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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT PAPER

ON A

PROPOSED ADDITIONAL GRANT

IN THE AMOUNT OF US\$6,090,831

FROM THE GLOBAL ENVIRONMENT FACILITY TRUST FUND

TO THE

SOCIALIST REPUBLIC OF VIETNAM

FOR THE

MEKONG DELTA INTEGRATED CLIMATE RESILIENCE AND
SUSTAINABLE LIVELIHOODS PROJECT

April 20, 2018

Environment and Natural Resources Global Practice
East Asia and Pacific Region

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CURRENCY EQUIVALENTS
(Exchange Rate Effective April 20, 2018)

Currency Unit = VND Vietnamese Dong

VND 22,772 = US\$1

FISCAL YEAR
January 1 - December 31

ABBREVIATIONS AND ACRONYMS

AAWF	Agriculture, Aquaculture, Water and Forestry
AF	Additional Financing
AWD	Alternate Wetting and Drying
CCM	Climate Change Mitigation
CPMU	Central Project Management Unit
CPO	Central Project Office
CSA	Climate Smart Agriculture
CQS	Selection Based on Consultants' Qualification
DA	Designated Account
DRCP	Delta Research Consortium Partnership
ESMF	Environmental and Social Management Framework
FMA	Financial Management Assessment
GEF	Global Environment Facility
GEFSEC	GEF Secretariat
GHG	Greenhouse gases
GOV	Government of Vietnam
ICD	International Cooperation Department
IDA	International Development Association
ISR	Implementation Status and Results Report
KM	Knowledge Management
LD	Land Degradation
LULUCF	Land-use, Land-use Change, and Forestry
MARD	Ministry of Agriculture and Rural Development
MD-ICRSL	Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods
MDP	Mekong Delta Plan
MONRE	Ministry of Natural Resources and Environment
MOU	Memorandum of Understanding
MPI	Ministry of Planning and Investment
MRC	Mekong River Commission
MRV	Monitoring, Reporting, Verification
MTR	Mid-Term Review
NDC	Nationally Determined Contributions
PAD	Project Appraisal Document

PCRA	Procurement Capacity and Risk Assessment
PDO	Project Development Objective
PP	Project Paper
PPC	Provincial People's Committee
PPSD	Project Procurement Strategy for Development
PPMU	Provincial Project Management Unit
QBS	Quality-Based Selection
QCBS	Quality and Cost Based Selection
SFM	Sustainable Forest Management
SLM	Sustainable Land Management
TOR	Terms of Reference
VNMC	Vietnam National Mekong Committee

Regional Vice President: Victoria Kwakwa
 Country Director: Ousmane Dione
 Senior Global Practice Director: Karin Kemper
 Practice Manager: Christophe Crepin
 Task Team Leader(s): Anjali Acharya, Binh Thang Cao, Cuong Hung Pham

BASIC INFORMATION – PARENT (Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project – P153544)

Country Vietnam	Product Line: PE	Team Leader(s): Anjali Acharya, Binh Thang Cao, Cuong Hung Pham		
Project ID P153544	Financing Instrument: IPF	Resp CC: GEN2B	Req CC: EACVF	Practice Area (Lead) Environment and Natural Resources

Implementing Agency:

Ministry of Agriculture and Rural Development, Ministry of Natural Resources and Environment, Ministry of Planning and Investment

Is this a regionally tagged project?	No			
<input type="checkbox"/> Situations of Urgent Need or Capacity Constraints <input type="checkbox"/> Financial Intermediaries <input type="checkbox"/> Series of Projects	Bank/IFC Collaboration: N/A			
Approval Date 10 June 2016	Closing Date 31 Dec 2022	Original Environmental Assessment Category A- Full Assessment	Current EA Category A - Full Assessment	

Development Objective(s)

The Project development objectives of this additional financing (AF) are the same as that of the parent project: *to enhance tools for climate-smart planning and improve climate resilience of land and water management practices in selected provinces of the Mekong Delta in Vietnam.*

Ratings (from Parent ISR)

	Implementation			Latest ISR
	ISR archive Date 3 Nov 2016	ISR archive Date 25 Apr 2017	ISR archive Date 26 Nov 2017	ISR archive Date 26 Nov 2017
Progress towards achievement of PDO	<i>Satisfactory</i>	<i>Satisfactory</i>	<i>Satisfactory</i>	<i>Satisfactory</i>
Overall Implementation Progress (IP)	<i>Satisfactory</i>	<i>Satisfactory</i>	<i>Moderately Satisfactory</i>	<i>Moderately Satisfactory</i>
Overall Safeguards Rating	<i>Satisfactory</i>	<i>Satisfactory</i>	<i>Satisfactory</i>	<i>Satisfactory</i>
Overall Risk	<i>Substantial</i>	<i>Substantial</i>	<i>Substantial</i>	<i>Substantial</i>

BASIC INFORMATION – ADDITIONAL FINANCING (Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project (P159976)– Additional Financing)

Project ID P159976	Project Name Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods – Additional Financing	Additional Financing Type Scale up	Urgent Need or Capacity Constraints: NA
Financing instrument	Product line Global Environment Facility	Approval Date 30 April 2018	
Closing Date 31 Dec 2022	Bank/IFC Collaboration N/A		
Is this a regionally tagged project?		No	
<input type="checkbox"/> Situations of Urgent Need or Capacity Constraints <input type="checkbox"/> Financial Intermediaries <input type="checkbox"/> Series of Projects			

PROJECT FINANCING DATA – PARENT (Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project – P153544)

Disbursement Summary (from Parent ISR)

Source of Funds	Net Commitments (US\$ million)	Total Disbursed (US\$ million)	Remaining Balance (US\$ million)	% Disbursed (US\$ million)
IBRD				
IDA	310	1.44	315.78	0.5%
Grants				

PROJECT FINANCING DATA – ADDITIONAL FINANCING {Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project (P159976) -Additional Financing}

FINANCING DATA (US\$)

Counterpart Funding IBRD IDA Credit IDA Grant Trust Funds Parallel Financing

For Loans/Credits/Others (US\$, millions)

	Financing Source	Amount
Total Project Cost: 6,090,831		
Financing Gap: 0		
Total Bank Financing: 6,090,831		6,090,831
Of Which Bank Financing (IBRD/IDA): 0		
	Total	6,090,831

FINANCING SUMMARY (Parent and AF)

	Parent Project (US\$ million)	Additional Financing (US\$ million)	Total (US\$ million)
Total Project Cost	387,000,000	6,090,831	393,090,831
Total Financing	387,000,000	6,090,831	393,090,831
International Development Association	310,000,000	0	310,000,000
Co-financing (Global Environment Facility Grant)		6,090,831	6,090,831
LOCAL: BENEFICIARIES	0	0	0
Borrower	77,000,000		77,000,000
Financing Gap	0	0	0

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

Yes No

Does the project require any other Policy waiver(s)?

Yes No

INSTITUTIONAL DATA

Practice Area (Lead)

Environment and Natural Resources

Contributing Practice Areas

Agriculture, Water

Climate Change and Disaster Screening

NA

Gender Tag

Yes

Does the project plan to undertake any of the following?

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF

Vietnam has made substantial progress on gender equality; however, important challenges remain across livelihoods sectors, including agriculture and aquaculture. A gender analysis was conducted as part of the IDA-financed project's Regional Social Assessment, and found that lower levels of employment opportunities and literacy (especially in rural and remote area) among women across the Mekong Delta result in (a) limited access to credit (that is, man often holds the title of land-use rights); (b) limited access to training because of male-dominated groups and absence of childcare arrangements; and (c) gender-specific roles in the household that leave men to dominate decision making.

b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment

The research and innovation activities proposed under this GEF grant will further supplement the parent project's proposed actions to address these gender gaps.

c. Include Indicators in results framework to monitor outcomes from actions identified in (b) yes, PDO Indicator Three, "Direct project beneficiaries, (of which female) ", is gender-specific.

Within the M&E framework, an outcome-level indicator has been included to monitor gender-mainstreaming activities during implementation and ensure that project benefits reach women.

PROJECT TEAM

Bank Staff

Name	Role	Specialization	Unit
Anjali Acharya	Team Leader (ADM Responsible)	Environment	GEN2B
Binh Thang Cao	Team Leader	Agriculture	GFA02
Cuong Hung Pham	Team Leader	Water resource management	GWA02
Ba Liu Nguyen	Procurement Specialist (ADM Responsible)	Procurement	GGO08
John Nyaga	FM Specialist	FM	GGO20
Phuong Hoang Ai Nguyen	Team member	Environment	GEN2B
Chau-Ching Shen	Team member	Disbursement	WFACS
Aristeidis Panou	Counsel	Legal	LEGES
Thu Ha Le	Counsel	Legal	LEGES
Son Van Nguyen	Safeguards Specialist	Environment Safeguards	GEN2B
Bunlong Leng	Safeguards Specialist	Environment Safeguards	GEN2B
Nghi Quy Nguyen	Safeguards Specialist	Social Safeguards	GSU02
Quyên Thuy Dinh	Team Member	ACS	EACVF
Ngozi Blessing Malife	Team Member	Operations	GEN2B

Extended Team

Name	Title	Organization	Location
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VIETNAM

MEKONG DELTA INTEGRATED CLIMATE RESILIENCE
AND SUSTAINABLE LIVELIHOODS PROJECT (P159976) - ADDITIONAL FINANCING

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I. BACKGROUND AND RATIONALE FOR ADDITIONAL FINANCING

1. This Project Paper seeks the approval of the Executive Directors to provide Additional Financing (AF) from the Global Environment Facility (GEF) in the amount of US\$6,090,831 for scale-up activities related to the IDA-financed Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project (MD-ICRSL). GEF funds would be used for financing research and innovation to build climate resilience of agriculture and aquaculture livelihoods, and reduce greenhouse gas emissions for selected provinces in Vietnam's Mekong Delta.

Background

2. The IDA-financed credit of SDR 218.8 million (US\$310 million equivalent) to the Socialist Republic of Vietnam for the Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project was approved on June 10, 2016 and became effective on November 23, 2016; the closing date is December 31, 2022. The Project development objectives is *to enhance tools for climate-smart planning and to improve climate resilience of land and water management practices in selected provinces of the Mekong Delta in Vietnam*. The Project has five components: (i) Enhancing monitoring, analytics, and information systems; (ii) Managing floods in the upper delta; (iii) Adapting to salinity transitions in the delta estuary; (iv) Protecting coastal areas in the delta peninsula; and (v) Project management and implementation support. The Project is being implemented in 9 of 13 provinces of the Mekong Delta, namely An Giang and Dong Thap in the upper delta; Ben Tre, Tra Vinh, Vinh Long and Soc Trang in the delta estuary; and Ca Mau, Bac Lieu and Kien Giang in the coastal peninsula.

3. The Project is now in its second year of implementation and making moderately satisfactory progress. The Project Management Units (PMUs) and the Provincial Project Management Units (PPMUs) have been fully staffed. Training has been provided to relevant staff in all project provinces on procurement, financial management, and technical aspects. Work plans for the PMUs and the PPMUs have been approved by the respective implementing agencies. Procurement plans for the first 18 months have been updated and some procurement packages have been sent to the Bank for review. Designated Accounts (DAs) have been opened and the initial deposits of IDA funds have been made to the DAs. One or more accountants have been appointed at the PMUs and in each PPMU and have been provided training. Internal audit teams have been established at the national level and in the project provinces. Safeguards staff have been appointed at the PMUs/ PPMU and have been trained.

