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IDA/R2017-0168/3

June 1, 2017

Closing Date: Tuesday, May 30, 2017 at 6 p.m.

FROM: Vice President and Corporate Secretary

Vietnam - Emergency Natural Disaster Reconstruction Project

Project Appraisal Document

Corrigendum

[This document replaces the previous version (IDA/R2017-0168/1) to correct an error on the title of the project due to a technical glitch]

Attached is the Project Appraisal Document regarding a proposed credit to Vietnam for an Emergency Natural Disaster Reconstruction Project (IDA/R2017-0168), which is being processed on an absence-of-objection basis.

Distribution:
Executive Directors and Alternates
President
Bank Group Senior Management
Vice Presidents, Bank, IFC and MIGA
Directors and Department Heads, Bank, IFC and MIGA

Document of

The World Bank

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Report No: 115120-VN

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR 86.1 MILLION
(US$ 118 MILLION EQUIVALENT)

TO THE

SOCIALIST REPUBLIC OF VIET NAM

FOR A

VIETNAM – EMERGENCY NATURAL DISASTER RECONSTRUCTION PROJECT

May 16, 2017

Social, Urban, Rural And Resilience Global Practice
East Asia And Pacific Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective April 30, 2017)

Currency Unit =	Vietnamese Dong (VND)
VND 22,772 =	US$1
US$ 1.37102 =	SDR 1

FISCAL YEAR
January 1 - December 31

ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
CCNDPC	Central Committee for Natural Disaster Prevention and Control
CF	Conversion Factor
CCSA	Cross Cutting Solution Area
CPS	Country Partnership Strategy
DA	Designated Account
DRM	Disaster Risk Management
DSU	Dam Safety Unit
EA	Environmental Assessment
ECOP	Environmental Codes of Practice
ERM	Emergency Response Manual
ERR	Economic Rate of Return
EMDP	Ethnic Minority Development Plan
EMPF	Ethnic Minority Planning Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FM	Financial Mangement
FS	Feasibility Study
GDP	Gross Domestic Product
GoV	Government of Vietnam
GP	Global Practice
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
IPF	Investment project financing
IFR	Interim Financial Report
ISP	Implementation Support Plan

JICA	Japan International Cooperation Agency
M&E	Monitoring and Evaluation
MARD	Ministry of Agriculture and Rural Development
MDB	Multilateral Development Bank
MOF	Ministry of Finance
MOT	Ministry of Transport
MPI	Ministry of Planning and Investment
NPV	Net Present Value
ODA	Official Development Assistance
O&M	Operations and Maintenance
OM	Operations Manual
OPCS	Operations Policy and Country Services
PMU	Project Management Unit
POM	Project Operations Manual
PPC	Provincial People's Committee
PPMU	Provincial Project Management Unit
PPSD	Project Procurement Strategy for Development
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SA	Social Assessment
STEP	Systematic Tracking of Exchanges in Procurement
TTL	Task Team Leader

Regional Vice President:	Victoria Kwakwa
Country Director:	Ousmane Dione
Senior Global Practice Director:	Ede Jorge Ijjasz-Vasquez
Practice Manager:	Abhas K. Jha
Task Team Leader(s):	Dzung Huy Nguyen, Poonam Pillai, Dung Anh Hoang Cuong Hung Pham

BASIC INFORMATION

Is this a regionally tagged project?	Country(ies)	Financing Instrument
No		Investment Project Financing

[✓] Situations of Urgent Need of Assistance or Capacity Constraints

[ ] Financial Intermediaries

[ ] Series of Projects

Approval Date	Closing Date	Environmental Assessment Category
30-May-2017	31-Dec-2021	B - Partial Assessment

Bank/IFC Collaboration
No

Proposed Development Objective(s)

The Project Development Objective (PDO) is to reconstruct and rehabilitate infrastructure assets in disaster-affected project provinces and strengthen the capacity of the Government to effectively respond to future disaster events.

The PDO will be achieved by rebuilding key infrastructure assets based on a 'build back better' approach emphasizing all stages of infrastructure life cycle including design, construction, and maintenance and strengthening institutional capacities for climate and DRM. Achievement of efficacy will be assessed with 85 percent weight on reconstruction and rehabilitation of infrastructure assets and 15 percent weight on strengthening of the capacity of the government to effectively respond to future disaster events.

Components

Component Name	Cost (US$, millions)
Resilient Reconstruction of Damaged Public Use and Preventive Infrastructure at the Provincial Level	121.08
Disaster Recovery Capacity Enhancement	2.43
Project Management Support	12.32

Organizations

Borrower :	Socialist Republic of Vietnam
Implementing Agency :	Ministry of Agriculture and Rural Development Binh Dinh People's Committee Quang Ngai People's Committee Phu Yen People's Committee Ninh Thuan People's Committee Ha Tinh People's Committee

Safeguards Deferral

Will the review of safeguards be deferred?

[✓] Yes [ ] No

PROJECT FINANCING DATA (IN USD MILLION)

[✓] Counterpart Funding	[ ] IBRD	[✓] IDA Credit [ ] Crisis Response Window [ ] Regional Projects Window	[ ] IDA Grant [ ] Crisis Response Window [ ] Regional Projects Window	[✓] Trust Funds	[ ] Parallel Financing

Total Project Cost:	Total Financing:	Financing Gap:
135.83	135.83	0.00
	Of Which Bank Financing (IBRD/IDA): 118.00	

Financing (in US$, millions)

Financing Source	Amount
Borrower	15.83
Global Facility for Disaster Reduction and Recovery	2.00
International Development Association (IDA)	118.00
Total	**135.83**

Expected Disbursements (in US$, millions)

INSTITUTIONAL DATA

Practice Area (Lead)

Social, Urban, Rural and Resilience Global Practice

Contributing Practice Areas

Transport & ICT
Water

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

Gender Tag

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

Yes

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

Yes

c. Include Indicators in results framework to monitor outcomes from actions identified in (b)

