

# Concept Note

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## **Climate and Disaster Resilient Land use and Water Management in the Mekong Delta**

Vietnam | Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (GIZ)

5 October 2018



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# Concept Note

Project/Programme Title:	Climate and Disaster Resilient Land use and Water Management in the Mekong Delta
Country(ies):	Viet Nam
National Designated Authority(ies) (NDA):	Ministry of Planning and Investment (MPI), Viet Nam
Accredited Entity(ies) (AE):	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
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## Notes

- The maximum number of pages should **not exceed 12 pages**, excluding annexes. Proposals exceeding the prescribed length will not be assessed within the indicative service standard time of 30 days.
- As per the Information Disclosure Policy, the concept note, and additional documents provided to the Secretariat can be disclosed unless marked by the Accredited Entity(ies) (or NDAs) as confidential.
- The relevant National Designated Authority(ies) will be informed by the Secretariat of the concept note upon receipt.
- NDA can also submit the concept note directly with or without an identified accredited entity at this stage. In this case, they can leave blank the section related to the accredited entity. The Secretariat will inform the accredited entity(ies) nominated by the NDA, if any.
- Accredited Entities and/or NDAs are encouraged to submit a Concept Note before making a request for project preparation support from the Project Preparation Facility (PPF).
- Further information on GCF concept note preparation can be found on GCF website [Funding Projects Fine Print](#).

<b>A. Project/Programme Summary (max. 1 page)</b>			
<b>A.1. Project or programme</b>	<input checked="" type="checkbox"/> Project <input type="checkbox"/> Programme	<b>A.2. Public or private sector</b>	<input checked="" type="checkbox"/> Public sector <input type="checkbox"/> Private sector
<b>A.3. Is the CN submitted in response to an RFP?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, specify the RFP: _____	<b>A.4. Confidentiality<sup>1</sup></b>	<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Not confidential
<b>A.5. Indicate the result areas for the project/programme</b>	<p><b>Mitigation:</b> Reduced emissions from:</p> <input type="checkbox"/> Energy access and power generation <input type="checkbox"/> Low emission transport <input type="checkbox"/> Buildings, cities and industries and appliances <input type="checkbox"/> Forestry and land use <p><b>Adaptation:</b> Increased resilience of:</p> <input checked="" type="checkbox"/> Most vulnerable people and communities <input type="checkbox"/> Health and well-being, and food and water security <input checked="" type="checkbox"/> Infrastructure and built environment <input checked="" type="checkbox"/> Ecosystem and ecosystem services		
<b>A.6. Estimated mitigation impact (tCO<sub>2</sub>eq over lifespan)</b>		<b>A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)</b>	885,000 poor and vulnerable residents of all coastal districts in Bac Lieu, Soc Trang and Tien Giang Provinces will directly benefit from integrated coastal protection and water management measures (direct beneficiaries, 50% female; 22% of the population of the three target provinces) <sup>2</sup>  About 8,400 farmer households will adopt climate and disaster resilient livelihood models as a result of the program (direct beneficiaries, 70% female)
<b>A.8. Indicative total project cost (GCF + co-finance)</b>	Amount: USD 40.1 million	<b>A.9. Indicative GCF funding requested</b>	Amount: USD 32.1 million
<b>A.10. Mark the type of financial instrument requested for the GCF funding</b>	<input checked="" type="checkbox"/> Grant <input type="checkbox"/> Reimbursable grant <input type="checkbox"/> Guarantees <input type="checkbox"/> Equity <input type="checkbox"/> Subordinated loan <input type="checkbox"/> Senior Loan <input type="checkbox"/> Other: specify _____		
<b>A.11. Estimated duration of project/ programme:</b>	a) disbursement period: 2019 - 2024 b) repayment period, if applicable: NA	<b>A.12. Estimated project/ Programme lifespan</b>	5 years

<sup>1</sup> Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy ([Decision B.12/35](#)) and the Review of the Initial Proposal Approval Process ([Decision B.17/18](#)).

<sup>2</sup> Based on 2015 data from the General Statistics Office of Viet Nam - [https://www.gso.gov.vn/Default\\_en.aspx?tabid=491](https://www.gso.gov.vn/Default_en.aspx?tabid=491)

<b>A.13. Is funding from the Project Preparation Facility requested?<sup>3</sup></b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other support received <input type="checkbox"/> If so, by who:	<b>A.14. ESS category<sup>4</sup></b>	<input type="checkbox"/> A or I-1 <input checked="" type="checkbox"/> B or I-2 <input type="checkbox"/> C or I-3
<b>A.15. Is the CN aligned with your accreditation standard?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>A.16. Has the CN been shared with the NDA?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>A.17. AMA signed (if submitted by AE)</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, specify the status of AMA negotiations and expected date of signing:	<b>A.18. Is the CN included in the Entity Work Programme?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>A.19. Project/Programme rationale, objectives and approach of programme/project (max 100 words)</b>	<p>The rural population in the Mekong Delta in Viet Nam is highly vulnerable to climate change and disasters, in particular to the impacts of sea level rise. The objective of the proposed project is to increase the climate resilience of the rural population by strengthening institutional capacity and coordination and by scaling-up integrated coastal protection and climate resilient livelihood systems. The Ministry of Agriculture and Rural Development (MARD) will set up a Central Project Management Unit (PMU) consisting of staff from MARD and GIZ. Provincial PMUs will also be established in the respective Departments of Agricultural and Rural Development (DARD). Provincial People's Committees (PPC) will be the executing agency at the provincial level.</p>		

<sup>3</sup> See [here](#) for access to project preparation support request template and guidelines

<sup>4</sup> Refer to the Fund's environmental and social safeguards ([Decision B.07/02](#))

## B. Project/Programme Information (max. 8 pages)

### B.1. Context and baseline (max. 2 pages)

The Mekong Delta is home to around 20 million people and is Viet Nam's most important agricultural region. It contributes 55% to Viet Nam's rice production, and by feeding more than 245 million people it is considered to be the country's and the region's rice bowl. The delta also produces 70% of Viet Nam's aquaculture output, corresponding to one third of the country's GDP. The Mekong Delta further represents the country's third largest industrial region. Yet, the Mekong Delta is facing existential threats due to climate change, and is one of the deltas most susceptible and vulnerable to sea level rise globally.

**Climate hazards.** Sea level rise (SLR), made up of thermal expansion, ocean dynamics, and glacier and ice sheet mass changes, is the main climate hazard in the project region. This is expressed in the CMIP5 climate model and scaled down to regional level to the closest tide gauge station of Vung Tau, just a few kilometres east of the Mekong Delta. According to this model, SLR median values are 30-34cm in the year 2050 and 61-92cm in the year 2100. The highest value (95th percentile of RCP 8.5) is 1.46m in 2100. These values are well above global average, which is due to gravitational and rotational effects associated to the mass loss of ice-sheets. These effects are generally larger in the tropics, and large rates of subsidence are generally found in river deltas such as the Mekong.<sup>5</sup>

In addition to this slow-onset SLR, water surges caused by tropical storms reach extreme levels already<sup>6</sup>. With a statistical probability of 100%, at least one event per year results in extreme water levels reaching 2.84m above median sea level in Tien Giang province, 3.05m in Soc Trang province and 3.19m in Bac Lieu province. Combined with projected slow-onset SLR, extreme water levels will be pushed higher in all provinces, increasing the chances of disastrous flooding events in the future.

Projected seasonal dry spells, increased number of heat waves and increased number of extreme precipitation events are further climate hazards that have various adverse impacts on the complex coastal hydrologic system and the area's suitability for prevalent land uses. This development is evidenced inter alia by eroding coastlines and saltwater intrusion with negative consequences for the shrimp and rice dependent livelihoods in the Delta. Further, the fifth assessment report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) indicates that temperatures in the sub-region increased by 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. These facts underpin the necessity and urgency for climate-resilient land and water management solutions in the Mekong Delta.

**Exposure.** The project provinces Bac Lieu, Soc Trang and Tien Giang are characterized by high exposure to climate change hazards, mainly because large numbers of people live in low-lying areas and population density is very high. Based on the SLR and extreme water levels reached during storm surges (as described above), it was computed that 30-50% of the entire area across the three provinces would be exposed, with growing projected rates in the future (these are the result of the Climate Risk and Vulnerability Assessment (CRVA)). Taking population data from the Viet Nam Statistics Office as a basis, these result in a **very high exposure of at least 1.3 million people in the project region**. Further relevant exposed assets are smallholder farms and existing coastal protection infrastructure.

**Vulnerabilities.** According to the Climate Change Vulnerability Index<sup>7</sup>, Viet Nam is considered one of 30 "extreme risk countries" in the world. The poverty rate has decreased substantially at national level in Viet Nam to 9.8% in 2016. However, the rural population in the Mekong Delta remains vulnerable to climate change, particularly households depending on agriculture for their livelihoods. Overall, the population in the Mekong Delta remains rural and thus highly vulnerable to climate change. This is particular true for the majority of households that depend on smallholder production of rice and fish contributing significantly to local economies, household and food security. Most of these smallholders cultivate less than two hectares and depend on household members for labour. Increasing family size and the sale or transfer of land to larger holdings, are further reducing the average size of smallholders' land. Numerous studies have been conducted and confirm that demographic and socio-economic development further aggravates the high exposure and vulnerabilities of the rural population to climate change (including studies by GIZ, Asian Development Bank, IFAD, IUCN, World Bank, UNDP and USAID).

