

PROJECT INFORMATION DOCUMENT (PID) CONCEPT STAGE

Report No.: PIDC23350

Project Name	Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project (P153544)
Region	EAST ASIA AND PACIFIC
Country	Vietnam
Sector(s)	General agriculture, fishing and forestry sector (40%), Public administration- Water, sanitation and flood protection (20%), General water, sanitation and flood protection sector (40%)
Theme(s)	Natural disaster management (10%), Rural services and infrastructure (10%), Climate change (40%), Environmental policies and institutions (15%), Water resource management (25%)
Lending Instrument	Investment Project Financing
Project ID	P153544
Borrower(s)	Government of Vietnam
Implementing Agency	Ministry of Agriculture and Rural Development, Ministry of Natural Resources and Environment, Vietnam
Environmental Category	A-Full Assessment
Date PID Prepared/ Updated	17-Apr-2015
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Estimated Date of Appraisal Completion	
Estimated Date of Board Approval	29-Mar-2016
Concept Review Decision	Track II - The review did authorize the preparation to continue

I. Introduction and Context

Country Context

1. Over the past two decades, Vietnam has experienced rapid economic growth. Political and economic reforms (Doi Moi) launched in 1986 have transformed Vietnam from one of the poorest countries in the world, with per capita income below \$100, to a lower middle income country within a quarter of a century with per capita income of \$1,960 by the end of 2013. The percentage of people living in poverty dropped from almost 60% in the 1990s to under 10% today. Over the same period, the mean income for the bottom 40% of the Vietnamese population increased by an annual average of 9%.

2. Development of the agriculture sector, particularly in the Mekong Delta, has contributed significantly to the development of Vietnam. Vietnam's rice exports of \$4 billion accounts for more than a fifth of the global total. Rice is cultivated on 82% of the arable land. It provides 80% carbohydrate and 40% protein intake of the average Vietnamese. The Mekong Delta alone contributes 50% of Viet Nam's rice (90% for export), 70% of its aquaculture products and a third of Vietnam's GDP.

3. The Mekong Delta is densely populated. It is home to 22% of Vietnam's population, most of which live in coastal rural areas and are highly dependent upon rice or shrimp farming for livelihoods. These Delta households are 'near poor' and are still vulnerable to external shocks that can push them back over the poverty line. In recent decades, the push to increase agricultural and aquaculture production, greater liberalization and diversification of rural markets, and urban development in the Delta have improved opportunities for poor people. Yet, the new economic processes also highlight many environmental, economic and social problems facing vulnerable groups.

4. The pace of change is rapid and expectations are high. However, in addition to increased pressures from the unsustainable use of land and water resources, economic growth of the Mekong Delta is challenged by climate change impacts, with increased saline intrusion in coastal areas, greater coast erosion and higher levels of flooding from the combination of land subsidence and sea level rise in the southern part of Ca Mau Peninsula. Upstream hydropower development (in the Mekong Basin will also reduce sediment load down to the Delta as well as impede fish migratory routes. Intensification of agriculture water use also threatens the water resources quality and quantity. Climate change will also impede the Mekong Delta's inclusive growth and poverty reduction efforts as poor and marginalized groups will incur the greatest burden. In this period of uncertainties, the government will be challenged to ensure that growth is environmentally sustainable and inclusive. Investment planning and management in the water, agriculture and climate adaptation realm will have profound impacts, both positive and negative, on the development trajectory of Vietnam.

Sectoral and Institutional Context

5. Development success of the Mekong Delta can be attributed to two important factors. First, the natural supply of freshwater and nutrient-laden sediments by the Mekong River annually transforms the Delta, providing the vital ingredients for productivity. On average some 120 million tonnes of sediment are transported downstream with the floods into the Mekong Delta of Viet Nam with approximately 15-20% deposited on the Delta's floodplains and the remainder transported into the marine environment contributing to important Delta building processes. Annual flood pulse also drives the high levels of aquatic and terrestrial biodiversity and system productivity that is a defining feature of the Delta.

6. Second the Government of Viet Nam has since the late 1960s supported ambitious master planning efforts with the guiding mandate being the control of the Delta's freshwater hydrology to enable multiple rice crops each year. These planning initiatives, which emphasized the role of water control infrastructure began to take effect in the 1980s after the American War and accelerated in the post Doi Moi era of the 1990s, had a tremendous effect in increasing rice production in the Mekong Delta but adverse effects on the Delta's connectivity and on the wide array of fresh, brackish and marine habitats which had previously covered the Delta and which were responsible

for the Delta's former high biodiversity. Today some 75% of the Vietnamese Mekong Delta is agriculture land (mainly multiple rice cropping paddies), and at least 13,000km of dykes and 42,000km of primary and secondary canals have been constructed.