Yes

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Substantial
2. Macroeconomic	Substantial
3. Sector Strategies and Policies	Low

4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Moderate
8. Stakeholders	Moderate
9. Other	
10. Overall	Substantial

COMPLIANCE

Policy

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

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	✓	
Natural Habitats OP/BP 4.04	✓	
Forests OP/BP 4.36		✓
Pest Management OP 4.09	✓	
Physical Cultural Resources OP/BP 4.11	✓	
Indigenous Peoples OP/BP 4.10	✓	
Involuntary Resettlement OP/BP 4.12	✓	
Safety of Dams OP/BP 4.37		✓
Projects on International Waterways OP/BP 7.50		✓
Projects in Disputed Areas OP/BP 7.60		✓

Legal Covenants

Sections and Description

Institutional Arrangements

Financing Agreement: Schedule 2, Section I.A
Recurrent, Continuous
Obligation of the Recipient, through each Project Province, to maintain a Provincial Project Management Unit with composition, powers, functions, staffing, facilities and other resources satisfactory to the Association and through the Designated Agency, to maintain implementation structures with composition, powers, functions, staffing, facilities and other resources satisfactory to the Association

Safeguards
Financing Agreement: Schedule 2, Section I.C
Recurrent, Continuous
Obligation of the Recipient to ensure that the Project is carried out in accordance with the safeguards instruments (as defined in the Financing Agreement); and not amend, abrogate, or waive any of the safeguard instruments unless the Association agrees otherwise, and report on their status of implementation as part of the semiannual progress reports.

Annual Work Plans
Financing Agreement: Schedule 2, Section I.D.1
Annual, Continuous
Obligation of the Recipient, through the Project Provinces, to finalize and furnish to the Association not later than December 31 in each year, beginning in 2017, an annual work plan; and thereafter implement in a manner satisfactory to the Association such annual work plans as shall have been agreed with the Association.

Project Operations Manual
Financing Agreement: Schedule 2, Section I.E.2
Recurrent, Continuous
Obligation of the Recipient, through the Project Provinces, to carry out the Project in accordance with the Project Operation Manual; and not amend, waive or abrogate any provisions of the manual unless the Association agrees otherwise in writing.

Mid-Term Review
Financing Agreement: Schedule 2, Section II.A.2
Due Date: 24 months after the Effective Date
Obligation of the Recipient, through the Project Provinces, to prepare and furnish to the Association a mid-term report, in such detail as the Association shall reasonably request; review with the Association such mid-term report, on or about the date forty-five (45) days after its submission, and thereafter take all measures required to ensure the continued efficient implementation of the Project and the achievement of its objectives, based on the conclusions and recommendations of the mid-term report and the Association’s views on the matter.

Conditions

Type	Description
Effectiveness	Financing Agreement: Article IV, Section 4.01 The Grant Agreement has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under it (other than the effectiveness of the Financing Agreement) have been fulfilled.
Disbursement	Financing Agreement: Schedule 2, Section IV.A.2 No withdrawal shall be made under each of Categories (1) – (5) unless the Recipient has ensured that the First Batch of Safeguards Instruments (as defined in the Financing Agreement) has been prepared and disclosed, and the Recipient has ensured that any actions which are required to be taken under said instruments have been implemented, all in accordance with the provisions of Section I.D of Schedule 2 to the Financing Agreement.

PROJECT TEAM

Bank Staff

Name	Role	Specialization	Unit
Dzung Huy Nguyen	Team Leader(ADM Responsible)	Disaster Risk Management	GSU08
Dung Anh Hoang	Team Leader	Transport Specialist	GTI02
Poonam Pillai	Team Leader	DRM and Climate	GSU18
Kien Trung Tran	Procurement Specialist(ADM Responsible)	Procurement Specialist	GGO08
Mai Thi Phuong Tran	Financial Management Specialist		GGO20
Abigail C. Baca	Team Member	Disaster Risk Management	GSU08
Anh Thai Nguyen	Team Member	DRM Consultant	GSU08
Aristeidis I. Panou	Counsel	Legal	LEGES
Asha Ishtar Kambon	Team Member	Housing and Livelihood Consultant	GSP04
Beatriz Pozueta Mayo	Team Member	DRM Consultant	GSU10

Bernard Baratz	Safeguards Specialist	Enviromental safeguard Consultant	GEEDR
Chi Kien Nguyen	Team Member	Transport	GTI02
Cuong Hung Pham	Team Member	Water Specialist	GWA02
Hanh Thi Ngoc Nguyen	Team Member		EACVF
Hoa Thi Mong Pham	Safeguards Specialist	Social Development	GSU02
Huong Thi Lan Tran	Team Member	Governance	GGO14
Inneke Herawati Ross	Team Member	Team Support	GSU08
Keiko Saito	Team Member	Disaster Risk Management	GSU08
Mateo Ambrosio Albala	Team Member	Agriculture Consultant	GFA02
Nam Quang Pham	Team Member	Gender	EACVF
Peter Leonard	Safeguards Advisor		OPSPF
Prabir Joardar	Team Member	Water Engineering Consultant	GSU18
Son Van Nguyen	Safeguards Specialist	Enviromental Safeguard	GEN2B
Sujit Das	Team Member	Transport Engineering Consultant	GTI06
Suranga Sooriya Kumara Kahandawa	Team Member	DRM/Flood control	GSU18
Thong Trung Le	Safeguards Specialist	Social	GSU02
Thu Ha Le	Counsel	Legal	LEGES
Viet Tuan Dinh	Team Member	Marcro Economic	GMF02

Extended Team

Name	Title	Organization	Location

VIETNAM
VIETNAM - EMERGENCY FLOOD DISASTER RECONSTRUCTION PROJECT

TABLE OF CONTENTS

I. STRATEGIC CONTEXT

A. Country Context

1. **Since the economic and political reforms initiated in 1986, Vietnam has transformed itself from one of the world's poorest to one of the most dynamic emerging economies in East Asia.** In the past three decades, the country has enjoyed steady economic growth accompanied by notable decline in poverty reduction. Per capita income increased from US$100 in the 1980s to about US$2,100 in 2015. Social indicators have improved significantly with a 50 percent reduction in the under-five mortality rate, decline in the maternal mortality ratio, improved access to education, higher life expectancy compared to countries with similar per capita income, and improvement in access to services such as electricity and water. However, despite these gains, a third of the population, approximately 30 million people, lives close to the poverty line.