Coastal erosion due to SLR in combination with anthropogenic activity has contributed to mangrove deforestation in the past and this trend is projected to continue despite ongoing efforts to halt deforestation. Deforested coastal areas further add to coastal erosion as the protection function is lost. Carbon stocks both above and below ground are also lost in the process and contribute to substantial CO<sub>2</sub> emissions.

### National priorities and ownership

<sup>5</sup> Kopp, R.E., Horton, R.M., Little, C.M., Mitrovica, J.X., Oppenheimer, M., Rasmussen, D.J., Strauss, B.H., Tebaldi, C., 2014. Probabilistic 21st and 22nd century sea-level projections at a global network of tide-gauge sites: KOPP ET AL. *Earth's Future* 2, 383–406. <https://doi.org/10.1002/2014EF000239>

<sup>6</sup> Muis et al., 2016

<sup>7</sup> <https://maplecroft.com/about/news/ccvi.html>

Measures supporting climate change adaptation, including those with mitigation co-benefits, included within the proposed project, are well aligned with the country's national priorities. In 2008, the Government issued the National Target Program to Respond to Climate Change (NTP-RCC) in order to assess climate change impacts and develop adaptation and mitigation measures. Climate change is mainstreamed into the National Socio-Economic Development Strategy (2011-2020), the Socio-Economic Development Plan (2016-2020), and policies on disaster risk reduction, and coastal zone management. Economic sectors and provinces have developed Action Plans to respond to climate change. In 2011, the National Climate Change Strategy was issued, outlining the objectives for the periods 2011-2015 and 2016-2050. The strategy stresses the notion that responding to climate change must be associated with sustainable development and a transition towards a low-carbon economy, taking advantage of opportunities to increase competitiveness, and carrying out adaptation and mitigation efforts in parallel.

In 2015, Viet Nam submitted its Intended Nationally Determined Contribution (INDC) to the United Nations Framework Convention on Climate Change (UNFCCC). With respect to adaptation, it identifies gaps in terms of institutional and policy arrangements, financing, human resource capacity, and technology and prioritized adaptation measures for the period up to 2020 and the period 2021-2030. In the short-term, the Vietnamese Government identified the following priorities: (i) strengthening of policies and institutions (in particular further integration of climate change into the Socio-Economic Development Plans; coordinating more effectively between line ministries, sectors and local institutions; attracting public and private investments); (ii) developing capacity (for example strengthening technical expertise on climate change adaptation; pursuing communication and awareness raising of climate change); (iii) closing the financing gap for adaptation (it is estimated that only 30% of the required resources can be covered by the government); and (iv) generating and disseminating adaptation technology.

According to the INDC/NDC, the following are the key priorities for the period 2021 – 2030: The first priority is related to sea-level rise, which would focus on integrated coastal zone management and the control of saltwater intrusion. The second one is related to ensuring “social security”. This goal is supposed to be achieved for example by (i) integrated coastal protection involving ecosystem-based adaptation and protection/rehabilitation in particular in the Mekong Delta; (ii) integrated water resource management; (iii) ensuring food security through sustainable and climate-resilient agricultural land management; (iv) community-based adaptation; and (v) improved forest management. The third priority is related to capacity development, technology transfer and finance. This priority would include: (i) strengthening the capacity to adapt to climate change at national and local level; and develop/promote (ii) technology to prevent erosion and protect the coastline and riverbanks; (iii) technology for sustainable agriculture, forestry and aquaculture production; (iv) tools to assess climate change impacts, vulnerability, exposure and climate change adaptation measures; and (v) technology for the sustainable use of water resources. With respect to climate change mitigation the INDC/NDC stresses the important role the agriculture sector and forestry (including coastal zones) have to play.

Central government ministries, the Mekong Delta Provinces and other key actors are committed to the idea of a mechanism coordinating disaster risk reduction and management, climate change and sustainable land and water management for agricultural, forestry and fishery production in the Mekong Delta. Strong country ownership is also evidenced *inter alia* by the Prime Minister Decision on pilot coordination and regional linkage for the Mekong Delta from 2016 onwards and its implementation plan (Decision 593). In September 2017, the Vietnamese Government organised a Mekong Delta Conference that was chaired by the Prime Minister. The need for regional coordination and master planning for the Mekong Delta was stressed by the Prime Minister, line Ministries and the 13 Mekong Delta Provinces. This led to the Prime Minister Resolution (Nr. 120/NQ-CP Resolution on Sustainable and Climate-Resilient Development of the Mekong Delta of Viet Nam) with a vision for the sustainable development of the Mekong Delta until 2100. To implement this resolution MARD was assigned to develop a “The Overall Program for Climate Resilient and Sustainable Development of the Mekong Delta Associated with Agricultural Restructuring”.

### **Main root causes and barriers**

The root causes and barriers that need to be addressed to put the rural population of the Mekong Delta on a climate and disaster resilient and sustainable development pathway are manifold. The most important ones are of institutional, technological, capacity-related, social and financial nature. **With respect to institutions**, there is lack of coordination between national and subnational levels, between provinces and across sectors hindering the required cross-cutting planning needed to address climate change and disaster risk challenges. The spatial dimensions of climate change and its impacts on land and water management for agricultural, forestry and fishery production are not reflected in the currently fragmented planning process, where parallel investments lack synergies. **Concerning capacity**, there is limited knowledge of provincial institutions to systematically integrate climate change and disaster risk reduction (DRR) aspects into budgets, development plans and investments. Provincial Adaptation Plans exist. However, so far the plans are not reflected in the five-year or in the annual Socio-Economic Development Plans (SEDPs). There is also limited technical capacity with respect to climate change adaptation, both, at the level of agricultural advisory services as well as at community and household levels. Certainly, valuable traditional knowledge exists, but it needs to be used more systematically and complemented by new and innovative approaches. With respect to technologies, promising climate smart practices and technologies exist. However, there is a need for scaling-up technologies, which have been successfully tested at a smaller scale. **From a social perspective**, poor households (in particular female-headed

households) and communities that are particularly vulnerable to climate change, have not been enabled sufficiently enough to enhance their adaptive capacity to pursue resilient livelihood models. Such households are in need of improved access to resources, knowledge and markets. Finally, as stated by the INDC/NDC, there is a **significant gap to finance** the implementation of urgently needed climate resilient investments. This gap needs to be urgently closed to the greatest extent possible by using a wide range of financing sources and instruments, including national and provincial sources, international development banks, bilateral development organizations and the private sector.

## B.2. Project/Programme description (max. 3 pages)

**The objective of the proposed “Climate and Disaster Resilient Land and Water Management in the Mekong Delta Project”** is to increase climate and disaster resilience of the vulnerable rural population in the Mekong Delta by strengthening institutional capacity and coordination, and by scaling-up integrated coastal protection and climate resilient livelihood systems.

A detailed “Climate Risk and Vulnerability Assessment” (CRVA) was carried out as part of concept note and full proposal development. The CRVA specifies the vulnerability of the Mekong Delta explicitly considering climate change impacts over the next 30 years, including the increase in frequency and severity of tropical cyclones. The CRVA helps to determine the adaptation needs of the affected population and fine-tune entry points for the proposed project. Further, it defines the Theory of Change (Annex 1) and connects appropriate adaptation measures to specific climate risks in three intervention areas: agriculture dependent livelihoods, mangrove ecosystems and coastal built environment. Additionally, the CRVA highlights adaptation measures with mitigation co-benefits. In general terms, the proposed project addresses the barriers described in Section B1 above.

The project has four components. They are designed as interventions directly targeting vulnerabilities within the developed climate impact chains. The first component (1) “Climate and Disaster Resilience Coordination and Planning in the Mekong Delta” will lead to enhanced coordination among key stakeholders for financing, planning and implementing climate resilient investments. The second component (2) “Investments in Integrated Coastal Protection” will design and implement actual measures of high urgency and priority to increase the resilience of the population, in particular as a response to projected sea level rise. The third component (3) “Investments in Climate Resilient Land and Water Use” will enhance the capacity of farmers and communities to respond to identified climate risks in rice and aquaculture farming. As an additional benefit, greenhouse gas emission savings in the form of carbon sequestration (mangrove planting under component 2) can be expected. The fourth component will focus on (4) “Project Management and Monitoring and Evaluation (M&E)”.

### **Component 1: Climate and Disaster Resilience Coordination and Planning in the Mekong Delta**

#### *Subcomponent 1.1 Regional Coordination Mechanism*

This subcomponent will support the development and implementation of a Regional Coordination Mechanism. The main task will be to harmonize the development and implementation of provincial and sectoral climate resilient investment plans, coordinate the development of a Mekong Delta-Wide Spatial Investment Plan for Climate Resilience, and provide an entry point for the government, donors and other finance institutions envisioning climate-resilient investments in the Mekong Delta. Capacity Development for government officials working on regional coordination will enhance the mechanism.