7. Lessons have pointed to an urgent need for cross-sectoral, integrated spatial planning for infrastructure development. While Doi Moi reforms directly contributed to the development of the Mekong Delta, over the past 20 years the implications of a single-focus development agenda have become better understood as lessons point to the need to break from business-as-usual development planning, and move towards cross-sectoral, integrated spatial planning and investments. The lessons include:

a) Highly controlled multi-crop farming systems have depleted soil fertility and cut off agricultural areas from natural fertilisation processes of the Mekong River: The widespread isolation of the Mekong's freshwater flood plain from fluvial processes to open up opportunities for triple and double crop rice farming has resulted in reduced fertility and reduced productivity of triple cropped areas. In An Giang, total yield from some triple cropped areas are actually lower than yield from neighbouring double-crop areas which are still partially connected to the annual flood cycles.

b) The shrinking Mekong floodplain area has exacerbated flooding in unprotected areas: The loss of floodplain has increased flood levels in unprotected areas and concentrated flood discharge in the Mekong River channels and distributaries. Worsened flood conditions have also lead to transboundary issues between Viet Nam and Cambodia, and channelized flood flows have led to increasing issues of riverbank and coastal erosion.

c) Draining of wetland depressions in the Delta for agricultural expansion have led to increasing acidification of surface water environments with knock-on effects for ecosystems (especially fisheries) and water supply. Deterioration of these provisioning services has disproportionately impacted poor communities of the Delta who rely on these services for their livelihood.

d) Dry season agriculture is shifting the Delta's balance between fresh and marine environments. Increased water demand to support dry season agriculture has depleted groundwater sources, strengthened the penetration of saline intrusion, increasing the salinity of water sources and accelerating rates of land subsidence in the Delta.

e) Centralised water control initiatives such as the saline control structures in the coastal areas of the Delta often limit the livelihood and economic opportunities for farmers seeking to take advantage of market driven opportunities. The market driven conflict between shrimp and rice farming in the early 2000s revealed the inflexibility and low levels of adaptive capacity of an infrastructure-driven approach to controlling the Delta environment and conflict between government targets for rice production and individual farmers wanting to optimise their farming economic returns.

8. Growing investments within the delta are placing development pressures on the resources, and resulting in implications on floods, salinity and tidal influxes. The Mekong Delta and its wetlands play an important role in water regulation (hydrological flows) and groundwater recharge/discharge. It also allows dispersion of sediments and nutrients over a very wide area contributing to the fertility and agricultural productivity. Temporary storage of flood waters in floodplains and wetlands down provides significant regulation of floodwaters and protection against high floods, and provide strong local influence on the basin's climate. Dry season exposure of in-channel wetland areas provides increased primary productivity and sink capacity for greenhouse gas emissions. Changes in the hydrological cycles due to increased and fragmented infrastructure

investments poses risks to the existing ecological functions.

9. Upstream developments in the Mekong Basin are impacting water resources, as well as sediment flows and fish migration. Hydropower development in the mainstream and tributaries upstream of the Delta provide additional water storage which should increase dry season flows. These reservoirs, however, may capture and store sediments reducing the flow of nutrient rich sediments to the Mekong Delta and into coastal water, and potentially increase river bank and coastal erosion. Hydropower development, particularly on the mainstream, may also block important fish migratory routes resulting in decreased capture fisheries and loss of biodiversity. Upstream irrigation projects may also reduce dry season flows into the Delta.

10. The Mekong Delta has been identified as one of the most vulnerable to the impacts of climate change. Agriculture and aquaculture is likely to be affected by changes in freshwater supply due to salinity intrusion, flooding, increasing tropical cyclone intensity, and increasing temperatures. Domestic freshwater supply is expected to become less reliable due to erratic rainfall and salinity intrusion into groundwater resources. Marine fisheries, particularly coral reef fisheries, are expected to be impacted by sea-level rise, warmer oceans, and ocean acidification associated with rising atmospheric and ocean CO₂ concentrations. Coastal infrastructures are exposed to increased tropical storm intensity, long-term sea-level rise, and sudden-onset fluvial and coastal flooding (1). (1) Each year, Vietnam loses around 2 per cent of GDP as a result of weather-related disasters (DFAT, 2014). In 2013, economic losses due to natural disaster was estimated at approximately \$1.5 billion, approximately double the rate recorded for 2012. Such events are projected to get worse with the impacts of climate change.

