framework/regulations that govern these houses supported – both in terms of maintenance, insurance (relates to output 3)	
Activity 1.2. - Community-based climate and disaster risk mapping and planning	Activity 1.2 focuses on conducting risk assessments where they are currently lacking. The CBDRM programme methodologies will be used and up-scaled to areas prioritized by the government housing programme and of relevance to the GCF project.	1.2.1. Establish community committee incorporating both local government and a cross-section of residents, ensuring the engagement of women, to complete a CBDRM risk assessment 1.2.2. Training programme (100) for selected commune/village to conduct risk assessments, using existing high quality topography maps for baseline and monitoring purposes, building on CBDRM programme 1.2.3. Conduct risk assessments following CBDRA guidelines 1.2.4. Augment existing training provided by Department of Construction (DoC) on house design, with risk information and potential for avoided damage/loss 1.2.5. Training made available to adjacent communes and provinces	Community consultations Training activities for communities on CBDRA Technical expertise to enhance government housing programme
Activity 1.3 - Knowledge products, developed based on lessons learned, for policy makers and communities	Activity 1.3 ensures that the best practices from these enhanced measures, and any lessons learned from implementation, are shared to inform future programming in housing, as well as land use and infrastructure development. Data generated under this output will also be included in central databases to inform broader planning.	1.3.1. Documentation of project progress, highlighting where applicable/possible, resilience of structures compared to similar previous weather events/natural hazards 1.3.2. Development of policy briefs based on risk assessment and project successes, to inform land use, construction and development planning 1.3.3. Support to the design of the next phases of the government housing	Reports and communications materials Technical expertise for policy/programming support Public awareness activities

		programme (e.g. Northern provinces, Mekong delta) integrating evidence and best practices of GCF implementation 1.3.4. Systematic logging and synthesis of data from information packs for inclusion in central risk repository to inform broader planning (complementary to Output 2) 1.3.5.Best practices workshops/writeshops in 3 regions. Training-of-trainers in 3 regions, provincial trainings 1.3.6. Public awareness campaign on safe housing technologies linking storm/flood-resilient structures to avoided damage/loss	
Activity 2.1–Regeneration or replanting of 4,000 hectares of mangroves in coastal areas vulnerable to climate change	Applying best practices, Activity 2.1 focuses on regeneration and replanting mangroves in degraded areas. Awareness raising activities will ensure communities understand the importance of maintaining restored mangroves sites for protecting communities from climate change events.	2.1.1. Guided by MARD, verify sites against vulnerability and feasibility criteria for project intervention (including planned infrastructure development projects and mangrove rehabilitation efforts by government and partners), for approval by the Project Board as necessary 2.1.2. Provide additional training and outreach for the 25 community group representatives on the benefits and means for regenerating mangroves tailored to the local context 2.1.3. Technical assessment (e.g. soil analysis) of sites to gauge complexity, identify best means of rehabilitation, and related costs 2.1.4. Using existing guidelines and best practices for improved mangrove rehabilitation, led by MARD and in consultation with academia and partners specializing in field as necessary, ensure species selection and replantation techniques are appropriate for the site	Consultations at provincial, commune and community levels Studies to assess best approach to mangrove rehabilitation Training activities to communities on safe mangrove nurseries, regeneration/planting Training activities to support capacity strengthening for provincial officials Technical expertise to strengthen legal and policy framework Technical expertise for policy/programming support

		2.1.5. For areas where aquaculture poses a threat to mangroves, support in the design and relocation of pond, providing temporary livelihoods support where needed 2.1.6. Based on CBDRM plan, consultations with communities ensuring engagement of women, to define roles in rehabilitation, maintenance and monitoring of mangrove areas 2.1.7. Starting with 2-3 sites, rehabilitate mangrove area using locally produced seedlings and install necessary infrastructure for their protection (e.g. locally sourced bamboo support or fencing), engaging communities in tree breeding (nurseries) and planting to the extent possible 2.1.9. Cost assessment of rehabilitation at potential sites for next implementation phase (i.e. cost of rehabilitation will vary site to site depending on site difficulty and soil quality) 2.1.10. Document best practices and lessons learned to inform subsequent phases of project implementation, as well as the CBDRM programme.	
Activity 2.2 – Community-based programme on mangrove rehabilitation, maintenance and monitoring for target communities	Activity 2.2. focuses on engaging the community through the CBDRM programme to monitor and report on the progress of mangrove rehabilitation efforts, to ensure that unforeseen issues or pressures are immediately addressed.	2.2.1. Training programme for 25 selected commune/village to conduct coastal mapping, using existing high quality topography maps for baseline and monitoring purposes 2.2.2. Collate available data, including CBDRM risk assessment and surge maps, into information packs to inform safe site verification (complementary to Output 1) 2.2.3. Complete community based risk and vulnerability assessment for the communes using existing methodologies approved MARD, materials produced for the 1002 program, and including analysis of risk pack	Training to communities on coastal mapping Technical expertise to develop information packs tailored to communities on risks Training to communities on monitoring and reporting progress of rehabilitated areas