2. **Vietnam is highly vulnerable to natural hazards such as floods, typhoons, droughts, and landslides that pose a significant risk to development gains.** Every monsoon season, Vietnam is highly exposed to a combination of river plain flooding, flash floods, and associated landslides.[1] Almost 60 percent of the country's total land area and over 70 percent of its population are at risk to hydrometeorological hazards.[2] Over the past two decades, extreme weather events have caused more than 13,000 deaths and property damage in excess of US$6.4 billion. Vietnam loses 1-1.5 percent of gross domestic product (GDP) annually due to natural disasters, with a peak loss of 2.9 percent of GDP in 2006. With climate change, the frequency and intensity of natural hazards are expected to increase. Vietnam is likely to incur, on average, US$1.4 billion (VND 30.2 trillion) per year in direct damage due to floods, typhoons, and earthquakes. In the next 50 years, it has a 40 percent chance of experiencing economic loss exceeding VND 141.2 trillion (US$6.7 billion) and a 20 percent chance of experiencing loss exceeding VND 171.2 trillion (US$8.1 billion).[3] The poor and extreme poor, including ethnic minorities, are particularly vulnerable to economic shocks, including from disasters, weather extremes, and climate variability.

3. **High poverty rates and extreme exposure to floods and storms make the Central Region of Vietnam a priority area for efforts to strengthen disaster and climate resilience and improve well-being of vulnerable communities.** The Central Region is marked by higher-than-average poverty rates. The rivers here are mainly short and steep, and heavy rainfall, typically related to tropical cyclones, results in riverine or flash flooding. The central provinces lie along the coast of Vietnam and face challenges in responding to climate change. The number of hot days has increased significantly from 1 percent to 3 percent every 10 years. Noticeably, heavy rain has increased by 31 mm to more than 180 mm every 10 years. Total rainfall of days with torrential rain and total rainfall of days with rain have increased significantly in Quang Nam, Da Nang, Quang Ngai, and Quy Nhon with approximately 50 mm to more than 250 mm every 10 years. Mean sea level has visibly risen in the East Sea and along the Vietnam coast at the rate of about 2.8 mm per year, highest in the coastal zones in the Central and Southwest regions at

[1] Recent experience has illustrated that the country's financial risk from extreme weather efforts is increasing, along with the growing density of physical infrastructure and commercial activities in vulnerable areas.
[2] GFDRR (Global Facility for Disaster Reduction and Recovery). 2011. *Fiscal Impact of Natural Disasters in Vietnam.*
[3] Vietnam Sovereign Disaster Risk Finance Study led by the World Bank Disaster Risk Financing and Insurance Program, with technical assistance from impact forecasting and financial support of Swiss State Secretariat of Economic Affairs (SECO) (2016).

2.9 mm per year.[4] Recurring extreme weather events risk slowing down economic growth, and poverty contributes to vulnerability of local communities, particularly in disaster-prone areas.

4. **While the Central Region is heavily exposed to storms and floods, some areas are also vulnerable to droughts.** Approximately 2 million people living in the Central Region were severely affected by the prolonged drought of 2015–2016 as a result of impact from the global El Nino**.** The 2015-2016 drought was among the most intense and long-lasting in the past 90 years. It severely affected rural livelihoods, damaging 60–90 percent of planted crops,[5] affecting assets, and disrupting basic services.

B. Situations of Urgent Need of Assistance or Capacity Constraints

Emergency Context

5. **From mid-October to December 2016, 18 provinces in the Central, South Central, and the Central Highlands regions of Vietnam were affected by prolonged flooding due to five consecutive rainfall events resulting from a combination of tropical depressions and the north-eastern monsoon, adversely affecting its people and economy.** These repetitive flood events resulted in substantial human loss and widespread damage to infrastructure, agriculture, and aquaculture and disproportionally affected the livelihoods of poor and vulnerable communities. Approximately 10-30 percent of the population of the provinces was affected, with over 1 million people in need of assistance. As reported by the Government's Central Committee for Natural Disaster Prevention and Control (CCNDPC) and the United Nations in December 2016, approximately 134 lives were lost and/or missing and 151 people were injured; 233,271 houses were flooded (of which 163,682 were flooded above 1 meter) and 4,093 houses were damaged or collapsed. Further, an estimated 53,247 ha rice fields were damaged, and 23,294 ha perennial crops and 44,437 ha vegetable fields were submerged. An estimated 18,371 cattle and 1,218,449 poultry were also killed. The flood events involved extensive infrastructure damage with 1,782 km of roads damaged or eroded and 585 bridges or culverts and 60 km of dykes damaged, contributing to an estimated overall economic loss of US$460 million. On October 15, 2016, the Government of Vietnam (GoV) declared a state of emergency.

6. **As directed by the Prime Minister, a task force was established on February 10, 2017, to coordinate the reconstruction process.** The task force is led by the Ministry of Planning and Investment (MPI) and comprises the Office of Government, the State Bank of Vietnam, the Ministry of Finance (MOF), the Ministry of Agriculture and Rural Development (MARD), and the Ministry of Transport (MOT). To formulate a strategy for response and recovery, the GoV initiated a rapid damage and needs assessment and requested the World Bank for assistance in this effort.