11. Already, Vietnam is experiencing wetter wet seasons, drier dry seasons, higher intensity rainfall, flash flooding and increased frequency of tropical cyclones. Average annual temperatures are expected to increase by 3-5°C by mid-century with average wet season precipitation increasing by 3-14 percent. Increases in wet precipitation will be coupled with increased peak daily precipitation events and drier dry seasons, compounding water availability issues. Rice yields in the Mekong Delta are also expected to decline from 6–12 percent due to resulting inundation and salinity intrusion, while aquaculture production will also be affected.

12. The Government of Vietnam 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 was developed, with the support of the Dutch, which evaluated a number of different development strategies including considerations of climate change. Delta level scientific data bases and climate change impact assessments are also ongoing; however, to date these projects remain at a theoretical level and are not integrated into the planning process. The impacts of alternate development options on various sectors in a highly complex delta environment, and the efficacy of different investments in the face of climate change and dynamic upstream development remain poorly understood.

13. The current institutional landscape in the Mekong Delta is complicated, with planning and implementation roles spread across several ministries and agencies which make it challenging to effectively plan for and build resiliency in the Delta's development plans. The government is facing huge coordination challenges relating to the activities, investments, plans and programs of different sectoral agencies (water, environment, transport, agriculture). Finally, the current mandate inhibits the South-West Steering Committee (SWSC) from taking a stronger coordination role, especially

with regard to the implementation of measures and investments. This makes inter-ministerial and inter provincial coordination difficult.

14. The complexity of issues in the Mekong Delta covers a range of sectors (e.g. agriculture, urban, energy, environment), temporal scales (e.g. from daily operations to long-term climate change concerns), and divergent institutional and policy landscapes. Delta planners and decisions makers need to continue making important strategic decisions, across sectors, on the future direction and nature of development amidst an uncertain future which partly lies outside their control. At present no tools or frameworks exist which allow delta planners to systematically assess the resilience of their investment decisions against the breadth of potential change. Integrated information platforms would help contribute to evidence-based resilient planning and management of the highly vulnerable Mekong delta, serve as the basis for developing a shared vision and help to identify and manage existing and future investments that are resilient.

Relationship to CAS

15. **Twin Goals and CPS:** The project directly contributes to the twin goals of shared prosperity and alleviation of extreme poverty and is strongly aligned with the Vietnam CPS, which supports the country's climate change agenda by focusing on three pillars: 1) Adaptation, 2) Mitigation, and 3) Cross-Cutting Climate Change issues through lending, policy dialogue, and analytical work. In terms of poverty headcount basis, the Mekong Delta stands out as having the largest number of poor, who are likely to face economic displacement as their livelihoods are impacted by rising sea levels, salinity and scarce water resources. With its contribution to agriculture, aquaculture, the Delta has the potential to boost shared prosperity among the bottom 40 percent.

16. **Linkages to other World Bank projects:** The proposed project will build upon ongoing TA work to scale up decision support framework, scenario analysis, hydrological modelling, and simulation/optimization models to better understand inter-sector and inter-provincial trade-offs, the impacts of climate change, and the impacts to economic growth and poverty. Linkages to numerous current and planned sectoral investments in the Delta including projects in agriculture, transport, water resources, water supply and land administration are reviewed (see Annex 3). Through the development of the Adaptation Prioritization Framework (APF), the Bank has initiated the integration of climate change adaptation measures into the SEDP; this proposed project would build directly upon the APF screening process, as well as the Mekong Delta Plan's vision for an integrated approach to delta management.

17. This proposed project is expected to improve planning process that will help contribute to screening of proposed investments under the 2016-2020 SEDP, and towards the identification of low-regret investments for the 2021-2025 SEDP.

II. Proposed Development Objective(s)

Proposed Development Objective(s) (From PCN)

18. The proposed Project Development Objective (PDO) is to strengthen institutional coordination and planning across the Mekong Delta, and improve resilience of people's livelihoods and assets to climate change in selected vulnerable sub-regions. This will be achieved through (i) strengthening information and decision support systems; (ii) reinforcing institutional coordination, planning and capacity; and (iii) identifying and financing 'low-regret' (*) investments (structural and non-structural) adopting an integrated "landscape" approach, in three key sub-regions of the

Mekong Delta.

(*) The UK Climate Change Impacts Programme (UKCIP) defines 'low regret' actions as "adaptive measures for which the associated costs are relatively low and for which the benefits, although primarily realized under projected future climate changes, may be relatively large".