		data (complementary to Output 1) 2.2.4. Training programme (25) for rehabilitation and regular maintenance of mangrove areas for community based management of mangroves (mangrove management will be integrated and costed into CBDRM plans) 2.2.5. Community based monitoring to assess success of mangrove rehabilitation efforts, as well as for broader planning purposes 2.2.6. Documentation and compilation of project progress by commune and district level, to further inform project implementation	
Activity 2.3.- Knowledge products, developed based on lessons learned, for policy makers and communities	Activity 2.3 ensures that the best practices from these enhanced measures, and any lessons learned from implementation, are shared to inform policies on protected areas and related preservation programming.	2.3.1 Documentation of project achievements, best practices and lessons learned, highlighting social and environmental benefits of mangrove rehabilitation 2.3.2. 5 roundtables for government consultants and contractors, provincial/national specialists to validate best practices Development of policy briefs to inform coastal resilience planning 2.3.3. Systematic logging and synthesis of data from information packs for inclusion in central risk repository to inform broader planning (complementary to Output 1) 2.3.4. Public awareness campaign linking the protection of mangroves to documented social and environmental benefits of project intervention	Reports and communications materials Technical expertise for policy/programming support Public awareness activities
Activity 3.1 – Disaster database updated and risk data repository established, with mechanisms established for sharing/disseminating information	Activity 3.1 focuses on enhancing the quantity and quality of Viet Nam's disaster/loss information, thereby improving its reliability. The activity also improves mechanism to share data with stakeholders for use in planning.	3.1.1. Establish Technical Advisory Group of experts representing various interests (e.g. environment, infrastructure, academia, private sector, insurance sector) to provide advice on upgrading systems to support development of improved risk sharing products for medium	Consultations with stakeholders Technical expertise

		and long term planning, 10 consultations once established. 3.1.2. 3 workshops to establish methodology for data tracking, including repository and facilities for long term maintenance of data 3.1.3. Work with key academic institutions and research organisations to compile risk information for target provinces that can be provided to communes to inform community based planning 3.1.4. Training (520) to complete and compile community based disaster and vulnerability risk assessments, enhancing the established CBDRM methodology in target communes as necessary and collate results into existing 1002 programme M&E systems as baseline data 3.1.4. Replicate methodology of collecting disaster and loss data to communes outside the CBDRM programme 3.1.5. Collate commune level historical data on extreme climate events, damage and losses being collected under the 1002 programme but not currently available to risk modellers 3.1.6. Upgrade existing damage and loss databases in Viet Nam building on existing national disaster tracking data sets to enable linking of commune level risk data with national systems 3.1.7. Launch improved government risk data repository accessible to planners and financial institutions to support analysis and modelling by the private sector and other stakeholders	
Activity 3.2 – Policy support for planning/line ministry staff at the national and sub-national levels to apply	Activity 3.2 links the risk information collected and documented through the GCF project to broader planning. To	3.2.1. Facilitate inter-ministerial dialogue, to assess climate, disaster, and damage and loss information	Consultations with stakeholders Workshops

disaster/loss information to inform climate resilient planning	ensure that information is understand and ready to be applied to planning, the activity will develop climate information products tailored to the needs of various stakeholders (following consultations), including the private sector and insurance sector. This information would not only protect their investment, but also incentivize investment in climate change or disaster preventative measures with wide beneficial potential.	needs for development of tailored products for risk-informed climate-resilient planning 3.2.2. 10 roundtables on standardization of existing risk assessment guidelines; development of comprehensive risk assessment for Viet Nam; Government risk data repository accessible to planners and financial institutions to support analysis and modelling by the private sector and other stakeholders 3.2.3. Design products tailored to needs expressed by stakeholders, especially insurance providers, integrating climate and disaster data to inform planning 3.2.4. Design and deliver 12 trainings on risk-informed and climate-resilient planning in different sectors, integrating climate information, disaster/loss data, cost-benefit analysis, and financial modelling of climate and disaster impacts and response measures	Technical expertise to develop tailored products 12 training activities to integrate climate risk information into planning, other sectors
Activity 3.3 – Analysis of risk transfer mechanisms for insurance, including for cases of large scale coastal climate related disaster (loss of more than 3% GDP)	Activity 3.3 considers the projected risk of a major climate change event and puts in place a plan to mitigate the financial burden of potential losses.	3.3.1. Facilitate dialogue between the government and insurance sector to research opportunities to increase access to insurance related products in high risk coastal areas 3.3.2. Feasibility studies on innovative financial schemes and non-grant de-risking mechanisms to improve access to government financial preparedness and response capacity (e.g. catastrophe bonds) 3.3.3. Develop improved financial loss models for Viet Nam to estimate economic exposure to climate events,10 roundtables 3.3.4. Provide technical and coordination inputs to enable the government to develop a plan for managing the financial risks of a major	Technical expertise

		climate related disaster affecting a coastal area (such as super-typhoon or similar event), 3 workshops	

H.2. Arrangements for Monitoring, Reporting and Evaluation

254. Project-level monitoring and evaluation will be undertaken in compliance with the UNDP POPP, the UNDP Evaluation Policy.