#### *Subcomponent 1.2 Improvement of Provincial Planning and Budgeting Capacities*

Subcomponent 1.2 will support provinces to successfully bridge the gap between national strategy formulation and provincial implementation. The capacity of provincial institutions to systematically integrate climate change and disaster management aspects into development plans and investments will be strengthened. Mainstreaming of climate change will include the integration of Provincial Adaptation Plans into the SEDPs plus budget planning and execution. According to the Decision No. 593 of the Prime Minister, it is necessary to strengthen the capacity of provinces and sectors in general planning of the region. The subcomponent will also further increase the awareness of the provinces for the necessity of inter-provincial, inter-sectoral climate and disaster-resilient planning. Of particular importance in this context are the Provincial Green Growth Action Plans (P-GGAP). These plans provide the opportunity to ensure full coverage of coordinated green growth plan development for the entire Mekong Delta and thereby to close the gap between national and local climate change and disaster responses.

#### *Subcomponent 1.3 Development of Mekong Delta Investment Plan for Climate Resilience and Disaster Risk Reduction*

This subcomponent will support the preparation of the Mekong Delta Investment Plan for Climate Resilience and Disaster Risk Reduction. It will include capacity development of the main stakeholders tasked with the identification of appropriate investments and the development of the investment plan. The plan will constitute a menu of integrated coastal protection and land and water management measures for agricultural, forestry and fishery production for the entire Mekong Delta in the form of holistic, spatially integrated investment proposals. It will be ensured that the investment plan will be of

coherent high quality and that it will explicitly address cross-provincial and cross-sectoral climate and disaster risk issues. Since all potential investors (national, provincial, development partners, private sector) would be required to base their investment choices on this plan, efforts will result in increasing efficiency and effectiveness on one hand, and in a concerted maximization of benefits for the rural poor on the other.

## **Component 2: Investments in Integrated Coastal Protection**

### *Subcomponent 2.1: Specification of Design of Integrated Coastal Protection Measures*

This subcomponent is focusing on the science-based technical design of specific coastal protection measures within the investment plan developed under Subcomponent 1.3. The coastal protection system consists of four main elements: i) structures for erosion prevention and rehabilitation of already eroded tidal flats in the fore-dyke-land, ii) rehabilitation and strengthening of mangrove belts in front of the dyke, iii) strengthening of the sea-dyke as flood protection measure; and iv) adaptation of land-use behind the sea-dyke. The identification of priority locations and investment types at the local level will be guided by the screening of the entire Mekong Delta coastline conducted by GIZ in 2016. Design specifications of coastal protection measures will include investment grade technical, financial, economic, environmental and social feasibility assessments and cost benefit analyses.

### *Subcomponent 2.2: Implementation of Integrated Coastal Protection Measures*

Based on design specification sub-component 2.1 will support implementation of integrated coastal protection measures. A focus will be on the nursing of suitable mangrove species (such as *Avicennia marina*, *Sonneratia alba*) which are resilient against wave exposure and temporally eroding conditions. Innovative well-tested techniques for the reformation of tidal mudflat by means of bamboo groin-fields and breakwater (T shaped-fences) and multi-species plantations will be used in order to rehabilitate the mangrove belt for the Mekong Delta coast and maintain its ecosystem services. The mangrove belt is considered as the most important element of the coastal protection system. Consequently, priority will be given to ecosystem-based approaches to climate change adaptation involving the surrounding communities- However, there is also a strong need for additional flood protection to ensure safeguard of these community members and infrastructure. Thus, a second focus of this sub-component will be placed on dyke upgrade and rehabilitation.

## **Component 3: Investments in Climate Resilient Land and Water Management for Agricultural, Forestry and Fishery Production**

### *Sub-component 3.1 Capacity Development of Agricultural Extension Services for Climate and Disaster Resilience*

The first subcomponent will strengthen the capacity of extension services to effectively advise farm households and communities to increase their climate and disaster resilience. Promoting the dissemination of new and innovative disaster and climate-resilient technologies and practices will require the involvement of extension agents. Thus, increased knowledge of innovative solutions is a necessary prerequisite for extension agents to successfully contribute to the diffusion of suitable, effective and targeted measures. Practices, technologies and knowledge which can be disseminated by extension agents include the availability of timely weather information and seasonal climate forecasts (along with the knowledge to use this information), and new crop or animal varieties tolerant to changing conditions (e.g. resistant to salinity, higher temperatures, prolonged or deeper flooding, prolonged water scarcity) or management practices which increase efficiency (and if possible reduce GHG emissions or contribute to carbon sequestration). Overall, this sub-component will strengthen the farmer – extension service – research continuum to facilitate the transition to disaster and climate-resilient livelihood models. In order to provide appropriate solutions, the research organizations need to better understand and continuously adapt to the challenges farmers and land users are facing due to climate change. Finally, farmers need to participate in the effort and strengthen their own farm-level climate-resilient planning, articulate their needs and priorities and transition to climate-resilient livelihood models. The formation of cooperatives and interest groups constitute an adequate entry point for extension services to foster farmer engagement and commitment (see sub-component 3.2 below).

### *Subcomponent 3.2: Establishment of Cooperatives and Farmer Interest Groups (FIG)*

Formation of cooperatives and farmer interest groups is an essential mean to increase the resilience of vulnerable farm households. These groups will enhance their social networks and access to markets and technologies. It is widely accepted that these are key for enhancing resilience (see for example FAO Resilience Index Measurement and Analysis (RIMA)). Viet Nam is characterized by smallholder agriculture production, where production is very fragmented. This makes difficult good coordination and organization of extension services and thus limiting the adoption of sustainable climate-resilient agricultural practices. The establishment of Farmer Interest Groups (FIG) is considered as the first step to overcome such limits by better organization of farmers for their integration into climate-resilient value chains. Eventually FIGs may develop into full cooperatives. In 2016, the Prime Minister signed the Decision No. 445/QĐ-TTg on developing and scaling up pilot role model cooperatives in the Mekong Delta for the period from 2016 – 2021. In this context, this sub-component will support the establishment of 500 role model cooperatives and farmer groups in the three sub-regions of the Mekong Delta. The support includes design and test of the models of cooperatives to function as a farm support service provider, with a focus on climate-resilient value chains. Hence, this sub-component will integrate farm households into climate-resilient value chains and improve market access for smallholder producers using climate-resilient practices.

### *Subcomponent 3.3: Implementation of Climate and Disaster Resilient Farm Technologies, Practices and Approaches*

This sub-component will support the scaling-up of innovative climate resilient technologies and practices that are at the same time environmentally sound and contribute to a more sustainable agricultural production. While the emphasis will be clearly on technologies and practices, which increase climate and disaster resilience of the targeted population, various technologies are identified to have mitigation co-benefits. For the major farming and livelihood systems in the targeted provinces – rice farming and shrimp aquaculture – impact chains are defined within the framework of a full CRVA. For shrimp farming, a combination of slow onset sea level rise, coastal flooding caused by tropical storms and increased frequency of extreme precipitation and heat events lead to a loss of water surface area suitable for this type of use. The loss of shrimp livelihoods and deteriorating growing conditions due to climate risk and anthropogenic stressors has been identified as one of four main climate risks in the Mekong Delta. For paddy rice agriculture, the same climate hazards and immediate impacts apply. These farms face the added challenge of altered freshwater flow from rivers, as rice farms are slightly located more inland. Projected longer mid-season dry spells combined with anthropogenic overuse of upstream water sources result in adverse changes in the overall hydrological system. This puts rice dependent households at risk of livelihood loss. To directly address the specific intermediate climate impact of saltwater intrusion - a risk for both farming systems (rice is slightly more affected compared to shrimp) - this sub-component also includes the upgrade of “passive” sluice gates. The upgrading refers to many sluice gates in the Mekong Delta that were designed and built in the 1980s. Today, they are in urgent need to be adapted to sea level rise and its resulting effect of coastal flooding. This argument is outlined in the CRVA on the control saltwater intrusion.

Further, both dominant farming systems – rice and aquaculture – need to introduce new technologies to strengthen their resilience, ensure maintenance and increase of productivity levels in the face of the climate risks specified above. With respect to rice, salt-tolerant varieties developed by Vietnamese and international research institutes and tested by the ICMP, are a promising technology to be scaled-up in the Coastal and Middle Mekong Delta. An example technology with economic and mitigation co-benefits to be implemented in parallel is Alternate Wetting and Drying (AWD) rice. AWD is a water management system that aims to reduce the water use in irrigated rice fields without lowering productivity. Water savings from AWD fluctuate between 15%-30%. Developed by the International Rice Research Institute (IRRI), AWD has been used and tested by ICMP in five Mekong Delta provinces since 2011. Through ICMP’s network of already trained extension services, AWD is ready to be up-scaled. In the Upper-Middle Mekong Delta (including the targeted Province of Tien Giang) (controlled) flooding constitutes a factor farming systems need to adapt to. An example for a promising technologies in this context is floating rice. Floating rice is highly adapted to the acid sulphate soils in the area and to deep inundation. ICMP has also tested this technology with promising results.