Rapid Damage and Needs Assessment

7. **In collaboration with the GoV, the World Bank fielded a mission from February 8 to 16, 2017, to undertake a multi-sectoral assessment of damages and lay the groundwork for an immediate recovery and reconstruction framework.** The assessment relied upon analysis carried out by the Government and, according to the GoV request, focused on four provinces, namely, Binh Dinh, Phu Yen, Quang Ngai, and

[4] IMHEN (Institute of Meteorology, Hydrology, and Environment) and UNDP (United Nations Development Programme). 2015. *Vietnam Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation.*
[5] Vietnam: Drought and Sanitation Situation Report No.7 as of October 25, 2016, UN and GoV 2016a and 2016b.

Ninh Thuan,[6] which are among the most severely affected provinces and had relatively limited access to Government or donor funding compared to other flood-affected provinces. The rapid damage and needs assessment also focused on the most impacted sectors, namely housing, agriculture, livestock, fisheries, irrigation, flood control, and transport, and was supported by the Global Facility for Disaster Reduction and Recovery (GFDRR).

8. **Findings from the rapid assessment showed that the economic impact of the October-December flood events in the four provinces covered under the rapid assessment and Ha Tinh Province was approximately US$228.2 million, equivalent to 2.3 percent of the GDP (2016) of the five provinces.[7]** Of this, US$146.4 million was attributed to damages and US$81.8 million to losses.[8] The most affected sector was transport with a total damage of US$70 million followed by flood protection and irrigation infrastructure with damages of US$42.9 million. Estimates of damages to the agriculture, livestock, and fisheries sectors were US$22.6 million and for housing approximately US$10.2 million.

9. **Based on the assessment and consultations with local communities, and national and provincial government representatives, transport, flood protection, and irrigation infrastructures were identified as priority sectors for reconstruction and recovery.** Investments to be funded by the project were prioritized based on (a) damage costs, (b) number of beneficiaries, (c) area benefitted, (d) cost of recovery and reconstruction, (e) lack of funding from other sources, (f) impact on poverty, (g) strategic importance, and (h) readiness for implementation (for example, availability of engineering designs) for selected subprojects. Reconstruction of these investments is particularly urgent given the upcoming monsoon season and history of occurrence of cyclonic storms or typhoons every year.

C. Sectoral and Institutional Context

10. **Transport infrastructure plays a critical role in economic growth and poverty alleviation in the central provinces but is in critical need of rehabilitation.** Vietnam's local road and bridge network is approximately 253,000 km long and constitutes about 85 percent of the country's total transport network (295,000 km). It serves around 80 percent of the entire population and an estimated 90 percent of the nation's poor, who mainly live in rural areas. As in the rest of the country, investments in local roads and bridges have had a significant impact on poverty alleviation, social participation, school attendance, and health services in the Central Region. However, many communes lack good condition roads and users face high mobility costs or have limited or nonexistent bridge connectivity to cities. The Central Region is marked by steep terrain, variable geology, and extensive deforestation, all of which contribute to flood risk. Hilly areas are also prone to slope failure and landslides, particularly during the rainy season, which risks the transportation infrastructure, threatens operational safety, and undermines connectivity of rural communities to markets, local services, and income-generating opportunities. Adequate design standards for different classifications of roads such as national, provincial, district, and rural roads are available.

[6] Upon Government request, the original rapid assessment focused on four provinces, of which Binh Dinh, Phu Yen, and Quang Ngai were three of the worst affected by the 2016 floods. Ninh Thuan Province was less affected by the floods but was heavily affected by the prolonged drought in 2015 and 2016. Ninh Thuan is also the poorest province in the Central Region. Due to the remaining IDA funds, the GoV requested the inclusion of a fifth province, Ha Tinh, selected from one of the most affected provinces by the 2016 floods.

[7] World Bank Data 2017. Vietnam. The losses were estimated for the agriculture sector, and, for Ha Tinh Province, only the disaster effects on the flood protection/irrigation sectors were included.

[8] Please refer to annex 5 for further details. The losses were only assessed for the agriculture, livestock, and fishery sectors. The other sectors only estimated the direct physical damage.

However, in many cases in the Central provinces, they have not been followed due to lack of sufficient funds. In some cases, even though the design has been followed, quality of construction is limited, contributing to infrastructure damage. In other cases, poor maintenance and design contributed to infrastructure damage during the 2016 flood events.

11. **Similarly, irrigation, flood control, and drainage infrastructure play a pivotal role in Vietnam's economic and social development.** Despite the high annual rainfall, irrigation is used widely due to variation of rainfall in space and time. Approximately 60 percent of the arable land (4.5 million ha) is irrigated and provides the backbone to the country's agriculture, which in turn provides employment to 60 percent of the population. Crop production in the Central Region, including the area affected by the 2016 floods, predominantly relies on irrigation. Common irrigation systems include diverting water from local rivers, often by diversion of flow with low-height weirs, releasing water from reservoirs in the upstream mountainous areas, and, to a lesser extent, withdrawing groundwater in coastal areas. Dykes and riverbank protection works protect local communities and assets from high water levels and river floods. Irrigation and flood control systems in this region have been developed in the recent decades. However, these infrastructures are themselves susceptible to extreme flooding. As witnessed during the 2016 flooding, there was extensive damage to flood embankments/dykes, riverbank erosion protection works, irrigation canals and canal structures, temporary and raised dams, drainage culverts/sluices, and water supply schemes. In many cases, they were constructed a long time ago using the outdated technical design standards. In other cases, the infrastructures were installed with poor quality of construction and/or poor maintenance due to the lack of funds. Thus, reconstructing infrastructure that can withstand the onslaught of these recurring events is critical to providing people an adequate level of protection from natural hazards.

12. **The project will emphasize a 'build back better' approach in reconstructing and repairing damaged infrastructure.** This implies that reconstruction will focus on all phases of the infrastructure lifecycle, including design, construction, and maintenance. The proposed reconstruction civil works will fully apply the latest technical design standard, which incorporates the analysis of natural hazards' characteristics and severity and have been updated by the Government in the recent years. In addition, 'building back better' includes more than improved design standards and in this project will include emphasis on good design, quality construction including repairs, and adequate funding for maintenance. A combination of solid evidence-based planning, design and engineering solutions, information technology for early detection/forecast/response, adequate allocation of financial resources, and enabling the institutional environment can potentially yield significant economic benefits by maximizing the network integrity and minimizing negative economic and social impacts and human loss-related disastrous events.