Oversight and monitoring responsibilities:

255. The primary responsibility for day-today project monitoring and implementation rests with the Project Manager. The Project Manager will develop annual work plans to ensure the efficient implementation of the project. The Project Manager will inform the Project Board and the UNDP Country Office of any delays or difficulties during implementation, including the implementation of the M&E plan, so that the appropriate support and corrective measures can be adopted. The Project Manager will also ensure that all project staff maintain a high level of transparency, responsibility and accountability in monitoring and reporting project results.

256. The UNDP Country Office will support the Project Manager as needed, including through annual supervision missions. The UNDP Country Office is responsible for complying with UNDP project-level M&E requirements as outlined in the UNDP POPP. Additional M&E and implementation quality assurance and troubleshooting support will be provided by the UNDP Regional Technical Advisor as needed. The project target groups and stakeholders including the NDA Focal Point will be involved as much as possible in project-level M&E.

257. A project inception workshop will be held after the UNDP project document has been signed by all relevant parties to: (a) re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project implementation; (b) discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms; (c) review the results framework and discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E plan; (d) review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit; (e) plan and schedule Project Board meetings and finalize the first year annual work plan. The Project Manager will prepare the inception report no later than one month after the inception workshop. The final inception report will be cleared by the UNDP Country Office and the UNDP Regional Technical Adviser, and will be approved by the Project Board.

258. The Project Manager, the UNDP Country Office, and the UNDP Regional Technical Advisor will provide objective input to the annual Project Implementation Report (PIR) for each year of project implementation. The Project Manager will ensure that the indicators included in the project results framework are monitored annually well in advance of the PIR submission deadline and will objectively report progress in the Development Objective tab of the PIR. The annual PIR will be shared with the project board and other stakeholders. The UNDP Country Office will coordinate the input of the NDA Focal Point and other stakeholders to the PIR. The quality rating of the previous year's PIR will be used to inform the preparation of the next PIR. The final project PIR along with the terminal evaluation report and corresponding management response will serve as the final project report package.

259. An independent mid-term review process will be undertaken and the findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration. The terms of reference, the review process and the final MTR report will follow the standard templates and guidance available on the UNDP Evaluation Resource Center. The final MTR report will be cleared by the UNDP Country Office and the UNDP Regional Technical Adviser, and will be approved by the Project Board. The final MTR report will be available in English.

Additional GCF evaluation requirements:

260. An independent terminal evaluation (TE) will take place no later than three months prior to operational closure of the project. The terms of reference, the review process and the final TE report will follow the standard templates and guidance available on the UNDP Evaluation Resource Center. The final TE report will be cleared by the UNDP Country

Office and the UNDP Regional Technical Adviser, and will be approved by the Project Board. The TE report will be available in English.

261. The UNDP Country Office will include the planned project terminal evaluation in the UNDP Country Office evaluation plan, and will upload the final terminal evaluation report in English and the management response to the public UNDP Evaluation Resource Centre (ERC) (http://erc.undp.org). Once uploaded to the ERC, the UNDP Independent Evaluation Office will undertake a quality assessment and validate the findings and ratings in the TE report, and rate the quality of the TE report.

262. The UNDP Country Office will retain all M&E records for this project for up to seven years after project financial closure in order to support ex-post evaluations.

263. A detailed M&E budget, monitoring plan and evaluation plan will be included in the UNDP project document.

264. UNDP will perform monitoring and reporting throughout the reporting period in accordance with the AMA and Funded Activity Agreement (FAA). UNDP has country presence and capacity to perform such functions. In the event of any additional post-implementation obligations over and above the AMA, UNDP will discuss and agree these with the GCF Secretariat in the final year of the project and will prepare a post-implementation monitoring plan and budget for approval by the GCF Board as necessary.

I. Supporting Documents for Funding Proposal

☒ NDA No-objection Letter **Annex I**

☒ Feasibility Study **Annex II**

☒ Integrated Financial Model that provides sensitivity analysis of critical elements **Annex III**

Not applicable. *As the proposed project is non-revenue generating, a traditional financial analysis is not appropriate.*

☒ Confirmation letter or letter of commitment for co-financing commitment **Annex IV**

☒ Project/Programme Confirmation/Term Sheet (including cost/budget breakdown, disbursement schedule, etc.) **Annex Va**

☒ Project/Programme Confirmation/Term Sheet (including cost/budget breakdown, disbursement schedule, etc.) – *see the Accreditation Master Agreement, Annex I* **Annex Vb**

☒ Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) **Annex VIa and Annex VIb**

☒ Appraisal Report or Due Diligence Report with recommendations **Annex VII**

☒ Evaluation Report of the baseline project **Annex VIII**

☒ Map indicating the location of the project/programme **Annex IX**

☒ Timetable of project/programme implementation **Annex X**

☒ Project/Programme confirmation **Annex XI**

Additional Information

☒ Economic Analysis (Summary) **Annex XIIa**

☒ Economic Analysis (xls format) **Annex XIIb**

☒ Additional Background Details **Annex XIII**

☒ Response to GCF Comments on Concept Note **Annex XIVa**

☒ Response to GCF Comments on Proposal **Annex XIVb**

☒ Additional Supporting Documents **Annex XV**