Key Results (From PCN)

19. At the project level, the PDO indicators being considered for the proposed project include:
- Delta-wide institutional coordination mechanism put in place, with a mandate for integrated planning and decision-making across sectors and provinces in the Mekong Delta;
 - Number of provinces where planning authorities are using the Decision Support System developed through the project, to inform planning/ selection of low-regret investments;
 - Land area and assets protected/ enhanced by project-financed priority investments to address (i) seasonal flooding, and (ii) saline intrusion, and coastal erosion;
 - Number of farmer households adopting climate resilient agricultural and aquacultural practices, disaggregated by gender and income

III. Preliminary Description

Concept Description

1. The proposed project is envisioned to be the first phase of a long-term World Bank engagement in the Mekong Delta to strengthen integrated climate resilient management and development, across different sectors and institutional levels. More specifically, it will support information systems, the institutional arrangements, and the roadmap for building regional and provincial-level planning capacity for sustainable Delta-wide development. In parallel, the proposed Project will also seek opportunities for 'low regret' investments and scope out longer term development options to be financed under future phases. The project would comprise of a combination of structural and non-structural investments, and will be informed by the World Bank financed Building Resilience in the Mekong Delta TA (P149017).

2. The Project is proposed to span a period of 6 years, with the financing of US\$ 330 million (\$300 million from IDA; and \$30 million from GoV).

3. The project concept and approach builds up from the vision articulated in the Mekong Delta Plan developed by the Dutch, whereby the delta was viewed as three hydro-ecological zones cutting across provinces and sectors. During the scoping of the proposed project, the task team has placed heavy emphasis on coordination with other Bank projects, and those of other development partners.

Component 1: Information and Institutions

4. This component seeks to provide an integrated information and institutional framework for effective multi-sectoral planning and management of the Mekong Delta in order to (i) increase resilience to climate and development risks, improve synergy across stakeholders in the delta provinces, (ii) improve effective utilization of modern monitoring and IT tools to analyse planning and operational scenarios, and make informed investment decisions, and (iii) build capacity for multi-sectoral approaches. The work would build on existing institutions, capacity, and tools, and potentially include the following activities:

- Information and Planning Support. These activities would seek to improve the monitoring, analysis, access, and use of the knowledge base relevant for the Mekong delta. The information related activities may include: (i) provision of new monitoring and information aggregation system,

(ii) development of a comprehensive delta knowledge base platform, (iii) scaling up of the Mekong Delta Decision Support Framework into a Decision Support System for investment planning, forecasting, and real-time operational management, (iv) target technical studies and surveys related to vulnerability and climate resilience of sectoral investments, detailed topographic, groundwater, and water quality surveys, and (v) refinement of the Mekong Delta Master Plan to ensure synergy with other national, provincial, and other sectoral plans. This will be managed by the proposed Vietnam Mekong Delta Centre, discussed below.

- **Institutional Strengthening and Policy Development.** The institutional capacity development related activities may include: (i) technical support to strengthen institutional arrangements and policy evolution for resilience management and development of the Mekong Delta, (ii) development of a Vietnam Mekong Delta Centre which will be a state-of-the-art centre that enables effective use of the Delta knowledge platform and analytical tools, provides a space for integrated work across ministries/ departments, provincial representatives and research agencies, (iii) professional development and training programs, as well as innovation grants for targeted research, and (v) funds for office modernization.

Component 2: Improvement Freshwater Management through Flood Retention in the Upper Delta (An Giang/Dong Thap)

5. This component aims to strengthen resilience of the An Giang/Dong Thap agriculture and aquaculture economy by (i) strengthening water resources management and flood retention measures; (ii) supporting sustainable agricultural/aquaculture systems that are adaptive and resilient to seasonal flooding; and (iii) improving market connectivity and competitiveness for improved livelihoods. Typical activities include:

- **Improving Water Resources Management and Flood Retention.** This would include financing of soft and hard investments to improve water resources management capacity and potential flood retention measures in the An Giang/ Long Xuyen Quadrangle. Hydrological modelling through the existing Mekong TA will help to estimate the potential impacts in terms of reduced flood risks in downstream cities of Long Xuyen and Can Tho.
- **Supporting adaptive and resilient agricultural/fisheries systems.** These activities would aim to scale up sustainable agricultural/fisheries systems adaptive and resilient to seasonally flooding conditions and strengthen agriculture/fish value chains in order to support sustainable livelihood practices (including disease risk reduction, increase productivity and quality of produce). Activities may include (i) structural and non-structural investments to explore more climate-resilient and diversified agriculture and aquaculture models (including capacity building and extension services); and (ii) strengthening of value chains and marketing.