13. **Over the last 10 years, Vietnam has made important strides in building resilience to natural hazards and the impact of climate change.** In 2007, the Government approved the National Strategy for Natural Disasters Prevention, Response, and Mitigation toward 2020 that shifted the focus of disaster risk management (DRM) from ex post response to ex ante preparedness. More recently, the National Assembly passed the first-ever law on 'Natural Disaster Prevention and Control' (Law No.33/2013/QH13), which became effective on May 1, 2014, and emphasizes an integrated approach to DRM under the direction of the newly designated CCNDPC. Critical areas of reform include delineation of institutional responsibility for key DRM functions, with the MARD as a lead coordinating agency. Despite these efforts, institutional capacity for disaster preparedness and response remains weak at the provincial level. One of the key challenges involves limited institutional coordination that limits the GoV's capacity to manage

disaster risks in a more systematic way. The proposed project builds on the World Bank's ongoing activities, especially the 'Vietnam: Managing Natural Hazards Project' and the 'Mainstreaming Disaster Resilience in Vietnam Programmatic Approach' technical assistance that are supporting the GoV in strengthening capacity for disaster and climate resilience. The reconstruction project will target its capacity-building efforts in the targeted five provinces and build on lessons learned from the ongoing activities.

14. The project focuses on climate-related disaster risk management, generating climate change adaptation co-benefits. The project aims to reduce the current and future risks and vulnerabilities that Vietn Nam is exposed to, both in the five target provinces where the proposed structural investments are focused (Ha Tinh, Quang Ngai, Binh Dinh, Phu Yen and Ninh Thuan), and also nationally through component 2.

D. Higher Level Objectives to which the Project Contributes

15. **This project will directly contribute to the GoV's vision to promote "a people-centered resilient growth by building back better" in the selected provinces**. It is fully in line with the World Bank's strategic engagement with Vietnam, the Systematic Country Diagnostic and the Country Partnership Framework (CPF) FY2017-2021 that both emphasize the importance of strengthening resilience to the country's poverty reduction and national development goals. The CPF identifies "climate change and disaster risk management" as one of the four cross-cutting areas, and improved flood control and the reduction of vulnerability to shocks are included under the main engagement areas for reducing rural poverty. The project also contributes to the World Bank's twin goals of ending extreme poverty and enhancing shared prosperity by investing in critical infrastructure such as transportation, flood protection, and irrigation.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

16. The Project Development Objective (PDO) is to reconstruct and rehabilitate infrastructure assets in disaster-affected project provinces and strengthen the capacity of the Government to effectively respond to future disaster events. The PDO will be achieved by rebuilding key infrastructure assets based on a 'build back better' approach emphasizing all stages of infrastructure life cycle including design, construction, and maintenance and strengthening institutional capacities for climate and DRM.

17. Achievement of efficacy will be assessed with 85 percent weight on reconstruction and rehabilitation of infrastructure assets and 15 percent weight on strengthening of the capacity of the government to effectively respond to future disaster events.

B. Project Beneficiaries

18. The main beneficiaries of this project include communities in the five flood-affected provinces that will benefit from the restoration and improvement of damaged infrastructure. Direct beneficiaries include over 1.2 million inhabitants in five provinces, of whom 52 percent are women and 9.4 percent are poor. Ethnic minorities in each of the provinces[9] will also be direct beneficiaries of project-funded

[9] Binh Dinh: Bana, H're, Cham H'roi; Quang Ngai: Xo Dang, H're, Co; Ninh Thuan: Cham, Ragnai; Phu Yen: Cham, E de, Bana; Ha Tinh: Muong, Thai, Lao

activities. The total population of the five provinces, around 5.1 million people, will also benefit, directly or indirectly, from the increased capacity of the provinces to 'build back better' infrastructure and respond more efficiently to disasters. Government officials from line ministries, including the MARD, MPI, MOF, and MOT, and the five provinces will benefit from enhanced disaster recovery capacity.

C. PDO-Level Results Indicators

19. Key PDOs will be measured through the following indicators. Further details are provided in the Results Framework and Monitoring.

(a) Direct project beneficiaries (disaggregated by gender and poor)

(b) Number of beneficiaries provided with improved/restored transport connectivity

(c) Area of land protected with reconstructed flood prevention/control infrastructure (ha)

(d) Area provided with irrigation and drainage services (ha)

(e) Satisfaction of beneficiaries with reconstructed/rehabilitated flood-damaged infrastructure that reflected their needs (percentage - disaggregated by gender and poor)

(f) Operations and maintenance plans of built infrastructure are adopted, budgeted, and implemented

(g) Number of provinces using the improved damage and loss assessment methodology to prioritize post-disaster recovery and/or reconstruction

III. PROJECT DESCRIPTION

A. Project Components

20. The proposed project will finance three components, which will be implemented over a period of four years (for further details on the component description, see Annex 1).

Component 1: Resilient Reconstruction of Damaged Public Use and Preventive Infrastructure at the Provincial Level (US$121.08 million, of which US$110.69 million IDA and US$ 10.39 million counterpart fund)

21. The objective of Component 1 is to strengthen resilience of flood-affected communities in five selected provinces through the reconstruction and rehabilitation of damaged critical provincial-scale infrastructure, especially irrigation, flood control, and road/bridge infrastructure. This component will be implemented by the selected provinces. The affected areas will benefit from restored access to public services/facilities, thereby increasing the economic growth and access to social services. The reconstructed critical flood prevention structures and the restored roads and bridges will also increase the safety of people and assets and serve as supply and rescue lines in the event of a disaster. It will have five subcomponents, each of which will be implemented by the respective provinces:

(a) **Subcomponent 1: Resilient Reconstruction in Binh Dinh Province (US$49.75 million IDA, US$4.07 million counterpart fund).** This subcomponent will fund resilient reconstruction of damaged roads, bridges, irrigation systems and natural disaster prevention/control structures in Binh Dinh Province.