4. The project disbursement has been slower than expected due to the slow process of finalization and signing of on-lending agreements between the central government of Vietnam (Ministry of Finance) and the project provinces. The project disbursement from the parent IDA-financed project has been slower than expected due to the slow process of finalization and signing of on-lending agreements between the central government of Vietnam (Ministry of Finance) and the project provinces. However, feasibility studies for several sub-projects are well advanced and early implementation including preparation of procurement packages is advancing.

Rationale for Additional Financing

5. MD-ICRSL was originally designed as a co-financed, IDA-GEF blended operation. The US\$6,090,831 GEF grant was originally envisaged to finance activities related to research and innovation

under Component 1 and Components 2, 3 and 4. However, there were delays in developing and finalizing the detailed design of Component 1 which is linked to the main activities proposed to be financed by the GEF grant. Thus, the team agreed to prepare the IDA project separately with the PAD noting *“the Project is seeking additional resources from the Global Environment Facility (GEF) to finance research and innovation activities relating to climate resilient solutions for the Mekong Delta. If the GEF grant funds are obtained during project implementation, they would finance activities which are complementary to the Project and will be processed separately”*.

6. The proposed GEF grant funds will provide additional financing and incremental environmental value to scale-up the IDA Project by helping to strengthen research and innovation capacity of research institutions and communities. This will contribute to amending land and water management practices for greater climate-smart and climate-resilient livelihoods for selected provinces in Vietnam’s Mekong Delta. This also complements trust funds from the Australia Bank Partnership Phase 2, that will support the Government’s agenda on climate resilience in the Mekong Delta. These activities are also aligned with those supported by other development partners (such as GIZ, IUCN, Netherlands, and Australia) working in the Mekong Delta. The increase in research and innovation capacity funded through GEF grant will go beyond the IDA Project to inform the wider effort in building climate resilience in the region.

7. On July 29, 2015 the Bank received the endorsement letter from the GEF Viet Nam Operational Focal Point, who confirmed the MD-ICRSL proposal is *“(a) in accordance with [their] Government’s national priorities, including the priorities identified in the Strategy for Protecting the National Environment to 2020, vision to 2030, the National Strategy for Climate Change, Vietnam Green Growth Strategy, Decision 899/2013/QD-CP on Agricultural Restructuring towards Raising Added Values and Sustainable Development, and [their] commitments to the relevant global environmental conventions; and (b) was discussed with the relevant stakeholders, including the global environmental convention focal points”*. The project is also aligned with the Vietnam Country Partnership Framework (CPF) for the period FY18-FY22 which was discussed on May 30, 2017, and directly contributes to the “Sustainability” pillar as well as the cross-cutting theme on *“Improve resilience related to external economic and climatic shocks”*.

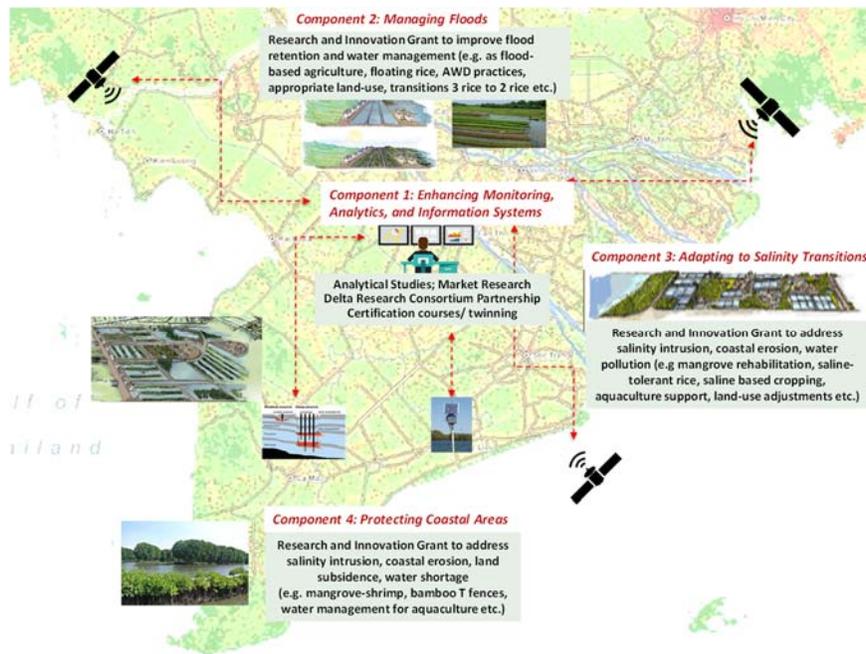
II. DESCRIPTION OF ADDITIONAL FINANCING

Proposed Use of GEF Funds

8. The GEF grant will be used to strengthen research capacity, and encourage innovation to build climate resilience of agriculture and aquaculture livelihoods, and reduce greenhouse gas emissions for selected provinces in Vietnam’s Mekong Delta. The graphic below shows how the GEF grant activities will complement the parent Project. The proposed activities are aligned with the Vietnam Country Partnership Framework.

Component 1 - Enhancing Monitoring, Analytics, and Information Systems (*Revised Project cost US\$62.85 million, of which \$56.5 million will be financed by IDA, and US\$1.55 million will be financed by GEF grant*):

9. Component 1 seeks to provide the framework for ensuring that Vietnam has the capacity to undertake ‘smart investments’ and cope with anticipated wide-scale environmental changes in the future.



10. *IDA Project:* Activities/investments financed under Component 1 of the IDA-financed Project include: (a) upgrading MONRE and MARD’s monitoring systems to produce better tools and information for both planning and management purposes; (b) financing infrastructure and enhancing integrated information systems to improve the ability of the Government and other stakeholders to access, and analyze information related to the challenges and risks that livelihoods and assets in the Mekong Delta face; and (c) mainstreaming climate resilience into planning processes.

11. *GEF grant:* The GEF grant activities will help to strengthen research capacity on addressing climate change mitigation, supporting sustainable land, water and forest management, and contributing to evidence-based decision making. This will include:

- Analytical work including market research including identifying export potential, developing value chains, enhancing branding and extension services for local products generated from a shift to climate smart/climate resilient livelihoods;
- Supporting a Delta Research Consortium Partnership (DRCP) –as a mechanism to ensure coordination and collaboration across Government research agencies and universities;
- Preparing and delivering customized short courses and curriculum development on adaptive delta management – including through twinning arrangements between Mekong provincial universities (e.g. Can Tho university and An Giang university, and international universities); and
- Designing communication/media products and events to raise national public awareness of livelihood transition models for Vietnam’s adaptation to climate change.

Component 2 - Managing Floods in the Upper Delta (*Revised Project cost US\$102.45 million, of which US\$79.2 million will be financed by IDA, and US\$1.45 million will be financed by GEF grant*)

12. The primary objective of this component is to protect and/or reclaim the benefits of controlled flooding (flood retention) measures while increasing rural incomes and protecting high-value assets in An Giang, Kien Giang, and Dong Thap Provinces.

13. *IDA Project:* Activities/investments financed under Component 2 of the IDA Project include (a) modifying water and agricultural infrastructure to allow for more beneficial flooding (expanding flood retention capacity) in rural areas and offer new agricultural/aquaculture cropping alternatives; (b) providing livelihoods support measures to farmers so they have alternatives to the wet season rice crop, including aquaculture; (c) constructing/upgrading infrastructures for protecting select high-value assets; (d) developing flood diversion channels to lower peak flows in the middle delta; and (e) facilitating agricultural water use efficiency in the dry season.

14. *GEF grant:* The GEF grant will finance a research and innovation package that supports climate resilient livelihoods and climate-smart practices that are adapted to natural flooding conditions in the upper delta. Potential examples include research/ innovation related to flood-based production models that support transition from three-rice to two-rice crops, floating rice, vegetables, fish and aquaculture models, land-use planning, etc.

15. This GEF resources allocated to this component may be used to (i) identify, evaluate and select climate smart and climate-resilient Agriculture, Aquaculture, Water and Forestry (AAWF) practices that helps to address the challenges in the upper delta; (ii) identify models of climate smart and climate resilient AAWF practices (flood-based models) and flood retention measures tested and assessed for their economic, social and environmental impacts; and (iii) develop specific knowledge products on climate-smart, climate-resilient AAWF practices for scalability and replication across the upper delta.

Component 3 - Adapting to Salinity Transitions in the Delta Estuary (*Revised Project cost US\$110.15 million, of which \$81.6 million will be financed by IDA, and US\$1.45 million will be financed by GEF grant*)

16. This component aims to address the challenges related to salinity intrusion, coastal erosion, sustainable aquaculture, and improved livelihoods for communities living in coastal provinces of Ben Tre, Tra Vinh, and Soc Trang.

17. *IDA Project:* Activities/investments financed under Component 3 of the IDA Project include (a) construction of coastal defenses consisting of combinations of compacted earth embankments and coastal mangrove belts; (b) modification of water and agricultural infrastructure along the coastal zone to allow flexibility for sustainable aquaculture activities and adapt to changing salinity levels; (c) supporting farmers to transition (where suitable) to more sustainable brackish-water activities such as mangrove-shrimp, rice-shrimp, and other aquaculture activities; and (d) supporting climate-smart agriculture by facilitating water use efficiency in the dry season.

18. *GEF grant:* The GEF grant will finance a research and innovation package to support climate-smart/climate-resilient livelihoods and practices that enable transitions to brackish options, in the face

of growing salinity intrusion in the delta estuary. Potential examples of research/innovation include exploring suitability of mangrove-shrimp models, brackish water livelihoods, water-use efficiency, co-management of coastal forests, non-structural measures including land-use planning, etc.

19. GEF resources allocated to this component may be used to (i) identify, evaluate and select climate smart and climate-resilient AAWF practices that helps to address the challenges in the delta estuary; (ii) pilot models of climate smart and climate resilient AAWF practices relating to salinity transitions that are assessed for their economic, social and environmental impacts; and (iii) develop specific knowledge products on climate-smart, climate-resilient AAWF practices for scalability and replication across the estuary sub-region.

Component 4 - Protecting Coastal Areas in the Delta Peninsula *(Revised Project cost US\$102.55 million, of which \$81.9 million will be financed by IDA, and US\$1.45 million will be financed by GEF grant)*

20. This component aims to address the challenges related to coastal erosion, groundwater management, sustainable aquaculture, and improved livelihoods for communities living in the coastal areas of Ca Mau, Bac Lieu, and Kien Giang Provinces.

21. *IDA Project:* Activities/investments financed under Component 4 of the IDA Project include (a) restoration of coastal mangroves and/or rehabilitation of coastal dikes in erosion areas; (b) modification of water control infrastructure along the coastal zone to allow flexibility for sustainable aquaculture activities; (c) control of groundwater abstraction for agricultural/ aquaculture and enhancing of freshwater supplies for domestic use; (d) support to farmers to practice more sustainable brackish livelihoods such as mangrove shrimp; and (e) support to climate-smart agriculture through water use efficiency.

22. *GEF grant:* The GEF grant will finance a research and innovation package to support climate-smart/climate-resilient livelihoods and practices that address challenges relating to salinity intrusion, coastal erosion, land-subsidence, and water scarcity. Such research/ innovation may include options and opportunities for securing flow diversion, mangrove poly-cultures, co-management of coastal forests, co-management of aquaculture, non-structural measures (e.g. bamboo T fences, land-scape-level zoning, ecological based organic shrimp farming etc.).