Component 3: Balancing Freshwater and Brackish Livelihoods in the Delta Estuary (Ben Tre, Tra Vinh)

6. This component aims to tackle the challenges related to salinity intrusion, coastal erosion, and improved livelihoods for communities living in the coastal and river mouth areas through (i) potential coastal defence measures that provides adequate protection against flooding and coastal erosion, and protects inland economic activities; (ii) potential water resources management investments in both closed and open systems; (iii) building capacity of resilience and adaptation to the gradual expansion process of saline intrusion by diversifying agricultural/fisheries systems; and (iv) securing surface fresh water supplies for domestic/commercial use in the transition and coastal zones. This may include the following activities:

- **Mangrove restoration/ coastal protection-** These activities aim to restore coastal landscapes to enhance resilience of inland farming systems, reduce vulnerability to the impacts of sea-level rise

and coastal erosion. These would include non-structural measures, such mangrove rehabilitation and restoration.

- Improving water resources management: This would include financing soft and hard investments to contribute to both open and closed systems, making decisions on areas that would be more suitable as fresh water zones for rice or fruit/horticulture, and those better suited to more to a brackish economy. Options to be considered may include sluice gates, river embankments, rainwater harvesting, surface water storage etc.
- Supporting agricultural/aquaculture systems adaptive and resilient to saline intrusion. These activities would aim to improve sustainability of shrimp farming and promote greater rotation/diversification farming systems through (i) adoption of GAP/BMP in shrimp farming systems, (ii) support for non-shrimp high value aquacultural/agricultural diversification; and (iii) technical support to strengthen integrated sectoral planning.
- Improving coastal livelihoods. These activities would strengthen aquacultural/ agricultural value chains in order to support sustainable livelihood programs.

Component 4: Adapting to Coastal Erosion and Saline Intrusion (Ca Mau, Bac Lieu)

7. This component aims to strengthen climate change resilience of the Southern Ca Mau sub-region's brackish economy by (i) ecological restoration to reduce coastal erosion and protect inland economic activities; (ii) building capacity of resilience and adaptation to the gradual expansion process of saline intrusion caused by SLR through adoption of diversified agricultural/fisheries systems; and (iii) developing /improving sustainable coastal livelihoods (i.e. improve market connectivity and competitiveness). This component is envisaged to have the following activities:

- Mangrove rehabilitation/ ecological restoration- These activities would aim to restore biodiversity to enhance resilience of inland farming systems, reduce vulnerability to the impacts of sea-level rise and coastal erosion including through (i) mangrove reforestation and rehabilitation; and (ii) technical support for climate-resilient farming systems.
- Supporting agricultural/aquaculture systems adaptive and resilient to saline intrusion. These activities aim to improve sustainability of shrimp farming and promote greater rotation/diversification farming systems through (i) adoption of GAP/BMP in shrimp farming systems, (ii) support for non-shrimp high value aquaculture/agricultural diversification; and (iii) technical support to strengthen integrated sectoral planning.
- Improving coastal livelihoods. These activities aim to strengthen aquaculture/ agricultural value chains in order to support sustainable livelihood programs. Activities may include (i) investment in resilience infrastructure to enable sustainable farming initiatives, improve coastal livelihoods, and (ii) strengthening value chains and actors.

Component 5: Project Management, Monitoring and Evaluation

8. This component will provide incremental running costs and consultant and advisory services for overall project management, financial management, procurement, safeguards and monitoring and evaluation.

IV. Safeguard Policies that might apply

Safeguard Policies Triggered by the Project	Yes	No	TBD
Environmental Assessment OP/BP 4.01	✘		
Natural Habitats OP/BP 4.04	✘		
Forests OP/BP 4.36	✘		

Pest Management OP 4.09	x		
Physical Cultural Resources OP/BP 4.11	x		
Indigenous Peoples OP/BP 4.10	x		
Involuntary Resettlement OP/BP 4.12	x		
Safety of Dams OP/BP 4.37	x		
Projects on International Waterways OP/BP 7.50	x		
Projects in Disputed Areas OP/BP 7.60		x	

V. Financing (in USD Million)

Total Project Cost:	330.00	Total Bank Financing:	300.00
Financing Gap:	0.00		
Financing Source			Amount
BORROWER/RECIPIENT			30.00
International Development Association (IDA)			300.00
Total			330.00

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