(b) **Subcomponent 2: Resilient Reconstruction in Phu Yen Province (US$15.05 million IDA, US$1.26 million counterpart fund).** This subcomponent will fund resilient reconstruction of damaged roads, bridges, irrigation systems, and natural disaster prevention/control structures in Phu Yen Province.

(c) **Subcomponent 3: Resilient Reconstruction in Quang Ngai Province (US$14.58 million IDA, US$2.21 counterpart fund):** This subcomponent will fund reconstruction of damaged roads, bridges, irrigation systems, and natural disaster prevention/control structures in Quang Ngai Province.

(d) **Subcomponent 4: Resilient Reconstruction in Ninh Thuan Province (US$14.84 million IDA, US$1.67 million counterpart fund).** This subcomponent will fund reconstruction of damaged roads, bridges, irrigation systems, rural water supply system and natural disaster prevention/control structures in Ninh Thuan Province.

(e) **Subcomponent 5: Resilient Reconstruction in Ha Tinh Province (US$16.47 million IDA, US$1.18 counterpart fund).** This subcomponent will fund reconstruction of damaged roads, bridges, irrigation systems, and natural disaster prevention/control structures in Ha Tinh Province.

Component 2: Disaster Recovery Capacity Enhancement (US$2.43 million, of which US$2.0 million GFDRR grant and US$0.43 million counterpart fund)

22. The objective of Component 2 is to strengthen the institutional capacity of the Government at the central and provincial levels to respond to future disasters. It will be implemented by the MARD.

23. Component 2 will finance (a) evaluation of the effectiveness of the existing flood risk reduction efforts in the Central Region, using the 2016 floods as a case study; (b) building capacity of DRM agencies on the damage and loss assessment methodology; and (c) the development of emergency reconstruction and recovery procedures. Counterpart funding will partially support the participation of provincial officials to the training and workshop organized by Component 2.

Component 3: Project Management Support (US$12.32 million, of which US$7.31 million IDA and US$5.01 million counterpart fund)

24. The objective of Component 3 is to support project management, safeguards, audits, and monitoring and evaluation (M&E). It will be implemented by the Binh Dinh Provincial People's Committee (PPC). It will fund activities related to supporting project implementation such as overall reporting, independent project-related financial audits, safeguards monitoring, M&E, project oversight, construction supervision and management, midterm reviews, and end-of-project impact evaluations. Component 3 will also fund equipment and provision of training to strengthen the Provincial Project Management Units

(PPMUs), as well as individual consultants and operating costs. This component will also support coordination and reporting of the different components of the project.

B. Project Cost and Financing

25. **The total project cost is US$ 135.83 million, of which the lending instrument will be Investment Project Financing (IPF) in the amount of US$118 million to the GoV and the implementation period will be four years.** IDA Fund will be used for infrastructural investments under Component 1, grant resource is expected to be used for technical assistance under Component 2, and the counterpart fund will be mainly used to support the construction of infrastructural investments such as site clearance, land acquisition, subprojects' feasibility studies and safeguard instruments preparation, and project management.

26. It is expected that the grant resources will be secured by effectiveness and be available for parallel co-financing of Component 2 of the Project. A cross-effectiveness provision has been made in the Project Financing Agreement to ensure that the Recipient-Executed Trust Fund (RETF) Grant Agreement is signed and effective at the same time as the Financing Agreement. However, in case the grant resources are not available, the Project will be restructured to either have Component 2 financed by counterpart funds or to revise the scope of the Project activities, if counterpart funds cannot be secured.

27. A summary of the financing by component, IDA financing, and percentage is presented in Table 1.

Table 1. Project Cost and Financing by Project Component (in US$, millions)

Project Components	Project Cost	IBRD or IDA Financing	Trust Funds	Counterpart Funding
Component 1: Resilient Reconstruction of Damaged Public Use and Preventive Infrastructure at the Provincial Level	121.08	110.69	0.00	10.39
Component 2: Disaster Recovery Capacity Enhancement	2.43	0.00	2.00	0.43
Component 3: Project Management Support	12.32	7.31	0.00	5.01
Total Costs	***135.83***	***118.00***	***2.00***	***15.83***
Total Project Costs	***135.83***	***118.00***	***2.00***	***15.83***
Front End Fees	***00.00***	***00.00***	***0.00***	***0.00***
Total Financing Required	**135.83**	**118.00**	**2.00**	**15.83**

C. Lessons Learned and Reflected in the Project Design

28. The proposed project builds on lessons learned from the World Bank's extensive experience supporting operations such as the past Natural Disaster Risk Management Project or the ongoing Vietnam: Managing Natural Hazards and Dam Rehabilitation and Safety Improvement Projects and the GFDRR-funded Mainstreaming Disaster Resilience in Vietnam Programmatic Approach, as well as the World Bank's global experience in post-disaster emergency infrastructure reconstruction projects including, for example, the Myanmar Flood and Landslide Emergency Recovery Project, the Cambodia Ketsana

Emergency Reconstruction and Rehabilitation Project, and the India Disaster Recovery Projects. The main lessons learned that have been incorporated into project design are the following:

(a) **Enhancing the climate resilience of the infrastructure to be rehabilitated is a priority.** Emergency reconstruction projects have a heavy focus on the restoration of the infrastructure damaged by the floods. It is recognized that the reconstruction project, though prepared under a shorter time frame, also provides a good opportunity to 'build back better' by improving the design and quality of infrastructure to be restored and reconstructed, thus enhancing its longevity and resilience of local communities. This project very much incorporates these 'build back better' principles. Further, review of the current design standards for transport and flood protection/irrigation infrastructure will also be undertaken to recommend improvements where applicable based on assessment of the flood risk at the river basin level, taking into account potential climate change effects.