23. This grant component will (i) identify, evaluate and select climate smart and climate-resilient AAWF practices that helps to address the challenges in the delta peninsula; (ii) pilot models of climate smart and climate resilient AAWF practices relating to coastal erosion, water scarcity, and salinity intrusion assessed for their economic, social and environmental impacts; and (iii) develop specific knowledge products on climate-smart, climate-resilient AAWF practices for scalability and replication in the peninsula sub-region.

Component 5 – Project Management and implementation support *(Revised Project cost US\$14.8 million, of which \$10.9 million will be financed by IDA, and US\$0.2 million will be financed by GEF grant)*

24. This component supports project management and capacity building for the Governmental agencies to implement the Project. The GEF grant will utilize the same Central Project Management Unit

(CPMU) being used to manage the parent IDA Project. As such, this component will finance additional staffing for the parent CPMU to specifically supervise the GEF grant activities. The table below indicates the costs allocated for each component of the AF.

Table 1 - Revised Project Cost and Financing (US\$ million)

Project Components	Project cost	IDA Financing		GEF Financing (Proposed AF)		GOV and Local Sources	
	(US\$ M)	(US\$ M)	(%)	(US\$ M)	(%)	(US\$ M)	(%)
Component 1	62.85	56.4	90.4	1.55	2.5	4.9	7.9
Component 2	102.45	79.2	77.2	1.45	1.4	21.8	21.2
Component 3	110.15	81.6	74.0	1.45	1.3	27.1	24.6
Component 4	102.55	81.9	79.7	1.45	1.6	19.2	18.7
Component 5	14.8	10.9	74.1	0.20	1.4	3.7	24.5
Revised Costs	392.8	310.0		6.1		76.7	

25. **Results Framework.** Annex 1 provides the results framework of the GEF grant which includes the indicators related to the AF. Three indicators have been included to capture the GEF funded activities in components 2, 3 and 4 and innovative approaches that will be scaled up via the IDA project. In the revised results framework, these indicators are: 'Intermediate Results Indicator 2.5 (GEF): Flood management models for Upper Delta developed under the project and validated by MARD'; 'Intermediate Results Indicator 3.5 (GEF): Salinity transition models in Delta Estuary developed under the project and validated by MARD'; and 'Intermediate Results Indicator 4.4 (GEF): Coastal area protection models developed under the project and validated by MARD'. More details in section VIII Annex 2.

26. **Key global environmental benefits/GEF value added.** The proposed AF is fully consistent with the GEF 6 Design Principles relating to Climate Change Mitigation (CCM), Land Degradation (LD) and Sustainable Forest Management (SFM) focal areas, specifically the CCM-2 Program 4 (Promote conservation and enhancement of carbon stocks in forest, and other land use, and support climate smart agriculture), LD-1 Program 2 (SLM for Climate-smart Agriculture) and LD-3 Program 4 (Scaling-up sustainable land management through the Landscape Approach), SFM-1 (Maintained Forest Resources: Reduce the pressure on high conservation value forests by addressing the drivers of deforestation) and SFM-2 (Enhanced Forest Management: Maintain flows of forest ecosystem services and improve resilience to climate change through SFM). The GEF grant offers the following global environmental benefits and other significant adaptation benefits:

27. **First, support for climate mitigation.** The grant supports mitigation actions involving direct reduction of anthropogenic emissions and enhancement of carbon stocks in forest and other land use and support of climate smart agriculture sinks and reservoirs that are necessary for limiting long-term climate damage. Options associated with Land use, Land use change and Forestry (LULUCF), including strengthening and improvement of Monitoring, Reporting, Verification (MRV) of the Greenhouse Gas (GHG) emissions and carbon sequestration is also taken into consideration. These concrete actions can be spatially directed and economically pro-actively optimized. The project will promote innovation, technology transfer, and supportive policies and strategies to address this global challenge.

28. In addition, the Project is consistent with Vietnam’s Nationally Determined Contribution (NDC) which has a major focus on supporting the adaptation needs of the Mekong delta including climate smart agriculture due to increased salinity associated with salt water intrusion due to sea level rise and introducing drought resistant dryland rice. These activities support adaptation and mitigation.

29. **Second, rehabilitation of degraded land and soil.** Extensive soil degradation due to erosion, salinization, compaction, and nutrient depletion is one of the major drivers of declining crop and livestock productivity in agro-ecosystems. Under the LD focal area strategy, the grant focuses on enhancing agro-ecosystems resilience and supporting agricultural yields (especially rice) that are affected by land degradation, primarily from salinity intrusion and pollution. It will look at land suitability and soil management practices, at soil conditions, water availability levels, salinity gradients, vegetation, existing land use and climate change projections, fertilizing methods and precision agriculture measures to ascertain the suitability of land and/or water; and improve soil management practices for agricultural/aquaculture activities.

30. **Third, sustainable forest management.** The grant will contribute to sustainable forest management and biodiversity conservation through addressing the drivers of deforestation and maintain flows of forest ecosystem services as it will focus on research and innovation relating to (i) mangrove restoration and rehabilitation in coastal areas; (ii) conservation and provision of ecosystems into production landscapes/seascapes and sectors; and (iii) integrated land-use and land-use change planning. More specifically, the grant will help to identify livelihood models that support and encourage sustainable forest management, including and especially relating to coastal forests. These include livelihoods models such as mangrove-shrimp farming –which has successful pilots that have been undertaken –and additional potential to replicate (research and innovation support) will be financed through this grant. The grant will also support the development of technical and institutional capacities to identify and monitor forest loss and develop mechanisms for revenue generation from forest carbon.

31. **In addition, the grant will also contribute to generating global environmental benefits relevant to the International Waters focal area,** through enhanced management of a transboundary water system, and investments targeting fisheries and coastal habitats. The Project will be linked to other studies undertaken by Vietnam National Mekong Committee (VNMC) and Mekong River Commission (MRC) on the impacts of upstream development on the Mekong Delta region in Vietnam, especially the Upper Delta. **The Project is also expected to lead to several adaptation co-benefits,** through improved management actions, which will be using scarce water resources more efficiently; supporting the adoption of drought-tolerant crops; diversifying crops – livestock production systems, choosing tree species and forestry practices less vulnerable to storms and fires.

III. KEY RISKS

32. The IDA parent project’s overall implementation risk of Substantial also applies to the proposed GEF grant. Institutional risks are considered to be substantial given the need for adopting a cross-sectoral and regional approach within the relatively rigid administrative systems in Vietnam. Mitigation measures include oversight from the MPI and the Prime Minister’s office to facilitate cross-ministerial cooperation and interprovincial coordination in the delta. The climate-related policy issues in the Mekong Delta are complex as they cover a range of sectors, including agriculture, urban, energy,

environment, transport, and water, with a host of institutional and policy regimes at various levels. The project design incorporates activities to strengthen institutional capacity and coordination. This is further strengthened through the GEF grant activities that helps to build research coordination mechanisms for increased multisectoral collaboration and data sharing. The fiduciary risks and the mitigation measures that specifically apply to this GEF grant are described in Annex 2

Risk Category	Rating (H, S, M, L)
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Substantial
8. Stakeholders	Moderate
9. Other	
OVERALL	Substantial

IV. APPRAISAL SUMMARY

A. Economic and Financial Analysis

33. For the parent IDA project, the improved planning, coordination, and monitoring of the delta’s ecosystems funded under Component 1 will result in large benefits from increased resilience to climate change. Expected direct benefits are difficult to estimate because of the high degree of uncertainty on the extent of climate change and because of the uncertainty and path dependence of decisions made because of the availability of better planning tools and better monitoring. The project’s main medium-term benefits will come from Components 2, 3, and 4 financing climate-resilient infrastructures and supporting livelihoods of local communities where agriculture/aquaculture production systems are affected by flooding, saline intrusion, and coastal erosion.

34. Financial analyses of the alternative livelihoods demonstrated by the parent IDA project were carried out at the farm level and based on typical/average crop budget models. The economic analysis considered shadow-priced benefits to farmers as well as benefits that will accrue to society, such as flood risk reduction and ecological benefits due to the retention of floodplains in the upper delta. Additionally, the economic viability of individual infrastructure investments under the with-project scenario was examined.

35. The GEF grant activities are focused on research and innovation that are directly aligned to the objectives of the parent project. No separate economic and financial analysis is required for these activities.

B. Technical

36. The GEF grant will finance research activities relating to the components of the parent project. During implementation, technical details relating to the research grant activities for the three sub-regions, will be elaborated. Details on the key technical issues to be considered are in Annex 1.

C. Implementation arrangements.

37. The GEF grant will use the same implementation arrangements as the Parent Project and MARD CPO is the project owner of the GEF grant.

D. Financial Management.

38. The same parameters of the IDA project in all the six elements of the financial management systems assessed (Financial Management Assessment - FMA) of CPO will equally apply in the GEF grant. The FMA confirmed that CPO's capacity and system meets the minimum Bank's Financial Management requirement under OP/BP 10.0 for managing Bank financed projects. The same strengths and challenges of CPO as project owner and the assurance framework for internal control obtained in the IDA project will similarly apply for the GEF grant

E. Procurement.

39. Procurement for the proposed GEF grant shall be carried out in accordance with the World Bank's 'Procurement Regulations for IPF Borrowers: Procurement in Investment Project Financing' dated July 2016 (Procurement Regulations). Responsibility of procurement implementation and contract management under the proposed project will be decentralized to CPMU under MARD Central Project Office (CPO) irrigation that is responsible for the parent project implementation. The Bank team updated the Procurement Capacity and Risk Assessment (PCRA) done for CPMU during preparation of the parent IDA project in 2016 and rated the procurement risk as Substantial, given that the procurement scope of the grant project is mainly large QCBS Consultancy packages, the CPMU has not yet completed any QCBS consultant selection under the parent project, and that it is the first time the CPMU implements the Bank's Procurement Regulations July 2016. The risk mitigation measures being applied to the parent project are considered relevant to the GEF project.

F. Disbursement.

40. The same disbursement methods and documentation methods will be used for the Grant, as those currently being used for the Original IDA Credit. In order to keep management and monitoring of the GEF grant expenditures simple, separate set of accounting records distinct from those of the IDA project would be kept by the CPO. A separate Designated Account (DA) will be opened and the GEF Grant proceeds will only be used for eligible research related expenditures. The accountability and reporting arrangements for GEF grant will be maintained separately from the IDA financing and a single audited GEF grant Financial Statements for each fiscal year similar to the IDA financing will be prepared and submitted to the Bank. However, the two projects could be audited together by a single independent external auditor satisfactory to the Bank who shall issue two separate Audit Reports for the respective be separately processed.

G. Social and Environment (including Safeguards)

41. The AF would not affect any change in the parent project’s development objectives and design. It would not trigger a new safeguard policy or change the environmental category “A” of the parent project. The AF is not expected to expand to new areas not covered by the original project or requires new safeguard instruments. It would finance activities which largely focused on technical assistance. Thus, there would be no major additional risks beyond what have been identified as part of the parent IDA Project. Therefore, the Environmental and Social Management Framework (ESMF) of the parent Project is still valid and applies to the activities under this GEF grant. No new environmental or social safeguard instruments will need to be prepared during the GEF grant preparation. Since the ESMF would also cover the AF, it was updated and re-disclosed locally at the project sites on July 24, 2017 and at the Bank’s internal and external websites on July 24, 2017.