With respect to shrimp production, current production practices are inadequate and frequently cause production losses already. Due to climate change induced changes in coastal hydrology, the brackish water environment along the coast will alter. Hence, the land and water division between areas suitable for brackish water aquaculture (mostly shrimp) and fresh water aquaculture will shift. In addition, the increasing scarcity of available freshwater is rendering shrimp farming more and more unsustainable, and causing significant production losses. These trends will be exacerbated by climate change. In addition to sea level rise causing the already above mentioned hydrology changes, seasonal dry spells will lead to lessen or make slower groundwater replenishment. A transformation from mono-based shrimp cultivation into a modern, environmentally sound poly-culture based aquaculture of multiple fish and shrimp species may be more adaptive. Such systems thrive on each other’s water discharge and thus less the production system’s overall need for freshwater resources. This proven practice has the capacity to sustainably improve the brackish water quality, reduce disease occurrences and yield losses, and diversify income (another important element for increasing resilience). The tested brackish water aquaculture production and certification schemes can be scaled up in the targeted provinces, and in addition in all other coastal provinces in the Mekong Delta. The certification scheme will be based on ICMP’s long term experience in this field in the Delta.

Along the coastal shores, this poly-culture system can be expanded by the addition of a “waste-water” disposal area on which mangroves can be actively planted and regenerated (feeding on nutrient rich brackish water). Sustainability of the mangrove systems (also as part of sub-component 2.2) will be ensured by co-management systems. Co-management can be described as a partnership agreement in which a resource user group gets the right to use natural resources sustainably on a defined area of state-owned land. The resource use group – usually community groups – is held responsible for the sound management of the forest resources and its protection. The innovative aspect of co-management is that it gives the local population an important role in managing mangrove forests, including clear responsibilities and financial compensation. The political relevance and priority of this approach is stressed by the fact that this regulation is envisaged to be signed directly by the Prime Minister, which underlines that Viet Nam is aware of the need for innovative approaches in coastal forest management. Further, these systems lead to increased diversification (and thereby resilience) due to additional income source from sales of goby fry, crabs, blood cockles and snails.

#### **Component 4: Project Management and M&E**

This component will provide resources for a lean project management structure. This would cover in particular overall project management, financial management, procurement, safeguards and M&E. The project will have a dedicated M&E system for tracking project inputs, activities, outputs and impacts across all components. Component 4 would provide

necessary training, facilities, and operating costs to establish an M&E system in line with the Aligned Monitoring Tool (AMT) established by Ministry of Planning and Investment (MPI). The reports will be prepared, updated and submitted to the GCF annually. An interim and final evaluation will assess progress in achieving the project objective. The M&E system will put strong focus on measurement of resilience. One option would be to base this on FAO's Resilience Index Measurement and Analysis (RIMA).

### **GIZ as the Accredited Entity (AE)**

As a federal enterprise, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH supports the German Government in achieving its objectives in the field of international cooperation for sustainable development. GIZ operates throughout Germany and in more than 130 countries worldwide. GIZ works in a variety of fields and supports its cooperation partners in designing strategies and meeting their policy goals. GIZ delivers services in the form of direct contributions with the overall objective of developing capacity. Thus, GIZ cooperates directly with local partners and bears joint responsibility for the measures it implements.

Viet Nam enjoys a strong and solid partnership with Germany, where GIZ has been working in Viet Nam for more than 25 years with currently around 250 specialist staff deployed across the country, including national and international personnel, development advisors and experts integrated in Vietnamese ministries and implementing institutions. Due to GIZ's long-term working experience in Viet Nam at both the policy and technical level it is very well positioned to function as the AE. Germany with strong support of GIZ has been co-leading the Mekong Delta Working Group (MDWG), facilitating efficient and effective donor coordination and high-level dialogue with the Government of Viet Nam. The MDWG meets regularly to exchange on different key topics such as regional coordination, to harmonize the efforts of the development partners in the region and to align these efforts further with the Vietnamese Government.

As part of the long-term engagement of Germany in the Mekong Delta and under the current Integrated Coastal Management Programme (ICMP) (2011-2018) implemented by GIZ and MARD on behalf of the German and Australian Governments, GIZ has developed and tested a wide range of approaches, tools, and technologies that will provide an excellent basis for the successful implementation of the proposed program. The German contribution to the sustainable development of the Mekong Delta will continue. A follow-up program of ICMP, the Mekong Delta Climate Resilience Program (MCRP) (2019 -2021) is under development. The following are examples for innovative approaches and practices tested by ICMP, which are supposed to be scaled-up by the proposed program:

- **Integrated Coastal Protection:** In particular, the integrated spatial approach to coastal protection measures that aims at harmonizing ecosystem-based approaches with "hard structures", such as dykes, sluice gates and breakwaters. This integrated approach also includes foreshore restoration, such as T-fences mainly made from natural materials such as bamboo, community-based co-management, the rehabilitation of mangroves and monitoring the erosion rate and forest coverage with the use of lightweight drones for evidence-based decision making.
- **Climate Smart Agriculture:** E.g. Alternate Wetting and Drying (AWD) rice, rice-shrimp cultivation, the introduction of saltwater resistant rice varieties and reviving of traditional rice varieties more resistant to floods (floating rice) and sustainable mangrove aquaculture.

GIZ has further conducted a comprehensive technical assessment of integrated coastal protection along the entire coastline of the Mekong Delta (720km) in Viet Nam in 2016. The study aimed at guiding potential investors (such as the Government of Viet Nam and Development Partners) to prioritize and identify suitable integrated coastal protection measures. The proposed project will build on this assessment and will base the identification of coastal protection measure on the web-based Coastal Protection Plan for the Mekong Delta (launch planned July 2018). Finally, GIZ has conducted various pre-feasibility assessments for integrated coastal protection and sustainable livelihoods investments for the government and other development partners.

### **Implementation Arrangements**

The Ministry of Agriculture and Rural Development (MARD) will set up a Central Project Management Unit (CPMU) consisting of staff from MARD and GIZ. Provincial PMUs will be set up in the respective Departments of Agriculture and Rural Development (DARDs). The CPMU will be headed by the MARD National Project Director (from Viet Nam Disaster Management Authority- VNDMA) and the GIZ Project Director. The Provincial People's Committees (PPCs) will be the executing agency at provincial level, responsible for the development and distribution of guidelines and ordinances on the implementation of sustainable and climate-resilient practices. The PPCs of all 13 Provinces will be involved in components 1, whereas components 2 and 3 will focus on the PPCs in Soc Trang, Bac Lieu and Tien Giang. The project will be working together with multiple institutions under and affiliated with MARD, including Water Resources Directorate (WRD), Viet Nam Administration of Forestry (VN Forest), the Department of Crops, other departments relating to agriculture and aquaculture within MARD. In addition, the project will cooperate with five other line ministries and provincial departments, namely Ministry of Natural Resources and Environment- MONRE, MPI, the Ministry of Finance

(MOF), the Ministry of Construction (MOC) and the Ministry of Science and Technology (MoST). They are playing a crucial role in the creation of policies, development plans and guidelines, as well as the implementation of activities. The Project Steering Committee will include representatives from MARD, MPI, MONRE, MOF, PPCs and GIZ. It will have annual meetings and provide overall strategic guidance for the implementation of the program.

Multiple institutions based in Ho Chi Minh City will play a key role in the project, because they represent an important linking element between the national and provincial levels for planning, validation and implementation of activities. These institutes include the Southern Institute for Water Resources and Planning (SIWRP), the Southern Institute for Water Resources and Research (SIWRR), the Institute of Coastal and Off-Shore Engineering (ICOE) and the Sub-Forest Inventory and Planning Institute (Sub-FIPI). In Can Tho, the University of Can Tho and its relevant Faculties and Institutes and the Cuu Long Delta Rice Research Institute will be a project's expertise and knowledge hub. Furthermore, the project is also cooperating with the private sector, non-governmental organizations (NGOs), civil society organizations and research institutions to utilize the respective expertise and resources for scaling-up the identified measures.

**Key risks and mitigation measures**

The proposed project builds on the long-term engagement of GIZ in the Mekong Delta and lessons learnt from previous projects. Based on this experience, it has been designed in such a way that risks are significantly reduced. Further, GIZ's relationship with government partner agencies is well established and a sound system for monitoring investments and activities is in place. Therefore, risks for the project can be considered mainly low to moderate. The project is being formulated based on consultations at national and provincial level, and its concept has been reviewed by stakeholders at all levels. Consequently, there is a strong buy-in to the project by all key stakeholders. Nevertheless, a number of potential risks are detailed below along with mitigation measures.

The collaboration between provinces could be hindered by earmarked grant funding procedures and preferential conditions towards particular provinces. The risk level is medium. However, the development of the Mekong Delta Investment Plan will explicitly include investment proposals that integrate cross-provincial aspects. Through dialogue among the provinces and study tours illustrating cross-provincial aspects, the benefits of cross-provincial cooperation will be highlighted and encouraged.