(b) **Decentralized implementation and streamlined institutional and implementation arrangements are the right approach to build capacity at the provincial level.** In some cases, new reconstruction agencies need to be established, for example, as was the case with the Nepal earthquake housing reconstruction project. However, experience has shown that where possible it is more efficient to leverage existing arrangements and strengthen capacity. In this project, decentralized project implementation arrangements are used where the provinces, especially existing PPMUs from the World Bank-funded Dam Rehabilitation and Safety Improvement Project, are the main implementing agencies. Further, their capacity will be extensively supported through Components 2 and 3.

(c) **Maintenance is a critical issue for long-term sustainability of infrastructure.** Well-maintained reconstructed infrastructures can provide a cost-effective and sustainable solution to community access. For example, maintenance of roads, irrigation canals, and dykes is a common challenge, since these are not always adequately funded. Lack of maintenance leads to unnecessary weakening of the structures, increasing their vulnerability. To address this issue, the operations and maintenance (O&M) procedures developed by the World Bank-funded road assessment management system and irrigation modernization and reform will be incorporated into the detailed technical design packages to ensure that maintenance is incorporated into the work flow of the provinces.

(d) **Streamlined procedures for fast-tracking of the Government's fund allocation and implementation arrangements are critical for emergency recovery and reconstruction.** Despite the challenges of not having such a streamlined procedure in place during the emergency recovery loan preparation, it has proved to be a good opportunity for central and provincial governments to be advocated the needs of establishing a streamlined procedure for emergency recovery and reconstruction preparation and implementation. Component 2 will thus support line ministries and provinces to review the current procedures and develop recommendations on financial instruments and mechanisms for the fast-tracking of emergency funds. It will enable a better Government response to the needs of post-disaster recovery and reconstruction.

(e) **Focus on adaptation and preparedness for the future is an important complement to infrastructure investment.** Globally, there is evidence that some disaster response

programs have focused too heavily on rebuilding infrastructure and not sufficiently on strengthening capacity for adaptation and preparedness. This is critical as risk-sensitive planning can help safeguard these investments. Moreover, the direct and indirect benefits from investing in prevention and preparedness measures are far greater than the potential costs that will be incurred without them. Scaling up of the Vietnam – Managing Natural Hazards (VN-Haz)-supported integrated flood risk management plan using the river basin approach in the project's target provinces and other provinces in the Central Region helped provincial authorities achieve sustainable recovery and long-term disaster risk reduction.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

29. **Project coordination and management.** The project will be implemented in a decentralized manner under the direction of PPCs in each of the five provinces. The PPCs will guide, support, and supervise the respective PPMUs. Binh Dinh's PPC will play an oversight role at the provincial level, and its PPMU will be responsible for liaising and coordinating with the Project Management Units (PMUs) in the other four provinces. In addition to a regular PPMU's responsibilities, the Binh Dinh PPMU will be in charge of the day-to-day overall implementation and management of the project, except Component 2, which will be managed by the MARD. The Binh Dinh PPMU will hire a project M&E and Coordination Consultant to help coordinate project activities.

30. **Project implementation.** The existing PPMUs at selected provinces, which are currently in charge of implementing the World Bank-funded Dam Rehabilitation and Safety Improvement Project, will be utilized for this project. These units are familiar with the World Bank's requirements and procedures on fiduciary and safeguard policies. As such, they will be in charge of the day-to-day management and implementation of the project in their respective province. However additional staff will need to be added to each of the PPMUs who can dedicate efforts to implementation of the emergency project. Qualified full-time senior Transport Engineers and Procurement Experts with an engineering background, fully responsible for handling the Systematic Tracking of Exchanges in Procurement (STEP, the World Bank's procurement network that is mandatorily used), and at least two senior Transport Engineers who have experience in road and bridge design and construction have been mobilized by all PPMUs. The PPMUs will be responsible for the preparation of engineering designs, safeguard mitigation plans, procurement, financial management (FM), contract administration, and all aspects of project management at the provincial level.

31. Component 2 will be implemented by the MARD under the guidance of the CCNDPC. The CCNDPC will provide overall strategic, policy, and coordination among various Government agencies (for example, the MPI, MOF, MOT) and provinces to facilitate the implementation of the component as designed. A PMU will be established in the Directorate of Water Resource of the MARD to be in charge of the implementation monitoring, audit, procurement, FM, contract administration, and payment to contractors as well as handing over.

32. **Citizen engagement in this project is in line with broader efforts to mainstream good governance and a consultative process into operations, as guided by the principles of participation, transparency, and accountability of CPS 2012-2016.** During implementation, citizen engagement will be fostered through (a) active consultation with communities (for instance, those living alongside the roads or behind the dyke to be rehabilitated) in the design, construction, and maintenance of civil works; (b)

formation of a community supervision group in each project location to provide oversight for subproject implementation according to the Vietnamese regulations; and (c) setting up of grievance redress mechanisms (GRMs). Environmental and social safeguards documents also emphasize consultations with project beneficiaries and affected communities. The preparation of safeguards as well as technical documents will collect baseline data for tracking citizen engagement, including relating to the accessibility of citizens to different types of roads and participation in labor-intensive work. During implementation, feedback will be collected from beneficiaries on project activities, results, and how grievances in relation to the implementation of the project are addressed. A citizen engagement indicator has also been included to assess the overall development impact of this project.