H. Other Safeguard Policies

42. Processing the TA activities under the AF during implementation will follow the interim guidelines of the Bank’s Operations Policy and Country Services, Operational Risk Management (OPSOR), effective January 2014: “*Interim Guidelines on the Application of Safeguard Policies to Technical Assistance (TA) Activities in Bank-Financed Projects and Trust Funds Administered by the Bank*”. This requirement has been included in the ESMF of the parent project

V. WORLD BANK GRIEVANCE REDRESS

43. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB’s Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB’s independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank’s attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank’s corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org

VI. SUMMARY TABLE OF CHANGES

	Changed	Not Changed
Change in Results Framework	X	
Change in Components and Cost	X	
Change in Implementing Agency		X
Change in Project's Development Objectives		X
Change in Loan Closing Date(s)		X
Cancellations Proposed		X



Reallocation between Disbursement Categories		X
Change in Disbursements Arrangements		X
Change in Systematic Operations Risk-Rating Tool (SORT)		X
Change in Safeguard Policies Triggered		X
Change of EA category		X
Change in Legal Covenants		X
Change in Institutional Arrangements		X
Change in Financial Management		X
Change in Procurement		X
Change in Implementation Schedule		X
Other Change(s)		

VII. DETAILED CHANGE(S)

RESULTS FRAMEWORK

44. The results framework for the proposed Additional Financing includes: (i) the parent project’s indicators and (ii) newly added intermediate results indicators to account for the additional financing from GEF (see details in Section VII. Results Framework and monitoring).

Project Development Objective Indicators

45. The parent project has Five (5) PDO Indicators, and no changes are made to the indicators under the AF.

Intermediate Indicators

46. There are newly intermediate results indicators added, one for each of the component 1, 2 3 and 4, to account for the additional financing from GEF. They are:

- Component 1: Intermediate Results Indicator (GEF) 1.4: Mekong Research Consortium Partnership established and operational
- Component 2: Intermediate Results Indicator (GEF) 2.5: Flood management models for Upper Delta developed under the project and validated by MARD
- Component 3: Intermediate Results Indicator (GEF) 3.5: Salinity intrusion models in Delta Estuary developed under the project and validated by MARD
- Component 4: Intermediate Results Indicator (GEF) 4.4: Coastal area protection models developed under the project and validated by MARD

COMPONENTS

The table below indicates the costs allocated for each component of the AF.

Current Component Name	Current Cost (US\$, millions)	Action	Proposed Component Name	Proposed Cost (US\$, millions)
1. Enhancing Monitoring, Analytics, and Information Systems	61.3	Revised	1. Enhancing Monitoring, Analytics, and Information Systems	62.85
2. Managing Floods in the Upper Delta	101.0	Revised	2. Managing Floods in the Upper Delta	102.45



3. Adapting to Salinity Transitions in the Delta Estuary	108.7	<i>Revised</i>	3. Adapting to Salinity Transitions in the Delta Estuary	110.15
4. Protecting Coastal Areas in the Delta Peninsula	101.1	<i>Revised</i>	4. Protecting Coastal Areas in the Delta Peninsula	102.55
5. Project Management and implementation support	14.5	<i>Revised</i>	5. Project Management and implementation support	14.80
TOTAL	387.0	<i>Revised</i>		392.8

FINANCING PLAN

Summary (US\$, millions)

	Original Amount	Proposed Amount
Total Project Cost	387,000,000	392,800,000
Total Financing	387,000,000	392,800,000
Financing Gap	0	

Details

Counterpart Funding

Source	Currency	Amount	US\$ (Equivalent)
Borrower	USD	77,000,000	77,000,000

Source	Currency	Amount	US (Equivalent)
IDA	XDR	218,800,000	310,000,000
	USD	6,090,831	6,090,831

LEGAL COVENANTS – Additional Financing (P159976)

Sections and Description		
Grant Agreement Reference	Description of Condition/Covenant	Date Due
Section II.A.2 of Schedule 2	Mid-term review	November 23, 2019



VIII. RESULTS FRAMEWORK AND MONITORING

Project Development Objectives (PDO): *To enhance tools for climate-smart planning, and to improve climate resilience of land and water management practices in selected provinces of the Mekong Delta in Vietnam.*

PDO Level Results Indicators	Core	Unit of Measure	Baseline	Target Values						Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6				
PDO Indicator One: Adoption of Mekong Climate Resilience Assessment by MONRE		Score (0-4)	0	0	1	2	3	4	4	Annual	Review of tools and their adoption based on the scoring	MONRE M&E function	See Definition 1
PDO Indicator Two: Area with climate resilient land and water management practices supported by the project	<input type="checkbox"/>	Ha	0	0	0	30,000	100,000	170,000	200,000	Annual	Field survey in project areas	MARD M&E function	See Definition 2
PDO Indicator Three: Project supported farm households who have adopted climate resilient land and water management practices	<input type="checkbox"/>	%	0	0	0	10	25	50	75	Annual	Reports / Field survey in project areas	MARD M&E function	See Definition 3
PDO Indicator Four: Direct project beneficiaries, (of which female)	<input checked="" type="checkbox"/>	Number (%)	0	0.02 M (40%)	0.1 M (40%)	0.4 M (40%)	0.7 M (40%)	0.9 M (40%)	1.2 M (40%)	Annual	Field survey in project areas	MARD M&E function	See Definition 4.
PDO Indicator Five: Citizens in selected provinces who participated in consultations on formulation of district land use plans	<input type="checkbox"/>	Number	0	0	0	15,000	25,000	35,000	35,000	Annual	Review of report of consultations	MARD M&E function	See Definition 5



Intermediate Results Indicators	Core	Unit of Measure	Baseline	Cumulative Target Values						Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6				
Component 1: Enhancing Monitoring, Analytics, and Information Systems													
<i>Intermediate Results Indicator 1.1:</i> Mekong Delta Center established and operational	<input type="checkbox"/>	Yes/No	No	No	No	Yes	Yes	Yes	Yes	Annual	Review of legal documents; Direct observation	MONRE M&E function	See Definition 1.1; Annual target
<i>Intermediate Results Indicator 1.2:</i> Specialized Studies to facilitate climate resilient decision making supported by the project	<input type="checkbox"/>	Number	0	0	0	0	1	3	4	Annual	Review and quality assessment of specialized studies	MONRE M&E function	See Definition 1.2; Annual target
<i>Intermediate Results Indicator 1.3:</i> Monitoring stations established or upgraded through project support, and fully operational	<input type="checkbox"/>	Number	0	0	0	10	30	50	50	Annual	Review of weekly data from monitoring stations and count of stations operational	MONRE M&E function	See Definition 1.3; Cumulative target
(New) <i>Intermediate Results Indicator (GEF) 1.4:</i> Mekong Research Consortium Partnership established and operational	<input type="checkbox"/>	Yes/No	No	No	No	Yes	Yes	Yes	Yes	Annual	Review of legal documents; Direct observation	MARD M&E function	See Definition 1.4; Annual target
Component 2: Managing Floods in the Upper Delta													
<i>Intermediate Results Indicator 2.1:</i> Project supported farm households in selected provinces transitioned to third rice crop alternatives	<input type="checkbox"/>	%	0	0	0	20	30	50	75	Annual	Field survey of land and water management practices	MARD M&E function	See Definition 2.1; Annual target.
<i>Intermediate Results Indicator 2.2:</i> Flood retention areas with water management infrastructure supported by the project	<input type="checkbox"/>	Ha	15,800	0	0	≥ 15,800	≥ 15,800	≥ 15,800	≥ 15,800	Annual	Field survey of land and water management practices	MARD M&E function	See Definition 2.2; Annual target.



Intermediate Results Indicators	Core	Unit of Measure	Baseline	Cumulative Target Values						Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6				
<i>Intermediate Results Indicator 2.2:</i> Flood retention areas with water management infrastructure supported by the project	<input type="checkbox"/>	Ha	15,800	0	0	≥ 15,800	≥ 15,800	≥ 15,800	≥ 15,800	Annual	Field survey of land and water management practices	MARD M&E function	See Definition 2.2; Annual target.
<i>Intermediate Results Indicator 2.3:</i> August dikes rehabilitated and operational supported by the project	<input type="checkbox"/>	Km	0	0	0	15	45	61	61	Annual	Review of technical inspection reports upon completion of works	MARD M&E function	See Definition 2.3; Cumulative target.
<i>Intermediate Results Indicator 2.4:</i> August dike sluice gates constructed and operational supported by the project	<input type="checkbox"/>	Number	0	0	0	5	10	15	15	Annual	Review of technical inspection reports upon completion of works	MARD M&E function	See Definition 2.4; Cumulative target.
(New) <i>Intermediate Results Indicator 2.5 (GEF):</i> Flood management models for Upper Delta developed under the project and validated by MARD	<input type="checkbox"/>	Number	0	0	0	0	2-3	2-3	2-3	Annual	Review of research deliverables and technical instructions and guidance issued by MARD	MARD M&E function	See Definition 2.5; Annual target
Component 3: Adapting to Salinity Transitions in the Delta Estuary													
<i>Intermediate Results Indicator 3.1:</i> Farm households in selected provinces who have transitioned to climate resilient alternatives livelihoods supported by the project disaggregated by: • Estuary Provinces; • Peninsula Provinces.	<input type="checkbox"/>									Annual	Field survey of land and water management practices	MARD M&E function	See Definition 3.1; Annual target.
		%	0	0	0	20	30	50	75				
		%	0	0	0	20	30	50	75				
<i>Intermediate Results Indicator 3.2:</i> Brackish water aquaculture area with sustainable and climate resilient infrastructure supported	<input type="checkbox"/>									Annual	Field survey of land and water management practices	MARD M&E function	See Definition 3.2; Annual target.



by the project disaggregated by													
<ul style="list-style-type: none"> • Estuary Provinces • Peninsula Provinces. 		Ha	0	0	0	0	10,000	30,000	45,000				
		Ha	0	0	0	0	10,000	30,000	40,000				
<u>Intermediate Results Indicator 3.3:</u> River bank and coast line protection supported by the project: <ul style="list-style-type: none"> • Coastal dike • River bank • Embankment 	<input type="checkbox"/>	Km	0	0	0	15	15	15	15	Annual	Review of technical inspection reports after completion of works	MARD M&E function	See Definition 3.3 Cumulative target.
				0	0	20	40	60	70				
				0	0	10	20	40	40				
<u>Intermediate Results Indicator 3.4:</u> River Bank and coastal sluiceways constructed and operational through project support	<input type="checkbox"/>	Number	0	0	0	3	3	4	6	Annual	Review of technical inspection reports after completion of works	MARD M&E function	See Definition 3.4; Cumulative target.
<u>(New) Intermediate Results Indicator 3.5 (GEF):</u> Salinity transition models in Delta Estuary developed under the project and validated by MARD	<input type="checkbox"/>	Number	0	0	0	1	2-5	2-5	2-5	Annual	Review of research deliverables and technical instructions and guidance issued by MARD	MARD M&E function	See Definition 3.5; Annual target
Component 4: Protecting Coastal Areas in the Delta Peninsula													
<u>Intermediate Results Indicator 4.1:</u> Coastline protection through project support	<input type="checkbox"/>	Km	0	0	0	0	10	10	10	Annual	Review of technical inspection reports after completion of works	MARD M&E function	See Definition 4.1; Cumulative target.
<u>Intermediate Results Indicator 4.2:</u> Coastal sluice gates constructed and operational through project support	<input type="checkbox"/>	Number	0	0	0	0	3	6	9	Annual	Review of technical inspection reports after completion of works	MARD M&E function	See Definition 4.2; Cumulative target.