Complexity of coordination and communication could be another risk: many of the activities proposed will involve more than one partner, which require regular coordination and frequent communication. The risk level is considered medium. The following mitigation measures will be applied:

- Roles and responsibilities between partners will be specified clearly, including lead partner responsible for coordination/communication. Regular progress meetings will be held with senior level officials to ensure any challenges are addressed in a timely manner.
- There will be project officers in the PMU specifically dedicated to project implementation. Technical assistance will be provided by GIZ to improve overall coordination/ communication. Monthly coordination meeting with all national project coordinators will be organized by the PMU.

Another technical risk could be the low survival rates of mangroves due to factors including community deforestation, pollution or other factors, such as human interventions. This risk is considered medium. To reduce this risk, the project will replicate successfully tested approaches. 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. Further, the co-management approach for managing natural resource will be applied.

Lack of participation by small farmers and vulnerable households in implementation and adoption of climate resilient livelihood models is also considered a medium risk. The project will replicate successfully tested approaches and focus on income generating effects. Training measures will be designed in a way that particularly encourage women to participate by providing onsite childcare. Training measures will be complemented by a communication campaign and demonstration plots.

Finally, the non-adoption of the Mekong Delta Investment Plan for Climate and Disaster Resilience is another potential risk. It is considered a low risk. To ensure the adoption of the Plan, the project will involve all relevant stakeholders right from beginning. The Mekong Delta Investment Plan for Disaster and Climate Resilience will be overseen by the government and provinces, who have a sense of ownership and commitment to the plan, and will be implemented by diverse financial sources to improve the long-term sustainability of the plan and to leverage diverse financial resources for climate change adaptation (e.g. ODA, state budget, private sector).

**B.3. Expected project results aligned with the GCF investment criteria (max. 3 pages)**

**Climate impact potential**

With respect to the GCF's paradigm shift objective "increased climate-resilient sustainable development", the project will directly contribute to three result areas: (i) increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions; (ii) increased resilience of infrastructure and the built environment to climate change threats;

and (iii) increased resilience of ecosystems and ecosystem services. The project's contribution to these results areas is illustrated by the following indicators:

- 885,000 poor and vulnerable residents of all coastal districts along the 45 km coastal protection interventions in Bac Lieu, Soc Trang and Tien Giang will directly benefit from integrated coastal protection and water management measures (direct beneficiaries, 50% female and corresponding to 22% of the population of the three target provinces)
- About 8,400 farmer households will adopt climate and disaster resilient and sustainable development livelihood models as a result of the project (direct beneficiaries, 70% female)
- An estimated 9,500 ha will be brought under climate resilient agricultural and aquaculture practices
- 45 km coastal protection through dyke up-grading of slopes and dyke foets and foreshore restorations such as t-fence groins, seawalls and mangrove rehabilitation, 16 km of dyke, worth US\$ 28.6 million (assuming new construction costs of earth dykes) will be made more resilient to floods
- 11,400 ha of coastal foreshore will be rehabilitated

The project is also expected to generate 3.6 million tCO<sub>2</sub> over 5 years and 7.57 million tCO<sub>2</sub> over 30 years of mitigation co-benefits through activities related to alternative wetting and drying rice Cultivation (AWD) depicted under Subcomponent 3.3 (Implementation of Climate and Disaster Resilient Farm Technologies, Practices and Approaches).

Several government institutions and ministries will benefit from targeted institutional capacity development in the area of climate resilient investment planning: MPI, MARD, MOF, MOC and MONRE, DARD, PPCs.

### **Paradigm Shift Potential**

#### ***Potential for scaling-up and replication***

##### *Spatial planning across administrative boundaries*

The project proposes a radical shift in the way the Mekong Delta is doing its business: Less piece-meal projects and isolated ad-hoc investments – towards more systematic and fact-based planning taking into account cross-boundary and multi-sectoral aspects. In the past, investments in the Mekong Delta have been considered in isolation and cross-provincial and cross-sectoral opportunities, constraints and impacts have been neglected. In addition, the exchange between the various investors and stakeholders was limited making a coherent, efficient and effective transformation to a climate and disaster resilient pathway impossible. In particular, component 1 will address these constraints very explicitly. One important output in this context will be the Mekong Delta Investment Plan for Climate and Disaster Resilience.

##### *Scaling-up*

Having demonstrated local and regional benefits from the project in terms of effectiveness and efficiency, this approach could well be replicated beyond the Mekong Delta in comparable watersheds in Viet Nam and other countries, such as Bangladesh. Due to its similarities in terms of challenges (e.g. climate change impacts, deforestation, low institutional capacity) and opportunities as well as geographical conditions, the area around the Red River Delta in the North of Viet Nam would be a potential site for replicating the approach. The project will finance study tours from Mekong Delta officials to the Red River Delta to identify steps necessary to replicate the approach and provide space for dialogue and knowledge sharing.

In terms of scaling up the project's outcomes, the Mekong Delta Investment Plan for Climate Resilience provides an excellent opportunity. This plan will provide a menu of integrated coastal protection and land and water management measures for agricultural, forestry and fisheries production ready to invest in. It is expected that the Government of Viet Nam, development partners and other financial institutions will implement programs based on this investment plan. Thereby, the project will directly contribute to scaling-up climate-resilient investments in the entire Mekong Delta.

#### ***Potential for knowledge and learning***

Every component of this project includes activities aimed at strengthening knowledge and learning of institutions. Component 1 "Climate and Disaster Resilience Coordination and Planning in the Mekong Delta" will improve the provincial planning and budgeting capacities. The development of the "Mekong Delta Investment Plan for Climate and Disaster Resilience" includes knowledge management and dissemination in the context of identifying and planning for climate resilient investments. Component 2 "Integrated Coastal Protection Measures" will invest in best practices and technologies aimed at integrated coastal protection in three selected provinces. By adapting the designs to local conditions together with local authorities, the activities would contribute to collective learning processes. Component 3 "Investments in Climate and Disaster Resilient Land and Water Management in Agricultural, Forestry and Fishery Production" would support the organizations within the research and extension nexus and thereby strengthen the creation and dissemination of knowledge on climate resilient agriculture practices. The capacity of the ultimate beneficiaries will be built with respect to disaster and climate-resilient planning and adoption of disaster and climate-smart practices and technologies. Component 3 will also increase the capacity of national and local planners for sustainable water management. Component 4 will carry out monitoring and evaluation and share the results and recommendations with all provinces to improve learning processes.

### ***Contribution to the creation of an enabling environment***

Component 1 would create a first point of contact for institutions planning programs and investments in disaster and climate resilient development in the Mekong Delta. By establishing a mechanism for coordination and harmonization, it would radically improve the current conditions for public and private interventions as well as partnerships that go beyond the project. One main output of component 1 would be an investment plan with a menu of technically sound and sustainable measures attached to it. This plan will be provided to the Vietnamese Government, in particular planning and finance offices, where it can serve as a basis for decisions on budget allocations. The plan will also be provided to development partners and other finance institutions as basis for the investment planning and implementation. The investment plan will further increase the transparency of public planning and budgeting, which would improve the investment climate for the private sector.

### ***Contribution to innovation, market development and transformation***

The project will scale up a number of innovative technologies and practices, which were developed by the ICMP<sup>8</sup> and others. Examples include:

- **Climate Smart Agriculture:** E.g. Alternate Wetting and Drying (AWD) rice, rice-shrimp cultivation, the introduction of saltwater resistant rice varieties and reviving of traditional rice varieties more resistant to floods (floating rice) and sustainable mangrove aquaculture.
- **Integrated Coastal Protection:** In particular, the integrated spatial approach to coastal protection measures that aims at harmonizing ecosystem-based approaches with “hard structures”, such as dykes, sluice gates and breakwaters. This integrated approach also includes foreshore restoration, such as T-fences (mainly made from natural materials such as bamboo), community-based co-management, the rehabilitation of mangroves and monitoring the erosion rate and forest coverage with the use of lightweight drones for evidence-based decision making.

### ***Contribution to the regulatory framework and policies***

The project will finance the development of the “Mekong Delta Investment Plan for Climate and Disaster Resilience”. The plan will be adopted by all 13 provinces as a framework to guide public budgeting for disaster risk reduction and climate change adaptation. The project will also build capacities to explicitly mark and quantify disaster management and climate change-related expenditures in public budgets. This process will allow to monitor whether government objectives are met and allows monitoring and evaluating the impacts of public spending. Based on these processes, the project strengthens the systematic integration of disaster management and climate change-related expenditures into public budgets and improves climate-responsive planning and development. In addition, at local level operational and monitoring guidelines for structural investments for coastal protection and land and water use management will be developed and implemented. Thereby, the effectiveness and efficiency of disaster and climate-resilient planning and investments will be made more sustainable.

## **Sustainable Development Potential**

### ***Environmental co-benefits***

With respect to land use management in general, the project will promote sustainable agricultural land use management practices, which increase resilience and agricultural productivity, but also have environmental co-benefits such as greenhouse gas mitigation. For example, the adoption of AWD rice reduces water consumption and reduces methane emissions. Overall, the project will promote an ecosystem-based approach to coastal protection by combining “hard” and “soft” measures, such as dykes and sluice gates, as well as mangrove rehabilitation and construction of T-fences. Through such measures, coastal ecosystems will be protected and rehabilitated enhancing the provision of coastal protection services. Wetlands and coastal ecosystems, including mangroves, are some of the most productive and valuable ecosystems globally. The restoration of these ecosystems will contribute to improved water, food and energy security, as well as improved biodiversity.