<p><i>Intermediate Results Indicator 4.3: River bank and coast line protection supported by the project:</i></p> <ul style="list-style-type: none"> • Coastal dike • River bank • Embankment 	<input type="checkbox"/>	<p>Km</p>	<p>0</p>	<p>0</p>	<p>0</p>	<p>10</p>	<p>10</p>	<p>10</p>	<p>20</p>	<p>Annual</p>	<p>Review of technical inspection reports after completion of works</p>	<p>MARD M&E function</p>	<p>See Definition 4.3 Cumulative target.</p>
<p><i>(New) Intermediate Results Indicator 4.4 (GEF): Coastal area protection models developed under the project and validated by MARD</i></p>	<input type="checkbox"/>	<p>Number</p>	<p>0</p>	<p>0</p>	<p>0</p>	<p>0</p>	<p>2-3</p>	<p>2-3</p>	<p>2-3</p>	<p>Annual</p>	<p>Review of research deliverables and technical instructions and guidance issued by MARD</p>	<p>MARD M&E function</p>	<p>See Definition 4.4; Annual target</p>

GEF TARGETS

Corporate Results	Replenishment Targets	Project Targets
<p>2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)</p>	<p>120 million hectares under sustainable land management</p>	<p>23,000 hectares</p>
<p>6. Support to transformational shifts towards a low-emission and resilient development path</p>	<p>750 million tons of CO₂ mitigated (include both direct and indirect)</p>	<p>2.8 million metric tons</p>

PDO Level Results Indicators

1. **Definition 1.** The Mekong Climate Resilience Assessment will be adopted by MONRE. The ministry will develop a set of key environmental and socioeconomic indicators related to Mekong Delta sustainability and then assess the status, trends, and driving factors related to those indicators. The assessment will also identify any data or knowledge gaps and provide a set of recommendations related to the next planning cycle for adaptive management of the delta. This assessment will help mainstream climate issues into the next round of planning (2021–2025), namely (a) the MPI’s Mekong Delta Socioeconomic Plan; (b) sectoral master plans; and (c) provincial land-use plan. The indicator will be measured as an index (a score of 0–4) based on stages, that is, data collection, drafting, consultation, finalization, and adoption by MONRE. Therefore, the targets are the following:

- 0 - No action
- 1 - Data for preparing a draft assessment is collected
- 2 - Stakeholder consultation to discuss a draft assessment is carried out
- 3 - Assessment is finalized for submission to MONRE review
- 4 - Assessment is adopted by MONRE



2. **Definition 2.** It is the responsibility of MONRE to prepare and approve (a) the water resources planning for interprovincial river basins and water resources, according to the guidelines described in the Vietnamese Law on Water Resources (updated 2012) and (b) the national land-use planning according to the guidelines described in the Land Law (updated 2013) and through this, promote climate-resilient land and water management practices, including aquaculture/extensive aquaculture, floating vegetables, floating rice, extensive farm fishing (stocking, harvesting), biosecurity shrimp farming, mangrove shrimp, salient tolerant rice, and so on. The project-supported areas where climate-resilient land and water management practices are adopted will be monitored through field surveys during implementation.
3. **Definition 3.** Climate-resilient land and water management practices are defined under Definition 2. Adoption of these practices means that the farm households are using them for all crop cycles in a year.
4. **Definition 4.** The number of households that belong to PDO Indicator 4 (project-supported farm households) will be determined, and the number will be multiplied by an average household size of five people, to estimate the number of people benefitting under the project. The number of beneficiary households will be monitored during implementation.
5. **Definition 5.** Approximately 5,000 citizens per district participate in consultations in the development or update of a district land-use plan.

Component 1: Enhancing Monitoring, Analytics, and Information Systems

6. **Definition 1.1.** The Mekong Delta Center is considered established when the building is constructed, a director is appointed, and there are dedicated staff working in the center. The target for the establishment is year 3 of the project. It is considered operational when a GIS-based knowledge management platform is functional and staff can extract information on land-use, surface water, and groundwater monitoring data. The center's operation will be achieved in year 5 of the project.
7. **Definition 1.2.** Specialized studies shall include the following: (a) MONRE Groundwater Survey; (b) MARD Sea Dike and Mangrove Study; (c) MONRE River and Coastal Morphology Study; and (d) MARD Hydraulic Operations Study.
8. **Definition 1.3.** The number of monitoring stations are calculated as follows: (a) 20 new or upgraded Department of Water Resources water quality monitoring stations measuring water quality and quantity with automatic transmission of data and (b) 30 new or upgraded National Center for Water Resources Planning Investigation (NAWAPI) monitoring sites (which may include multiple observation wells) measuring water quality and level with automatic transmission of data. To be considered functional, there must be reports on data collected.
9. **Definition 1.5.** The Delta Research Consortium Partnership is considered established when a legal agreement (such as an MOU) is signed between more than 3 Vietnamese research agencies/universities working on Mekong Delta in Vietnam, a Steering Committee is setup, and there are dedicated staff supporting the operation of the consortium. The target for the establishment is year 1 of the GEF project. It is considered operational when a joint research proposal is developed and submitted, and members of the consortium exchange information and data as agreed in the MOU.



Component 2: Managing Floods in the Upper Delta

10. **Definition 2.1.** Subprojects to be implemented include introduction of new agricultural/aquaculture cropping alternatives to the wet season third rice crop. Sustainable alternatives for farm households include aquaculture (fish and freshwater prawns); floating vegetables (for example, morning glory); floating gardens (for example, to produce tomatoes); floating rice; extensive farm fishing (stocking and harvesting); and others. The number of farming household transitions will be monitored by field surveys during implementation and reported.
11. **Definition 2.2.** Subprojects to be implemented include water and agricultural infrastructure investments that align with the natural flooding schemes in the Mekong Delta and contribute to maintaining and expanding water retention capacity for controlled flooding in rural areas during the flood season (July–December). The water management infrastructure includes a combination of reinforced low embankments (such as ‘August dikes’– as in Definition 2.3) and small-scale sluice gates.
12. **Definition 2.3.** Also, see Definition 2.2. August dikes are defined as low dikes that hold water until the flood season. The height is generally lower than the peak of the annual average flood, but the dikes protect the double-crop rice production from early and late seasonal floods. August dikes facilitate soil fertility through accumulation of sediments during the flood season, which starts in July/August, when water will overflow these dikes. However, the overtopping of dikes causes high yearly maintenance costs for farm households, as dikes are heavily damaged during overflow.
13. **Definition 2.4.** Also, see Definition 2.2. Sluice gates that reduce maintenance costs for the August dikes caused by damage from overtopping, by facilitating a more gradual inflow of water during the flood season.
14. **Definition 2.5.** Such models may include, for example, flood-based production models that support transition from three-rice to two-rice crops, floating rice, vegetables, or fish; intensive double-rice crop combined with other cash crops, free-range water-poultry and fish breeding; catfish aquaculture or other alternatives and aquaculture models; land-use planning, etc.

Component 3: Adapting to Salinity Transitions in the Delta Estuary

15. **Definition 3.1.** This indicator measures progress for activities supported under Components 3 and 4:
 - Subprojects to be implemented under Component 3 include support for agriculture-aquaculture alternatives to freshwater-based production models, which adapt to changing salinity levels. Sustainable alternatives for farm households include extensive aquaculture (fish and freshwater prawns), biosecurity shrimp farming, mangrove shrimp, salient tolerance rice varieties, and so on.
 - Subprojects to be implemented under Component 4 include support for agriculture-aquaculture alternatives to intensive shrimp farming production models. Alternative livelihoods include mangrove shrimp, aquaculture with carnivorous and herbivorous fish and intensive/extensive shrimp and more saline tolerant crops, and freshwater-based rice or prawn production, including biosecurity measures to protect from entry and spreading of pests and diseases.



16. The number of farming household transitions will be monitored by field surveys during implementation.

17. **Definition 3.2.** This indicator measures progress for activities supported under Components 3 and 4:

- Climate-resilient investments in sustainable (fresh and saline) water management infrastructure supported under Component 3 are those which are designed to consider changing boundary conditions, for example, salinity intrusion, freshwater availability, sea-level rise, storm surges, river floods, and so on through circulation-based irrigation systems for agriculture (rice) and aquaculture with separated water intake and disposal and, where possible, linked to mangrove regeneration.
- Given the freshwater balance and the level of salinity intrusion, it is critical that investments in water management infrastructure are based on principles for sustainable water management and land use and proper zoning into the mangrove belt, brackish-water zone, intermittent zone, and freshwater areas. Investments under Component 4 aim to establish a cascading system for more intensive aquaculture, with no direct discharge into the extensive pond system. For the intermittent zone and the freshwater zone, freshwater needs to be ensured in the long term and in very dry years. The long-term sustainability depends on the strategic positioning of intake and discharge points to minimize pollution risk.

18. **Definition 3.3.** Riverbank, coastline, and embankment investment measures aim to protect the coastline and/or riverbanks from erosion and salinity intrusion in farming areas. These investments can be structural (for example, sea dikes and river embankments) and/or nonstructural (for example, restoration or expansion of mangrove forest belts or other ‘building with nature’ type solutions). The investments need to be closely aligned and integrated with investments in water management infrastructure as mentioned under Definition 3.2 to avoid conflicts of interest in (fresh and saline) water supply at compartment levels. Based on the results of the Component 1 MARD Sea Dike and Mangrove Study and the MONRE River and Coastal Morphology Study, subsequent projects for strengthening selected areas will be included.

19. **Definition 3.4.** Investments in coastal sluice gates aim to protect livelihoods for damage resulting from flooding caused by sea-level rise combined with high tides during the dry season (Jan-Apr) and/or storm surges. Initial investments are for the coast of Ben Tre. Investments in Tra Vinh will be implemented only after experiences gained through the MTR. In principle, the operational regime is such that the sluice gates are being kept open year-round to avoid a conflict of interest with proposed transition toward agriculture-aquaculture alternatives, which adapt to changing salinity levels (see Definition 3.1). River sluice gates aim to protect valuable horticulture areas from damage caused by increasing salinity.

20. **Definition 3.5.** Such models may include, for example, mangrove-shrimp, mangrove – fish, rice-shrimp and other aquaculture activities; water use efficiency; co-management to improve the management and reforestation of mangrove forests in targeted areas to improve livelihoods and consolidate the coastal environment; monitoring systems built into co-management that allow environmental changes to be monitored on a high-frequency basis; bamboo T-fences to trap sediment and rebuild eroded coast lines; landscape-level zoning to isolate intensive shrimp farming and maximize mangrove cover in critical zones for storm protection; dike alignment that allows mangroves to retreat inland in response to sea level rise.



Component 4: Protecting Coastal Areas in the Delta Peninsula

21. **Definition 4.1.** See Definition 3.3. Of the 600 km of the total coastline for the Mekong Delta, only 10 km is determined to be strengthened under the first-year project for Kien Giang. Based on the results of the Component 1 MARD Sea Dike and Mangrove Study, subsequent projects for strengthening selected coastal areas will be considered at the MTR.
22. **Definition 4.2.** Investments in coastal sluice gates aim to protect livelihoods for damage resulting from flooding caused by sea-level rise combined with high tides during the dry season (January–April) and/or storm surges. In principle, the operational regime is such that the sluices are being kept open year-round to avoid a conflict of interest with the aimed-for transition toward agriculture-aquaculture alternatives to intensive shrimp farming (see Definition 3.1). The location of the sluice gates needs to be aligned with the investments in the cascading water management system, as described in Definition 3.2.
23. **Definition 4.3:** See Definition 3.3.
24. **Definition 4.4.** Such models may include, for example, options and opportunities for securing flow diversion, transforming the mono-based shrimp cultivation into a mangrove polyculture; co-management of mangrove forests to improve livelihoods and consolidate the coastal environment; monitoring systems; bamboo T-fences to capture/ settle sediment loads and rebuild eroded coastlines; landscape-level zoning to isolate intensive shrimp farming and maximize mangrove cover in critical zones for storm protection; dike alignment that allows mangroves to retreat inland or use the outer mangrove area as buffer protection zone in response to sea level rise; and ecological based organic shrimp and aquaculture farming that integrates mangrove forest development and low emission aquaculture value chain development.

Methodology for Calculation of Project Targets

1. **Area under sustainable land management:** This figure is based on the estimated coverage of the area targeted for two production systems:
 - Agriculture (Total area of agricultural activities/practices covered in the IDA project including promotion of third rice crop alternatives and application of climate-smart agricultural practices); and
 - Forestry (The total area of mangrove forest to be planted/restored and of mangrove-shrimp/eco-shrimp farming in the IDA project).
2. **Volume of CO₂ mitigation:** This figure is calculated as the sum of the volumes of CO₂ mitigated, that are attributed to four activities financed under the project, namely:
 - Support for third rice crop alternatives to prevent moving from double rice to triple rice production;
 - Shift from triple rice to double rice production and application of sustainable agricultural practices;
 - Mangrove planting;
 - Mangrove forest conservation due to mangrove-shrimp (including eco-shrimp farming) promotion.

This is calculated for the areas of each activity/practice in 10 subprojects in the IDA parent project using the average GHG emission reduced (ton/ha/year) for each activity/practice and for the number of years applying that practice in the IDA parent project life.



ANNEX 1: Detailed Project Description

Introduction and Context

1. The Mekong Delta has been identified as one of the most vulnerable deltas to the impacts of climate change. Agriculture, aquaculture and horticulture are increasingly affected by changes in freshwater supply due to salinity intrusion, flooding, increasing tropical cyclone intensity, and rising temperatures. Domestic freshwater supply is less reliable due to erratic rainfall and salinity intrusion. Coastal infrastructures are exposed to increased storm intensity, long-term sea-level rise, and sudden-onset fluvial and coastal flooding.

2. The Government of Vietnam (GoV) recognizes the threats and has started to develop a more holistic and spatially integrated vision to manage the current and future risks and opportunities in the Delta. In 2013, a Mekong Delta Plan (MDP) was developed, with the support of the Netherlands Government, which evaluated a number of different development strategies, including considerations of climate change. In June 2016, the World Bank-financed Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project (IDA= US\$310 million) was approved --which builds on the MDP, with the delta viewed as different hydro-ecological zones cutting across provinces and sectors.

3. To make the region more resilient to climate change, there is an increasing demand for improved research and innovation to help the transition from traditional practices and livelihoods to ones that are more climate-resilient, and contribute to climate change mitigation. There is currently inadequate and ad hoc investment in integrated research and innovative practices that support climate change mitigation, contribute to better land-use and water management, and sustainable coastal forests management. *The proposed GEF grant will specifically contribute to the identification, and demonstration of such research and innovation which provide solutions to enhance resilient livelihoods, promote sustainable agriculture/ aquaculture, enhance carbon stocks and reduce GHG emissions.*

Research and Innovation gaps in Mekong Delta Issues

4. The current institutional landscape in the Mekong Delta is complicated, with planning and sectoral implementation roles spread across several ministries (MARD, MONRE, MPI, MOC etc.) and agencies which make inter-ministerial and inter provincial coordination challenging, and multi-sectoral planning required for adaptive delta management, difficult. The integrated principles for land and water use embedded in several existing policies are not applied in practice; spatial and policy planning continues to target sectors separately. Also, research carried out across the delta is often ad hoc and lacks a strategic thinking about real need, and often results in duplicative studies and analyses

5. In reality, there is a wealth of data and information on expected climate change impacts, trends in land degradation (e.g., soil pollution and salinity intrusion, etc.), forest management (especially mangroves) and water management in the Mekong Delta. However, there is considerable fragmentation of data, information and analysis across research agencies (often affiliated to key sectoral ministries), with no mandate or protocols to share data and information, pool resources and limited collaboration. Furthermore, and because of these weaknesses, very little of the available data gets turned into actionable knowledge or used as the basis of policy and decision-making. There is a critical need for strategic research, targeted to specifically inform investment decisions, livelihoods practices and future



planning; and with critical research collaboration to produce empirical data and a strong evidence base to support robust decision-making, and climate-resilient planning in the Mekong Delta. The GEF-financed activities proposed here serve to help fill these gaps.

GEF (grant) Description

6. **The parent IDA loan is a critical part of the long-term World Bank engagement in the Mekong Delta to strengthen integrated climate resilient management and development, across different sectors and institutional levels.** The project spans a period of 6 years, with the financing of US\$ 387 million (US\$310 m from IDA; US\$77 m from GoV). The GEF grant funds are sought to finance activities which are complementary to the project and will be processed as additional financing. The additional financing provided through the GEF will be used to strengthen research and innovation capacity of research institutions and communities relating to land and water management practices, and coastal forest rehabilitation to transition to climate-smart and climate-resilient practices in agriculture, aquaculture, water and forestry (AAWF) for selected provinces in Vietnam’s Mekong Delta.

7. **The proposed GEF AF grant (US\$6,090,831), following the IDA parent project, would target same three vulnerable sub-regions in the Mekong Delta, covering nine of the 13 provinces.** These include An Giang and Dong Thap in the upper delta; Ben Tre, Tra Vinh, Vinh Long and Soc Trang in the delta estuary; and Ca Mau, Bac Lieu and Kien Giang in the coastal peninsula. Project activities are estimated to directly benefit over 1.2 million people living in these provinces. These include farmers (especially rice) in the upper delta provinces, and aquaculture farm and fisher folk households along the coastal provinces, whose livelihoods are impacted by climate change, salinity intrusion, coastal erosion, and flooding.

8. **The proposed GEF AF grant is envisioned to have sustainable impacts as its results/outputs (i.e. analytical inputs to databases and methodology of integrating climate smart livelihoods practices into policy and planning process) will be institutionalized within the Government system.** Additionally, with a strong focus on research and innovation (within Components 2, 3 and 4), this grant will help encourage climate-smart and climate-resilient agriculture, aquaculture, water and forestry (AAWF) practices, and enhance capacity to identify successful livelihoods models for scale-up. The funds under the GEF grant will be allocated to the scale-up activities under the same five components proposed under the parent IDA project.

9. **Component 1: Enhancing Monitoring, Analytics, and Information Systems (Estimated US\$1.55 million).** Putting the Mekong Delta on a more sustainable and resilient trajectory in the face of climate change, upstream Mekong basin development, and environmentally damaging practices within the Delta itself, will require investments in both infrastructure and the enhanced capacity to monitor, plan, and manage the Delta’s land and water resources. In the IDA loan, Component 1 provides the framework for ensuring the capacity to undertake “smart investments” and cope with anticipated wide-scale environmental changes. It includes the financing of monitoring systems, infrastructure, and information systems, and mainstreaming climate resilience into planning processes.

10. **GEF grant:** In the GEF grant as AF to the IDA Project, this component will help to strengthen research capacity on addressing climate change mitigation, supporting sustainable land, water and forest management, and contributing to evidence-based decision making.



Specifically, this component will include:

11. **Analytical work including on market research and value chain.** To respond to the challenges of climate change and maintain the rapid economic development in the Mekong Delta, a shift in livelihoods from traditional/conventional types to more climate smart/climate resilient models has become imperative. Over the past years, the region has already experienced this change in both the mindset and practice. In the upper delta sub-region, instead of going for a third rice crop, farmers are shifting to a model of maintaining double-rice crop while combining with other cash crops, free-range water-poultry and/or fish breeding, *pangasius* aquaculture or other alternatives in the flooding season. In the delta estuary and peninsula sub-regions, fresh-water livelihood models have been replaced by alternatives such as rice-shrimp, shrimp and eco/mangrove-shrimp farming practices which are more suitable to the changing water regime, especially along the coastline and in the areas affected by saline intrusion.
12. To support sustainable and successful transitions in the Mekong Delta towards climate smart/climate resilient livelihoods, there is a need for a comprehensive understanding on the current and future market including export potential, the value chains and the branding and extension services required for the local products generated.
13. This component will finance some key background delta-wide studies to fill in these knowledge gaps and provide the evidence base for regional development scenarios, planning and policy making. The results of the studies are expected to also inform the TORs of the research grants in Components 2, 3 and 4. The studies will cover, but not limited to, the following:
 - identifying key climate smart/climate resilient agricultural, aquaculture, and horticulture products in the Mekong Delta which include, *inter alia*, rice, shrimp, fruits, cash crops, and fish/water poultry;
 - undertaking market (domestic and international) analysis including, *inter alia*, export potential, branding, and access for these products, to ascertain financial/economic viability;
 - modeling of impacts of different policy options (e.g., changing from intensive rice farming system to other Climate Smart Agriculture, CSA, models) on food market, exports, food security for some key products;
 - assessing the value chain structure and governance of key climate smart/climate resilient agricultural, aquaculture, horticulture products, and recommendations for establishing sustainable and profitable value chains (farmer cooperatives, farmer-business linkage, etc.).
14. **Supporting a Delta Research Consortium Partnership (DRCP).** Numerous studies and datasets covering various topics and sectors related to the Mekong Delta currently existed and are owned by many research organizations. However, there is clearly a lack of cooperation and sharing mechanism among these organizations as well as between research organizations and policy making bodies. As a result, the studies and data are rather scattered, mostly single-disciplinary and in some cases overlapping, leading to lack of comprehensiveness, waste of resources and failure to deliver appropriate solutions to and inform decision making on complex and multi-disciplinary issues associated with climate change.
15. This component will support the setting up of a “Delta Research Consortium Partnership” –as a mechanism to ensure coordination and collaboration across Government research agencies and



universities. The objectives of the DRCP are to improve research capacity, increasing efficiency in research collaboration, and strengthen research quality and application on climate smart and climate resilient innovations and practices in the Mekong Delta.

16. With no change in mandates and functions nor in current activities of the individual agencies, the partnership is expected to be a formalized cooperation mechanism for information sharing and collective research, as well as for capacity building and policy dialogue. The Consortium should be open for institutes and universities working in research and innovation in the Mekong Delta, with different types of membership based on the willingness and interest. A potential cooperation mechanism could be in the form of a joint Memorandum of Understanding (MOU) with a steering committee being setup comprising of key agencies' representatives. The DRCP will be housed in the Mekong Delta Center (financed under the IDA-financed project).

17. ***Piloting certification courses and curriculum development on adaptive delta management.*** The component will support some selected universities (e.g. Can Tho University, An Giang University, etc.) in the Mekong Delta to design and organize certificate courses and training programs on adaptive delta management. These courses and programs, including through twinning with international universities are expected to be mainstreamed into the professional education and training system of the universities. The short courses target diversified learners including mid-career delta managers and policy makers, researchers, students, farmers, enterprises, etc. who are directly engaged or interested in the use and management of delta resources, and development of climate smart and resilient AFF.

18. The training program is demand-driven and tailor-made for different target learners partly based on the inputs from the analytical studies and research grants, which may include, but not limited to evidence-based regional and local development planning; economics of shifting livelihoods; critical technical and institutional innovative measures for successful livelihood transition; protocol for livelihood shifting; innovative climate smart and resilient models; decision supporting tools; market information receiving and analysis; assessment of climate smart and resilient practices; etc.