### ***Social and economic co-benefits***

The project will enable the transition to more climate resilient and productive livelihood models in the Mekong Delta. It will introduce a number of livelihood measures that are adapted to the changing environment of the Mekong Delta and will increase farmers’ incomes. For example, as demonstrated by ICMP, AWD rice production technique increases farmers’ incomes by up to 40%. Sustainable mangrove aquaculture techniques increase farmers’ income by 27%. The protection of sea dyke systems by reducing sea wave energy will reduce the costs associated with maintenance of sea dykes. Further, the project will promote an innovative co-management approach. Local communities will take over the responsibilities for the management of natural resources, such as mangrove forests, while having certain user rights of the goods and services provided by the forest. This approach empowers the rural poor and has the potential to significantly improve their welfare.

<sup>8</sup> ICMP/CCCEP Final report, GIZ (2014)

Poor and female headed households are particularly vulnerable to climate change and disaster impacts. In order to fully respond to their specific needs, the project will ensure that both groups participate in the entire cycle from planning to implementation, monitoring and evaluation. For women, the activities will be specifically designed so they do not take too much time away from their other duties or can be combined with them. In the past few years, a great number of people have been migrating from the Mekong Delta to Ho Chi Minh City and other cities due to severe incidents like droughts, saltwater intrusion and coastal erosion. The project is expected to lessen this issue, since more attractive livelihood models will be promoted. A gender assessment and action plan will be conducted to inform the full GCF proposal for the proposed program.

### **Needs of recipients**

Due to high population density and dependency on natural resources for their livelihoods, the people in the Mekong Delta are highly vulnerable to climate change, as described in Section B1. Coastal flooding due to sea level rise and tropical storms, saline water intrusion, seasonal dry spells and increased frequency of extreme precipitation and heat events are among the key hazards. These climate hazards will have severe impacts on agriculture and rural livelihoods as well as urban settlements in the Mekong Delta. For instance, the highest loss recorded due to flooding has been observed during a historic flooding event in 2000, where losses exceeded US\$ 500 million (Do Chinh, 2016).

The total cost of adaptation in the agriculture sector for Viet Nam is estimated at about US\$160 million per year at 2005 prices without discounting over the period 2010–50. For rice, the main crop in the Mekong Delta, an increase in average temperatures and reductions in precipitation in some months of the year could lead to reductions in yields of 12 % in the Mekong Delta. It is estimated that about 339,000 ha of rice area could be lost due to inundation and saline intrusion, which accounts for about 22% of today's rice production in the region. Paddy rice production may fall by 5.8 to 9.1 million metric tons per year, depending on the scenario.

Shrimp farming is an important source of employment and rural income in the Mekong Delta, where an estimated 2.8 million people are employed in the sector. Export revenue was expected to reach US\$3.85 billion in 2017. Since most aquaculture systems are situated in riverine and coastal environments, they are often highly exposed and vulnerable to the impacts of disasters and climate change. This vulnerability is a consequence of the climate signals described above and the intermediate climate impacts of sea level rise, coastal flooding and salt water intrusion. Any increase in the intensity and frequency of extreme climatic events, such as storms, may affect aquaculture production by damaging production assets and transportation infrastructure required for access to markets. These impacts will have significant economic as well as livelihood and social costs to those dependent on the aquaculture industry. Successful adaptation will require a combination of production upgrades towards a more resilient, diversified production model that generates yields in altered brackish water conditions (polyculture), together with investments in integrated coastal protection measures to reduce coastal flooding and salt water intrusion. The total cost of adaptation in the aquaculture sector for Viet Nam is estimated at an average of US\$130 million per year from 2010–50<sup>9</sup>.

The impact of climate change on household incomes is skewed, with greater losses for those in the bottom rural quintile (the poorest 20 % of rural households) than for the top quintile. Poor rural and urban households are most vulnerable because they rely more heavily on the agricultural sector for their incomes and they spend a higher proportion of their income on food. Risks and hazards could lead to problems such as indebtedness, lack of access to assets, lack of social networks, less security, and fewer services and minimal support from relatives and neighbours.

National investment resources for climate change adaptation in Viet Nam are limited compared to the country's needs. The cost of adaptation is estimated to exceed 3-5% of GDP by 2030. Thus, it is necessary to diversify sources of investment in climate change adaptation from the public and private sectors, and from international support. Despite great effort and initiative in implementing climate change adaptation activities, the shortage of capacities and resources for climate change adaptation measures are major challenges for Viet Nam. Viet Nam's INDC/NDC estimates that state resources can only meet 30% of the adaptation needs. It further noted the lack of incentives to attract domestic and foreign investment and to mobilize the private sector to participate in climate change adaptation. While the government is working to improve the investment climate by encouraging and creating favourable conditions for private sector investment in climate change adaptation activities, the proposed project would fill an important gap to address urgent needs of the country.

### **Country ownership**

In 2008, the Government issued the National Target Program to Respond to Climate Change (NTP-RCC) in order to assess climate change impacts and develop adaptation and mitigation measures. Climate change is mainstreamed into the National Socio-Economic Development Strategy (2011-2020), the Socio-Economic Development Plan (2016-2020), and policies on disaster risk reduction, and coastal zone management. Economic sectors and provinces have developed Action Plans to respond to climate change.

<sup>9</sup> World Bank (2010) Viet Nam: Economics of Adaptation to Climate Change

In 2012, the National Green Growth Strategy was approved, which includes mitigation targets and measures. Among the intervention areas identified in the strategy are Reducing Emissions from Deforestation and Forest Degradation (REDD), sustainable forest management in combination with diversifying livelihoods of rural people, as well as improved agricultural practices. In 2011, the National Climate Change Strategy was issued, outlining the objectives for 2011-2015 and 2016-2050, and defining priority projects to be implemented in the period of 2011- 2015. By promoting sustainable and climate resilient rural development, promoting livelihood models that increase farmer competitiveness and incomes, as well as contribute to Viet Nam's mitigation targets, the proposed project is supporting the objectives of both National Strategies: the Green Growth Strategy and the Climate Change Strategy.

As highlighted in previous sections, Viet Nam's INDC/NDC identifies the need for technical and financial support to support the country to meet its adaptation and mitigation goals. The proposed project has been designed to target some of the most vulnerable sectors and regions in the country, and is aligned with the country's INDC/NDC.

The proposed project is supported by Viet Nam's enabling policy and institutional framework. In 2013, the Law on Natural Disaster Prevention and Control was enacted, aiming to address diverse natural hazards that affect the country, which are primarily climate change related. The 2014 Law on Environmental Protection includes a full chapter on climate change.

Central government ministries, the Mekong Delta provinces and implementing institutions are committed to the idea of a Mekong Delta wide approach for the coordination of all 13 provinces in the region regarding climate change, agriculture and water management. The final Prime Minister's Decision on the pilot regulation on regional coordination in the Mekong Delta has been issued in 2016. Institutionalized coordination, involving the donor community is the first initiative of its kind in Viet Nam to focus on a common geographical and economic region with strong interrelated climate change problems to develop synergies and to find solutions through interprovincial cooperation and a new regional coordination. This was strengthened by the Prime Minister Resolution 120/ Decision on pilot coordination and regional linkage for the Mekong Delta from 2016 and its implementation plan (Decision 593)..

#### **Efficiency and Effectiveness**

The financial instrument chosen for this project is grant financing. The high level of concessionality reflects the public good character of the investments undertaken by the project. Most expenditures relate to either capacity building of public institutions or the construction of public infrastructure. No excess subsidy will be provided to the private sector and no private sector investors will be crowded out by these types of investments.

The financing provided by the Fund will be used by Viet Nam to blend with their own financial resources and leverage additional financing from cooperating partners (German bilateral cooperation, World Bank, IUCN, UNDP, JICA, WWF). The leverage effect is expected to be high due to the production of turnkey investment proposals. The project will also improve the institutional environment and thereby enable increased investment by third parties, including the private sector, in the long run. Component 3 includes the creation and strengthening of farmer interest groups and cooperatives, which are seen as a promising vehicle to enable farmers' access to agricultural credit in the future. Smallholder farmers are currently not creditworthy by the standards of local financial institutions due to lack of collateral and in some cases missing paperwork. Intermediaries like cooperatives can become borrowers in the future if adequate financial management and capital accumulation takes place. In addition, the project will achieve a significant demonstration effect associated with its transformational interventions in three selected provinces, which further justifies a high level of concessional financing. The co-financing amount is expected to be US\$ 8 million in cash, constituting about 20%. In addition, there will be substantial in-kind contribution from relevant partners who implement and participate in the project.