19. ***Designing communication/media products.*** The component will support the design and dissemination of communication/media products to raise national public awareness of livelihood transition models for adapting to climate change.

Component 2: Managing Floods in the Upper Delta (Estimated US\$1.45 million)

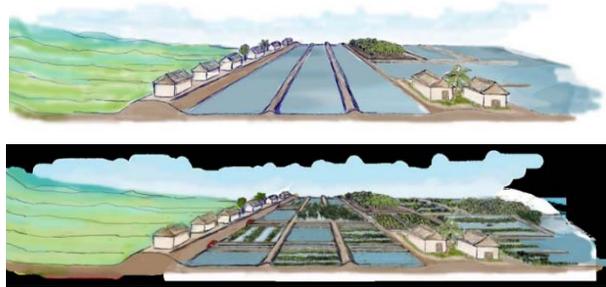
20. The Upper Delta area is characterized by natural occurring deep floods in the wet season. For a long time, this area has focused on triple-rice cropping, in addition to aquaculture (*pangasius*, giant prawn), free-range water-poultry and possible livestock. Under the pressure of enabling the production of third rice crop (even in flood season), an extensive agricultural flood control system was developed and shifted the floodwaters to other areas in the Delta. This strategy has not only reduced the beneficial effects of flooding, including replenishing soil fertility, groundwater recharge, and sustaining aquatic ecosystems; but also made the farmers more vulnerable given the decreasing economic efficiency of rice production and stronger impacts of climate change.

21. Under the parent Project, sub-projects selected to be financed under this component include infrastructure schemes aimed at increasing flood retention capacity, irrigation and upgrading of



reservoirs, livelihoods improvement (i.e. demonstration and agriculture extension support for transition from triple rice to alternative cropping), and ecosystem restoration.

22. **GEF grant:** The GEF grant will finance innovative practices that promote climate-smart and climate resilient livelihoods and ecological based adaptations that are adapted to extreme weather events, including drought and floods in the Upper Delta. The adoption and implementation of flood management practices is considered to strengthen LD focal area strategy.



23. Controlled and actively managed flooding practices may have additional benefits to offer to offset the losses in rice crop and enable diversification, modernisation and sustainable agricultural production systems that return higher value products and meet changing food demands of an increasing middle-income urban population (in and outside the Delta). The preservation of existing melaleuca forest is also taken into consideration in this component. This component mainly supports LD-1 (Program 2: SLM for Climate Smart Agriculture), links to the CCM focal area, and will also be relevant to LD-3 (Program 4: Scaling-up sustainable land management through Landscape Approach), as well as the Sustainable Forest Management.

24. **The primary objective of the research and innovation package under this component is to support the sustainable transition from triple crop irrigated rice to more diversified flood-based livelihoods** including floating rice; intensive double-rice crop combined with other cash crops, free-range water-poultry and fish breeding; catfish aquaculture or other alternatives.

25. The research and innovation package will address the key concerns of local authority, business and farmers in this transition, which will include, *inter alia*, flood-based cropping suitability and zoning; critical innovative techniques (floating rice, upland crops and fishery varieties; rotation method; farming techniques, processing techniques, irrigation system, catfish/shrimp disease control,...); water retention and flood regulating mechanism and its impacts; natural, technical and market risks management; and optimal cost-benefit analysis of options.



Some important research questions may include the following:

- **Technical:** How much water can be retained through expansion of flood-based agriculture and what are the disaster risk implications? To what extent can increased water retention through the adoption of flood-based agriculture contribute to groundwater recharge, sediment retention,



subsidence mitigation, etc.? How can the technical risks of flood-based livelihoods be reduced, e.g., high quality hatcheries for aquaculture seed, farm design?

- **Livelihoods:** How can flood-based livelihoods be further diversified to reduce market risks? Where and how can fruit be grown without the need for additional dykes to protect from floods?
- **Policies/ Planning:** What are the economics of flood based agriculture including positive and negative externalities? What sorts of strategies can be adopted to entice third rice crop farmers to voluntarily adopt flood-based livelihoods? What policy reforms are needed to effectively liberalize rice exports and what are the implications for organic/niche varieties?

26. The expected outputs in this component are a) a comprehensive package of critical technical and institutional innovative measures for successful livelihood transition; b) a protocol for key livelihood transitions in the upper delta sub-region; c) menu of pilot innovative climate-smart and climate-resilient (CS/CR) livelihood models; and d) an interface with existing databases and input information for technical parameters to support modeling and decision supporting tools under the ICSRSL and housed in the Mekong Delta Center.

Component 3: Adapting to Salinity Transitions in the Delta Estuary (Estimated US\$1.45 million)

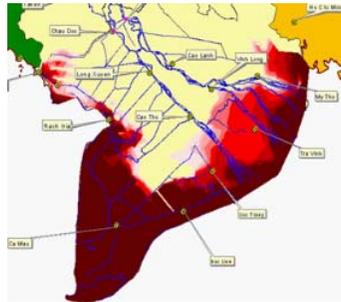
27. The Delta Estuary area is naturally characterized by low flows during the dry season which allow saline water to extend far inland. A closed dyke system with sluice gate was constructed to provide fresh water and control saline water intrusion. The area has a mixture of rice and fruit production in intertidal zone, shrimp and other aquaculture in brackish zone, not to mention livestock. Recently, the farmers have been rapidly converting from other cropping to more profitable shrimp farms along the coast, accompanied with mangrove destruction. In the future, predicted further salinity intrusion, rapid sea level rise and land subsidence will push the delta estuary larger hazard area, which threatens the sustainable livelihoods in the area.

28. **GEF grant:** The GEF grant will finance activities to demonstrate innovative practices that promote climate-smart and climate-resilient livelihoods, and ecological based adaptations that are adapted to extreme weather events, including salinity intrusion and coastal erosion and other challenges in the Delta Estuary such as water pollution and water shortage. This component mainly supports LD-1 (Program 2: SLM for Climate Smart Agriculture), links to the CCM and SFM focal areas, and relevant to LD-3 (Program 4: Scaling-up sustainable land management through Landscape Approach).

29. ***The primary objective of the research and innovation package under this component is to support the sustainable transition to diversified climate resilient livelihoods combined with mangrove forest restoration.*** This includes transitioning from mixed to diversify intensive horticulture; transitioning from triple-rice cropping to 2 saline-tolerated rice crops rotated with other cash crops and shrimp; transitioning from low quality and value mangrove to ecological mangrove shrimp or other alternatives.



30. The research and innovation package will address the key concerns of local authority, business and farmers in this transition, which will include, *inter alia*, transitioning the current livelihood models which rely heavily on fresh water to more sustainable brackish water activities such as mangrove-shrimp, mangrove – fish, rice-shrimp and other aquaculture activities; water use efficiency; co-management to improve the management and reforestation of mangrove forests in targeted areas to improve livelihoods and consolidate the coastal environment; monitoring systems built into co-management that allow environmental changes to be monitored on a high-frequency basis; bamboo T-fences to trap sediment and rebuild eroded coast lines; landscape-level zoning to isolate intensive shrimp farming and maximize mangrove cover in critical zones for storm protection; dike alignment that allows mangroves to retreat inland in response to sea level rise.



Some important research questions may include the following:

- **Technical:** How do we start to realign the coastal dike and choose to incorporate ecosystem-based adaptation (EBA) where suitable? How do we speed up the zoning of intensive shrimp farming into hydrologically isolated areas, or to shift them into high-tech environmentally closed systems? What land use/cropping transition pathways can help address shifting salinity gradients and where are they needed? What are the land suitability parameters for horticulture expansion, and economics of associated high-efficiency protective infrastructure?
- **Livelihoods:** What sorts of long-term on-farm adaptation pathways or strategies can be identified and are farmers able to commit to these adaptation pathways? What are key improvements in pond management needed to improve shrimp yields from mangrove polyculture? What are the climate adaptation properties (positive and negative) of the different brackish water livelihoods?
- **Policies/Planning:** How do we link land use planning to climate change projections for salinity and sea level rise? What policies are needed to encourage private organically certified PL hatcheries?

31. The expected outputs in this component are a) a comprehensive package of critical technical and institutional innovative measures for successful livelihood transitions in the delta estuary sub-region; b) a protocol for livelihood transition; c) some pilot innovative climate-smart and climate-resilient (CS/CR) livelihood models; and d) an interface with existing databases and input information for technical parameters to support modeling and decision supporting tools under the ICSRSL and housed in the Mekong Delta Center.



Component 4: Protecting Coastal Areas in the Delta Peninsula (Estimated US\$1.45 million)

32. Historically, the Peninsula has been known as a sedimentation place in the delta and was covered by dense mangroves sustained by localized rainfall. In recent decades, farming system of this region has been characterized by triple rice/double rice and the explosion off shrimp farming along the coast, which encroaches mangrove and relies heavily on groundwater abstraction to maintain proper salinity level. An extensive irrigation system has been developed to prevent salinity and bring freshwater from the Mekong river into the peninsula. However, the area is predicted in danger situation of erosion, flooding, salinity intrusion in the next few decades, which exposes the people’s livelihood to hazard.

33. **GEF grant:** The GEF grant will finance demonstration of innovative practices that promote climate-smart and climate resilient livelihoods and ecological based adaptations that are adapted to extreme weather events, including salinity intrusion, drought and floods, coastal erosion and other challenges in the Peninsula such as land subsidence and water shortage. The adoption and implementation of water management practices and (mangrove) forest management practices are considered to strengthen LD and SFM focal area strategy.

34. **The primary objective of the research and innovation package under this component is to support research questions relating to the sustainable transition from double-rice livelihood to climate smart and resilient fishery.** This can be in combination with mangrove forest restoration, including 1 crop of rice rotating with shrimp; intensive fishery; and ecological mangrove shrimp or other alternatives.

35. The research and innovation package will address the key concerns of local authorities, business and farmers in this transition, which will include, *inter alia*, securing flow diversion, transforming the mono-based shrimp cultivation into a mangrove polyculture; co-management to improve the management of mangrove forests to improve livelihoods and consolidate the coastal environment; monitoring systems; bamboo T-fences to capture and settle sediment loads and rebuild eroded coastlines; landscape-level zoning to isolate intensive shrimp farming and maximize mangrove cover in critical zones for storm protection; dike alignment that allows mangroves to retreat inland or use the outer mangrove area as buffer protection zone in response to sea level rise; and ecological based organic shrimp and aquaculture farming that integrates mangrove forest development and low emission aquaculture value chain development.



Some important research questions may include the following:

- **Technical:** How do we start to realign the coastal dike and work to incorporate ecosystem-based adaptation, where suitable? How do we speed up the zoning of intensive shrimp farming into hydrologically isolated areas (Kien Giang, Bac Lieu), or to shift them into high-tech environmentally closed systems (e.g., glass houses)? What economically viable



community/household scale desalinization technologies are available to reduce groundwater abstraction for drinking water?

- **Livelihoods:** How to transition intensive shrimp and rice-shrimp farming out of its dependence on unsustainable groundwater pumping? What are key improvements in pond management needed to increase shrimp yields from mangrove polyculture? What cropping options are available for rice growing areas to shift to a brackish water economy? What land use/cropping systems can best help adapt to sea level rise and subsidence and where are they needed?
- **Policies/Planning:** What are the policies and business linkages needed to encourage mangrove polycultures? What policies are needed to encourage private certified PL hatcheries? What are the long-term land use strategies and policies to shift intensive shrimp farmers/investors away from the sea dyke to allow a coastal zone of defense to be developed?