#### **B.4. Engagement among the NDA, AE, and/or other relevant stakeholders in the country (max ½ page)**

The proposed project is being designed in close cooperation with the Vietnamese Government. Regular meetings with the VNDMA and other departments in MARD took place to scope the concept note based on the pre-feasibility "Integrated coastal protection and mangrove belt rehabilitation in the Mekong Delta - Pre-feasibility study for investments in coastal protection along 480 kilometers in the Mekong Delta". VNDMA and GIZ communicate progress to the NDA (MPI) regularly. The development of the pre-feasibility study commenced in November 2015. Inception Report and Mid-Term Report were submitted in January and April 2015 respectively. Various missions have been conducted, including the first one by the mission team leader in December 2015, followed by a mission by the coastal and river engineering expert in January 2016 and a mission by the mangrove rehabilitation experts in March 2016. The full feasibility mission, which also included the national consultants from SIWRR, SIWRP and Sub-FIPI, was conducted in April 2016. The assessment was conducted based on a consultative process, which included – in addition to the above-mentioned Ho Chi Minh City based institutes, various DARDs, MONRE, various Provincial People's Committees (PPCs), the World Bank, the *Kreditanstalt für Wiederaufbau* (KfW), and the French Development Agency (AFD).

The GCF concept note was circulated in various rounds in MARD as well as within GIZ Germany and Viet Nam for comments in 2017. A final round of consultation within MARD took place in May 2018 before submission to the NDA. The

NDA will organize a consultation process with all relevant entities before submission to GCF. The project was discussed on two separate occasions with the GCF. In June 2017 at the GCF and Viet Nam Strategic Cooperation Dialogue and in April 2018 at the GCF Structured Dialogue with Asia, which took place in Danang, Viet Nam.

### C. Indicative Financing/Cost Information (max. 3 pages)

#### C.1. Financing by components (max ½ page)

Component/Output	Indicative cost (USD)	GCF financing		Co-financing		
		Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
<b>Component 1:</b> Climate and Disaster Resilience Coordination and Planning in the Mekong Delta	9.5 m	6.5 m	Grant	3.0 m	Grant	
<b>Component 2:</b> Investments in Integrated Coastal Protection	14.8 m	12.8 m	Grant	2.0 m	Grant	
<b>Component 3:</b> Investments in Climate and Disaster Resilient Land and Water Management for Agricultural, Forestry and Fishery Production	12.2 m	10.2 m	Grant	2.0 m	Grant	
<b>Component 4:</b> Project Management and M&E	3.6 m	2.6 m	Grant	1.0 m	Grant	
<b>Indicative total cost (USD)</b>	<b>40.1 m</b>	32.1				

#### C.2. Justification of GCF funding request (max. 1 page)

The economic and financial analysis of the proposed project reveals a negative IRR and NPV after five years, which is the proposed duration of the project. After ten years, economic returns reach 2 percent, which can be considered moderate. The financial returns remain negative (financial IRR of -11%) after ten years (see table below).

Time frame	5 years	10 years	20 years
economic IRR	negative	2%	22%
economic NPV (USD, 10% discount)	-72.004.733	-25.801.109	129.913.316
financial IRR	negative	-11%	7%
financial NPV (USD, 10% discount)	-30.004.718	-20.786.237	-7.895.367

Assuming activities will be continuously implemented after the actual project implementation period of five years, benefits start to materialize from three long term economic benefit streams. First, avoided loss and damage due to hard and soft coastal protection measures can be assumed as early as year 4, when necessary infrastructure is fully set up. The high upfront investment costs, however, result in a longer payback period than the 5-year project setup. Second, a healthy, fully developed mangrove forest has an economic value in itself that goes beyond what is captured under avoided loss and damage. Experience in the Mekong Delta shows that a newly planted mangrove forest can be considered as “stable” in year 4 and has developed its full ecosystem services potential starting in year 10. Associated economic benefits gradually increase accordingly, but can only be fully assumed starting in year 10. Economic benefits from implemented on-farm technologies, the third revenue stream, are fastest to materialize due to the relatively short term nature of agricultural production cycles. Financial benefits from income generation at farm level were also taken into account. Even here, we assume that the full potential of economic benefits does not materialize until year 10, when capacity building

has had a sustainable effect. We therefore conclude that the project does not generate revenue that lends itself to providing reflows to the GCF. Subcomponent 3.3, which does have a potential revenue generating effect, is also considered as suitable for grant financing, because the proposed services are rendered to a target group that has no access to agricultural credit. There is no risk of crowding out any private sector actors. At the contrary, due to capacity building at farm and cooperative level, the target group might become eligible for rural credit in the future and form the client base of local financial or industry intermediaries.

Despite healthy economic growth, there is a significant public financing gap for climate change adaptation measures in Viet Nam as highlighted in the country's INDC/NDC. Domestic public resources are increasingly limited. The ratio of public and publicly-guaranteed (PPG) debt to GDP was 61.5% in 2017. This constitutes an increase of over 16% in the past five years, reflecting persistently high budget deficits. The current Viet Nam Medium Term Investment Plan's limit for ODA borrowing has been reached already. Therefore, Viet Nam is currently at zero borrowing capacity and does not take on further debt. The current public debt ratio is considered to be critical and should not be further increased in order to avoid public debt distress. At the same time, proposed investments cannot be delayed due to the urgent need for adaptation to climate change in the project region, as laid out in the CRVA. The proposed project accommodates for Viet Nam's constraints by increasing efficiency of investment planning and setting the framework for future private sector investments in this field.

As described in section B.1, the CRVA has revealed a very high exposure of at least 1.3 million people in the project region. Urbanization is ongoing in the entire Mekong Delta and is a trajectory to move out of smallholder agriculture and poverty. The population remaining in rural areas is highly dependent on livelihoods that are very vulnerable to climate change in this coastal region: rice and shrimp farming. Targeting these beneficiary groups therefore maximizes social and climate resilience impact. Further, the identified final beneficiaries of the project have almost no access to credit, limiting their possibilities to actively adapt to climate change themselves.

The proposed project is financing public goods that generate no reflows which could be repaid to the GCF. Hence, there is no risk of crowding out the private sector. The farm level sub-component 3.3, while potentially suitable for private investments (e.g. loans from micro-finance institutions), is considered too risky for commercial investors at this stage. Currently, banks are not lending to smallholder farmers in the project region due to their lack of collateral and other financial risk factors. The private sector considers most proposed activities as being too risky, mainly since they involve new and less-known technologies and practices. However, the government aims at improving the investment climate by encouraging and creating favourable conditions for private sector investment in climate change adaptation activities. Also, by raising awareness, building capacities and scaling-up innovative technologies and practices, the perceived risk of the private sector will be reduced and their willingness to invest in climate-resilient activities will increase.

As part of component 2, mangrove protection and rehabilitation is a key element of integrated coastal protection. Relatively few multilateral climate funds are currently offering support for demonstrated implementation of REDD+ strategies (such as mangrove protection and rehabilitation), which receives about 10 % of total finance through existing multilateral climate funds. Consistent with its investment priorities the Fund would provide finance for implementation of a REDD+ strategy in Viet Nam with clear potential for mitigation, alongside ecosystem services, livelihood results and other co-benefits. The engagement of the Fund may present new opportunities to address some of the underlying barriers to REDD+ action in Viet Nam.

The proposed project would be very much complementary to FP13 "Improving the resilience of vulnerable coastal communities to climate change related impacts in Viet Nam". The UNDP-supported program focuses mainly on climate resilient housing. The component of mangrove rehabilitation has a different geographical focus. Finally, the component on access to enhanced data covers all 28 provinces and is at much more aggregated level. The proposed project will certainly take advantage of those, in particular as part of component 1.

As described above, the project proposes an integrated coastal protection focusing on ecosystem-based solutions combined with infrastructural measures. While results as demonstrated inter alia by ICMP have been impressive, this integrated approach is still considered as new and therefore risky by various stakeholders. Hence, GCF funds are urgently needed to overcome these concerns and facilitate the envisaged transformative change.

### **C.3. Sustainability and replicability of the project (exit strategy) (max. 1 page)**

The project creates (i) conditions for long-term climate resilience of land and water management in the Mekong Delta and (ii) sustainability of the project's impacts. This includes an enabling and incentivizing institutional environment, long-term (including climate-resilience) thinking by various stakeholders and sustainable finance. The project design supports a systemic increase in the resilience of land and water management and the various stakeholders, which will ensure sustainable operation of the sector's institutions and infrastructure. The main features of the exit strategy are therefore: (i) institutional structures, (ii) behavioral change, and (iii) financial sustainability.

**Concerning institutional structures**, mechanisms and capacities will be set-up and strengthened which are envisioned to be fully mainstreamed into regular government processes and procedures. This will include for example the Regional Coordination Mechanism (subcomponent 1.1), the Mekong Delta Investment Plan (subcomponent 1.3), and the farmer cooperatives and farmer interest groups (subcomponent 3.2). The decision to establish a coordination mechanism for climate change and land and water management in the Mekong Delta was made by the Prime Minister in 2016. Long-term sustainability of the Mekong Delta Climate Change Coordination Mechanism will be ensured by integrating the unit into the existing government structures and by promoting institutional capacity development. A government decision will be made in the early inception phase. Further, the PMU is integrated in the government structure, i.e. the VNDMA of MARD. Operating costs will be budgeted for by the Government. The coordinating body is the outcome of a country driven process supported by the donor community and therefore deemed sustainable.