36. The expected outputs in this component are a) a comprehensive package of critical technical and institutional innovative measures for successful livelihood transition; b) a protocol for livelihood transition; c) some pilot innovative climate-smart and climate-resilient (CS/CR) livelihood models; and d) an interface with existing databases and input information for technical parameters to support modeling and decision supporting tools under the ICSRSL and housed in the Mekong Delta Center.

Component 5: Project Management and Implementation Support (Estimated US\$0.2 million)

37. This component supports project management and capacity building to implement the GEF AF Project. This component is expected to provide incremental operating costs and consultant and advisory services for overall project management, financial management, procurement, safeguards and monitoring and evaluation.



ANNEX 2: Appraisal Fiduciary Assessment

A. Procurement.

1. During the appraisal mission, the draft Project Procurement Strategy for Development (PPSD) and draft Procurement Plan proposed by CPMU were discussed. The main procurement scope funded by GEF project will be consultancy contracts on technical and implementation support, and innovative research to support climate resilient livelihoods for the delta areas under Components 2, 3 and 4, and some other small consulting services to support the GEF project implementation. The draft PPSD revealed the following findings:

- The three research consultancy contracts account for majority of the GEF project value (i.e. USD 4.35 million out of a total of USD 6.1 million).
- While international expertise is important for innovation research consulting services, local knowledge and experience in Mekong Delta is also critical and decisive to the success and quality of the research innovations. Whilst there is no private sector in Vietnam, the research institutes under the Government's ministries/universities play key roles in researching services about the Mekong Delta, especially regarding climate change resilience. They have long term (monopoly) experience in implementing research programs about Mekong delta, and hence have access to a huge historical database about the delta. They have personnel capacity with relevant qualifications and field experience in performing research works. Consequently, the participation of these institutes in research activities of the GEF project is found necessary for the achievement of the PDO which aims at strengthening research capacity, and innovation to build climate resilience of key livelihoods, and reduce greenhouse gas emissions in Project provinces.
- Based on the above analysis, the PPSD proposed that Government research institutes be allowed to associate with main consulting firms in the capacity of specialized sub-consultants, but these institutes would not be eligible to be joint-venture partners. Under such an arrangement, the institutes can associate with the main consultant to implement awarded services, contribute relevant inputs and expertise, as well as receive technology transfer from the main consultant. This would potentially help build domestic research capacity/resources and facilitate the formation of a potential Mekong research consortium partnership. The procuring entity, main consultants and research institutes should pay attention to the following conditions:
 - (i) Nature of association between consulting firms and Vietnamese Governmental research institutes/agencies is a sub-consultancy association.
 - (ii) The staff from those institutes can be paid for the cost of their mobilization to do the tasks required by the consultancy assignment(s) which are incremental and above their statutory mandates entrusted by the institutes. The payment rates for individual experts should be reasonably established based on the Government's cost norms for the similar consultancy services, and not exceeding two times of the base salary rate for consultant regulated by the Government to help cover the institutes overhead costs. The Bank may audit the expenditures due to the institutes under those consultancy contracts and would review the confirmation of individual works involving the institutes.
 - (iii) The management team of the institutes should not join the consultant team due to their full-time engagement in the managerial and administration tasks of the institutes.
 - (iv) TORs of the consulting services requiring the Government institutes' participation will list out names of all potential institutes together with sufficient information about their relevant



qualifications, experience, research mandates for main consultants to consider the formulation of sub-consultancy association. RFP/TOR will not make it mandatory for any main consultants to associate with specific sub-consultants/institutes, i.e. the main consultant has right to establish the sub-consultancy association with any of institutes listed out in the RFP.

- (v) The potential institutes should not be solely associated with a single consultant consortium, but available to all potential consortia.
 - (vi) In the capacity of sub-consultants, research institutes can participate in more than one proposal.
 - (vii) Individual experts from the institutes need to join the consultant team in the capacity of institutes' staff rather than individual freelance consultants.
- The Bank team discussed with MARD/CPMU and basically agreed with the above procurement approach. PPSD is a living document that should be regularly updated during project implementation period to provide necessary justifications for procurement arrangements, Procurement Plans, and their updates.

2. The key procurement risks identified in the PPSD are market competitiveness, low-quality TOR, limited capacity of the Implementing Agency (IA) in contract management, over budgeting risk, Government's lengthy internal review of procurement decisions as well as consultants' outputs. In order to mitigate the identified risks, the PPSD emphasizes the following actions, besides the measures being implemented in the parent project to enhance the IA's procurement and contract management capacity, as well as promote transparency, integrity, fairness and competition in procurement:

- (a) Recruitment of qualified and experienced staff to work for the CPMU;
- (b) MARD and CPO management to closely work with the concerned agencies to improve timeliness of internal appraisal and approval procedures;
- (c) CPO and CPMU to introduce a clear allocation of resources and demarcation of responsibilities for procurement and contract management; properly monitoring and administering signed contracts in terms of delivery schedule, quality and quantity of delivered services, payment process, etc.;
- (d) Due attention and sufficient resources allocated to TOR preparation and advanced procurement actions;
- (e) Regular update of market information to ensure relevancy and quality of TOR requirements, to facilitate participation of potential consultants and enhance competition level;
- (f) Establishment of a contract management plan with concrete actions to strengthen the contract management mechanism from contract award till works/outputs acceptance and payment completion.

3. **Summary of procurement arrangements:** The following two tables sets out the agreed procurement arrangement, based on the updated Procurement Capacity and Risk Assessment (PCRA) and the PPSD outputs. The procurement method and review thresholds may be subject to the World Bank's review and modification throughout the project period based on the procurement performance and risk rating of the project. The World Bank will make official notice about such changes in a timely manner to ensure smooth implementation.



Table on Procurement Arrangements for Major Activities

Contract title, Description and Category	Estimated Cost (US\$) and Risk Rating	Bank Oversight	Procurement Approach/ Competition	Selection Method	Evaluation Method
Technical and implementation support consultant	0.7 million/ Moderate	Post	Open, International	QCBS	Most Advantageous Proposal with the highest combined (quality and cost) score.
Research package to support climate resilient livelihoods in the upper delta	1.45 million/ Substantial	Prior	Open, International	QCBS	Most Advantageous Proposal with the highest combined (quality and cost) score.
Research package to support climate resilient livelihoods in the estuary	1.45 million/ Substantial	Prior	Open, International	QCBS	Most Advantageous Proposal with the highest combined (quality and cost) score.
Research package to support climate resilient livelihoods in the peninsula	1.45 million/ Substantial	Prior	Open, International	QCBS	Most Advantageous Proposal with the highest combined (quality and cost) score.

Table on Procurement Method and Prior Review Thresholds

Category (Consulting Services)	Indicative Procurement Method Thresholds		Prior Review Threshold	
	Threshold (US\$)	Note	Threshold (US\$)	Note
QCBS, QBS, FBS, LCS using the most appropriate market approach	≥ 0.3 million		Consulting Firms: ≥ 1 million	Risk-based approach (based on procurement risk assessment)
Shortlist of national consultants	< 0.5 million		Same as above for consulting firms	
CQS using an open, international, or national market approach	< 0.3 million	Methods (QCBS, QBS, FBS, LCS) can be applied for contracts with value < 0.3 million if appropriate		
Individual consultant using the most appropriate market approach	n.a. depending on nature of services		Individual: for necessary positions (procurement, large-value contract ≥ 0.3 million, and so on)	Required individual consulting services shall be specified in the Procurement Plan agreed with the World Bank.
Direct selection of consulting firms	n.a.		Same as for competitive selection	Justification to use direct selection is included in the Procurement Plan.

Notes:

- The prior review thresholds are based on the Substantial residual procurement risk of the project at the appraisal time. Contracts below the abovementioned prior review thresholds shall be subject to post review according to procedures set forth in Procurement Regulations on an annual basis.
- FBS = Fixed Budget-based Selection; QBS = Quality-Based Selection; LCS = Least Cost-based Selection.

4. **Procurement Plan and Readiness for Procurement Implementation:** At the end of the Appraisal CPMU prepared the attached Procurement Plan in line with the procurement arrangements agreed with the Bank and the PPSD findings. The Procurement Plan concurred by the Bank is subject to public disclosure on the World Bank’s external website directly from STEP, on the project owner’s website and Vietnam National E-



procurement System (www.muasamcong.mpi.gov.vn). The Procurement Plan will be updated on an ongoing basis or as needed (with the prior no objection of the Bank) by including contracts previously awarded and to be procured. By Negotiations, the RFP documents for the main research consultancy contracts are not expected to be ready because the TOR of those assignments will be prepared under the support of a technical consultant also funded by the GEF project. Nevertheless, to enhance the procurement implementation readiness of the 1st year of the project, CPO and CPMU committed to carry out advance procurement actions.

5. **Monitoring by STEP.** The proposed GEF project will use the World Bank's on-line tool named as STEP for monitoring and tracking of all procurement transactions. Under the parent project, CPMU has received STEP training and has been using the system in daily procurement operations.

B. Financial management

6. The implementation arrangements for the GEF Project mirrors the arrangement established for the IDA-financed Project and the same parameters in all the six elements of the financial management systems assessed (Financial Management Assessment - FMA) of the Central Project Office (CPO) will equally apply. The FMA confirmed that the CPO's capacity and system meets the minimum Bank's Financial Management requirement under OP/BP 10.0 for managing Bank financed projects. The CPO under the Ministry of Agriculture and Rural Development which is the principal owner of the IDA-financed Project has also been assigned the role of a surrogate owner of the GEF project. In view of this relationship, the same strengths and challenges of the CPO will transcend to the GEF project. The assurance framework for internal control in the IDA project will similarly apply for the GEF project.

7. In order to keep management and monitoring of the GEF project expenditures simple, separate set of accounting records distinct from those of the IDA-financed project would be kept by the CPO for the reason that the GEF Grant Trust Fund is basically running parallel to the IDA Credit. A separate Designated Account (DA) will be opened with a commercial bank (in liaison with MoF and SBV) satisfactory to the Bank which shall receive GEF proceeds advanced to the project for eligible expenditures. The GEF Grant proceeds will only be used for eligible research related expenditures. A fair share of the expenditures under Component 5 will be attributed to the GEF project's incremental operating costs of the CPO. GEF grant funds will be financing at 100% of eligible expenditures, consisting of goods, consulting services, non-consulting services, incremental operating costs, and training and workshops, all inclusive of taxes.

8. The accountability and reporting arrangements for GEF project will be maintained separately from the IDA-financed project. The CPO will therefore be expected to prepare unaudited Interim Financial Reports (IFRs) that are compliant with the Allied Management Tool (AMT) on semester (semi-annual) basis and submit to the Bank within 45 days following the end of each such semester. The structure and format of the IFRs will be as provided for in the IDA-financed project i.e. a) IFR1 – Sources and Uses of Funds by Component; b) Form 4 – Disbursement by Component; c) Form 6 – Disbursement of Counterpart Funds (Component 5); and d) IFR 3 – Statement of Designated Account (DA) Reconciliation.

9. A single audited GEF Project Financial Statements for each fiscal year similar to the IDA project will be prepared and submitted to the Bank within six months following end of each financial year in accordance with the applicable International Standards on Auditing and Terms of Reference applicable to the IDA-financed project. However, the two projects could be audited together by a single independent external auditor satisfactory to the Bank who shall issue two separate Audit Reports for the respective be separately processed.

10. Supervision or implementation support plan for the GEF project will be aligned to the plan applicable to the IDA-financed project.