The Mekong Delta Investment Plan will provide a menu for all potential public and private investors. Investment decisions in all Mekong Delta Provinces will be based on it. The plan will have a long-term time horizon of 20-30 years and will therefore have impacts much beyond the project's lifetime. Finally, the farmer cooperatives established as part of subcomponent 3.2 are expected to be a sustainable rural institution, since they strengthen farmers' integration into climate-resilient value chains with expected financial and social benefits to its members.

The proposed project will induce **a behavioral change** of the key actors essential for a transformation to a climate-resilient pathway in the Mekong Delta: policy makers, extension agents (plus researcher) and land users. For each group awareness will be raised and capacity will be built. They will better understand (i) the political and socio-economic necessity to increase climate-resilience of planning and investments, and (ii) what exactly their entry points will be to foster climate-resilient development. Each group will be enabled to put those entry points into practice. For policy-makers it will affect the way they plan and budget expenditures (subcomponent 1.2). Inter-sectoral and inter-provincial planning will be encouraged (sub-component 1.3). The capacity development of extension agents on climate resilience (subcomponent 3.1) will have long-lasting effects on the content and quality of their service provision. For farmers it will affect the kind of management practices they adopt and how they are organized. Technologies and practices provided as part of this project will be promoted based on farmers' priorities. This buy-in from the ultimate beneficiaries is another key prerequisite to ensure long-term sustainability.

**Financial sustainability** will be ensured by Mekong Delta Investment Plan, the maintenance arrangements for infrastructure investments and co-management for mangrove management. The Mekong Delta Investment Plan is supposed to be the first point of entry for any investor (public and private) in the Mekong Delta. Hence, it can be expected that significant resources will be leveraged, even in the long-term. Promotion of adapted aquaculture production systems linked to certification schemes will attract the private sector. Therefore, it is expected that private sector investments are leveraged contributing to additional finance needed. As mentioned in Section B.3, the formation of strong cooperatives is expected to increase farmers' access to finance – another element contributing to financial sustainability of the project.

Maintenance cost of physical assets constructed by the project (e.g. dykes, t-fences, sluice gates, embankments) will be budgeted by the provinces and included in their annual plans, based on an "Inspection and Repair Fund" (7 % of physical investments over 10 years). This would be a condition for the project to finance any sort of infrastructure. From an institutional perspective, PPCs would be responsible for the maintenance of climate-resilient investment measures. Technical assistance relating to institutional arrangements, maintenance plans, operational regulations, as well as budgeting of maintenance cost in order to ensure the sustainability of the measures will be provided under components 1 and 2.

Efforts of the project related to mangrove rehabilitation will have sustainable impacts, since local communities will be directly involved in their management. The project will adopt the approach of co-management or shared governance. Coastal communities will set up partnership agreements in which the local population receives the right to sustainably use natural resources like forests, fish and shellfish, along with the responsibility to sustainably manage and protect these resources. Various co-management pilots implemented by GIZ in the Mekong Delta have demonstrated that this approach leads to successful and sustainable management of coastal natural resources. Amongst others, the World Bank has included co-management in a project in the Mekong Delta, and the government of Viet Nam has issued policies on co-management that recommend the use of the approach.

#### D. Supporting documents submitted (OPTIONAL)

- Map indicating the location of the project
- Diagram of the theory of change
- Economic and financial model with key assumptions and potential stressed scenarios
- Pre-feasibility study
- Evaluation report of previous project
- Results of environmental and social risk screening

**Self-awareness check boxes**

Are you aware that the full Funding Proposal and Annexes will require these documents? Yes  No

- Feasibility Study
- Environmental and social impact assessment or environmental and social management framework
- Stakeholder consultations at national and project level implementation including with indigenous people if relevant
- Gender assessment and action plan
- Operations and maintenance plan if relevant
- Loan or grant operation manual as appropriate
- Co-financing commitment letters

Are you aware that a funding proposal from an accredited entity without a signed AMA will be reviewed but not sent to the Board for consideration? Yes  No

**Annex 1 - Supporting Document: Theory of Change**

**Climate change hazards and anthropogenic stressors**

- Globally, it is one of the deltas most susceptible to sea level rise
- Documented higher frequency of devastating weather events and hazards such as droughts, typhoons and floods
- Exposed coastlines are highly vulnerable to extreme weather events and sea level rise
- Coverage of mangrove forests and coastal forests has declined, increasing exposure to the impacts of sea level rise and climate-related hazards
- Dykes and other coastal protection infrastructure are often designed without considering climate change risks nor the broader landscape (isolated planning)

**Climate Change Impacts and Risks**

- Salt water intrusion jeopardizes water quality, and threatens agricultural production and ultimately regional food security
- Sea level rise increases the flooded area leading to damaged infrastructure, loss of land and/or migration. Contributes to wetland loss.
- Sea level rise, intensification and increased frequency in climate-related hazards can lead to the accelerated erosion of coastlines and loss of mangrove forests
- Increased frequency in climate-related hazards, including typhoons and floods, damages of lives, livelihood activities and infrastructure.
- Coastal protection infrastructure (e.g. dykes, sea walls) may be damaged if not maintained or adequately planned (considering climate change)

**Baseline Situation:**

- The Mekong Delta is home to over 20 million people, and is an important area for agriculture, aquaculture and industry in Viet Nam. Agriculture and aquaculture are particularly vulnerable to climate change yet face existential threats without adaptation.
- Deforestation and forest degradation of mangrove ecosystems and coastal dune forests have increased the vulnerability of local communities to climate change, leading to saltwater intrusion, erosion of coastline, increased exposure to climate-related hazards and carbon stock losses.
- In coastal engineering, the application of only one coastal protection element is technically challenging and cost-intensive. Dykes are the main flood protection element in the Lower Mekong Delta. Often coastal management has focused on isolated erosion sites and the implementation of few often isolated measures. The lack of holistic planning reduces the effectiveness and efficiency of investments for climate change adaptation and resilience.
- Integrated Coastal Management measures have been piloted, which consider risk management of coastal zones as a whole and apply different options depending on site-specific conditions and predicted climate change impacts and risks. While results from pilot measures have been positive, ICM has yet to be scaled up due to various barriers.

**Barriers:**

- Lack of coordination between national and sub-national levels, as well as between provinces and sectors hinders required cross-provincial and cross-sectoral planning and investments
- Limited knowledge of provincial institutions to integrate climate change aspects into budgets, development plans and investments
- Provincial adaptation plans are not reflected in five-year or annual socio-economic development plans
- Limited technical capacity with respect to climate change adaptation, at the agriculture advisory service, community and household levels.
- Poor households and highly vulnerable communities have weak adaptive capacities and predominant livelihood models are highly vulnerable to climate change.
- Poor and highly vulnerable households lack access to resources, knowledge and markets
- Mangrove protection and reforestation is highly unprofitable and competes with other land uses such as shrimp and rice farming.
- Significant public finance gap for the implementation of urgently needed climate-resilient investments.

**Project Objective:** To increase climate and disaster resilience of the vulnerable rural population in the Mekong Delta by strengthening institutional capacity and coordination, and by scaling-up integrated coastal protection and climate resilient livelihood systems. Carbon sequestration by planting mangroves is a planned co-benefit.

**Project Components:**

- 1. Disaster and Climate Resilience Coordination and Planning in the Mekong Delta**
  - 1.1 Regional Coordination Mechanism
  - 1.2 Improvement of Provincial Planning and Budgeting Capacities
  - 1.3 Development of Mekong Delta Investment Plan for Climate Resilience and Disaster Risk Reduction
- 2. Investments in Integrated Coastal Protection**
  - 2.1 Specification of design integrated coastal protection measures
  - 2.2 Implementation of Integrated Coastal Protection Measures
- 3. Investments in Climate Resilient Land Management**
  - 3.1 Capacity development of agricultural extension services for climate and disaster resilience
  - 3.2 Establishment of Cooperatives and Farmer Interest Groups (FIG)
  - 3.3 Implementation of climate-resilient farm technologies, practices and approaches
- 4. Project Management and M&E**

**Paradigm Shift**

- Improved vertical and horizontal coordination to improve synergetic investments in integrated land and water management to enhance climate change adaptation
- Holistic and integrated planning for investments in coastal protection
- Strengthened capacities of provincial stakeholders, community members and local households on climate change risks and climate-resilient land and water management
- Strengthened agricultural advisory/ extension services
- Increased number of cooperatives and farmer interest groups engaged on climate resilient land and water management
- Increased resilience of ecosystems and ecosystem services through enhanced coastal protection
- Enhanced livelihoods from climate-resilient land management
- Improved resilience of coastal protection infrastructure to climate change

**Key Results (Adaptation)**

GCF Results Area A 1.0: Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions  
GCF Results Area A 3.0: Increased resilience of infrastructure and the built environment to climate change threats  
GCF Results Area A 4.0: Improved resilience of ecosystems and ecosystem services

**Key Results (Mitigation)**

GCF Results Area M 4.0: Reduced emissions from land use, deforestation, forest degradation, and through sustainable management of forests and conservation and enhancement of forest carbon stocks