33. **Implementation readiness.** A number of steps are being undertaken to ensure implementation readiness. The existing PPMUs for the Dam Rehabilitation and Safety Improvement Project with core qualified staff members have already been assigned to be in charge of this project. In addition to the staff mobilization, the project target provinces have also been mobilizing available resources, experiences, and results gained from other ongoing projects for preparation of the feasibility study (FS), technical design, Project Operations Manual (POM), and so on to ensure both quality of the project documents and meeting of the emergency readiness conditions. Particularly, the POM, clarifying roles and responsibilities, was approved by PPCs in on May 4, 2017. A Project Procurement Strategy for Development (PPSD) and procurement plans for all five provinces have been prepared. Bid documents including detailed technical design for priority packages are under preparation. It is expected that the bidding process for some of the priority civil work packages will be completed before effectiveness and the construction will start immediately after the project becomes effective. In addition, key consultancies to support project implementation, such as construction supervision and project M&E, will be procured within the effectiveness period. To support this process, terms of reference for key consultancies (for example, for detailed designs and supervision of works) are under preparation and will be agreed upon before effectiveness. Financial reporting requirements and auditing arrangements have been agreed and are detailed in Annex 2.

34. **Coordination with other donor-financed projects in the five target provinces.** The World Bank is financing the following projects: (a) Dam Rehabilitation and Safety Improvement Project in all five provinces; (b) Vietnam - Managing Natural Hazards (VN-Haz) Project in Ha Tinh, Quang Ngai, Binh Dinh, and Ninh Thuan; (c) the Coastal Resources for Sustainable Development in Binh Dinh, Ha Tinh, and Phu Yen; (d) Vietnam Central Highlands Poverty Reduction Project in Quang Ngai; (e) Vietnam Irrigated Agriculture Improvement Project in Ha Tinh; and (f) Da Nang - Quang Ngai Expressway Development Project in Quang Ngai. The project will continue to coordinate with these ongoing projects to effectively support the provincial development priorities and project implementation, particularly on resource mobilization of counterpart finance, staff, procurement plan, M&E, and construction supervision.

35. The project will also support dialogue, during its implementation, to ensure complementarity of the project with the Integrated Rural Development Sector Project in the central provinces financed by the Asian Development Bank (ADB) and the ongoing disaster reduction initiatives supported by the Japan International Cooperation Agency (JICA). The dialogue will aim to strengthen coordination and leverage supports of development partners to contribute to the endeavors of the PPCs to achieve their sustainable development goals.

B. Results Monitoring and Evaluation

36. The Results Framework will be used to monitor and evaluate the achievement of the PDO and the outcome indicators. Project monitoring will occur periodically and will include process reviews/audits, reporting of outputs, and maintaining progressive records.

37. As part of its responsibility for overall project coordination at the provincial level, the Binh Dinh PPMU will undertake monitoring and reporting activities including reporting on the Results Framework. This will include a baseline and end-term survey of beneficiaries. Each PPMU will be responsible for collecting data and reporting on the results indicators and share with the Binh Dinh PPMU that will compile data and information from the participating provinces and report on overall implementation progress. Sufficient budget from the Project Management component will be allocated to M&E.

38. Regular semi-annual progress reports will need to be submitted to the Binh Dinh PPMU by all participating provinces. The progress reports will cover (a) physical and financial progress; (b) survey of and consultation with beneficiaries, dissemination of information, and level of public awareness; (c) issues and problem areas, including remedial actions; and (d) work programs and cost estimates for the coming year, including revised estimates for the former period. A regular semi-annual progress report will be prepared by the MARD PMU to monitor progress and report on Component 2 activities.

39. An M&E and Coordination Consultant will be recruited by the Binh Dinh PPMU. S/he will be responsible for reporting on the Results Framework and will also support the Binh Dinh PPMU in overall monitoring and reporting for the project. S/he will also support reporting on overall environment and social safeguards and resettlement process based on inputs from each of the provinces and will review and monitor for each subproject the specific Social and Environmental Management Plans and supervise their implementation.

C. Sustainability

40. For long-term sustainability of project interventions, three issues are critical. These are (a) appropriate design and construction of infrastructure that is suitable to local conditions; (b) allocation of adequate budget by the provinces for long-term maintenance of rehabilitated infrastructure; and (c) adequate staff capacity at the provincial level that can maintain the infrastructure, integrate resilience issues into infrastructure design, and strengthen capacity for disaster preparedness and response more broadly. Several actions are incorporated in the project design to address these issues. First, structural investments under the project will be designed using ‘build back better’ principles to improve the long-term sustainability of critical public infrastructure. Resilience will be improved through the integration of innovative technologies, which will extend the durability of public infrastructure. Using best practices for engineering studies and designs, along with construction supervision at the sites and technical audits, will ensure high quality. Second, procurement packages for the works will be structured so that the bidder will train provincial staff on O&M during the project implementation period. To ensure long-term maintenance of rehabilitated infrastructure, the plans for routine and periodic maintenance, as well as the maintenance cost estimate of the subproject, will be included in the detail technical design report that will be approved by the provinces before construction. The provincial responsible authorities such as the Department of Transport and Department of Agriculture and Rural Development will carry out the routine and periodic maintenance during the operation course of the reconstructed infrastructures, using the systems established for O&M of assets under the support of other World Bank-funded projects-Vietnam Road Asset Management Project and Vietnam Irrigated Agriculture Improvement Project. Finally, through

the project, provisions will be made for further enhancing the institutional capacity of technical staff at the provincial level so that they receive adequate training to support O&M, incorporate 'build back better' principals in infrastructure design and also for disaster preparedness and response.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

41. The main risks for this project relate to (a) political and governance risks, (b) institutional capacity for implementation and sustainability, c) fiduciary, and (d) macroeconomic context. These are briefly discussed in this section.

42. **Political and governance risks.** In June 2107, Vietnam will officially graduate from IDA with lower access to concessional official development assistance (ODA) and increasingly less concessional loans. This will pose challenges for the country in meeting its debt obligations. The GoV is currently adjusting its strategies to accelerate growth and change its approach to using ODA financing. Particularly, it is reluctant to use ODA resources for institutional capacity-building activities. To address this risk, the project will use trust fund resources (for Component 2) that will focus on institutional capacity strengthening and training activities to complement IDA-funded activities. The MPI and provinces will also make every effort to ensure fast implementation of reconstruction activities. There is also an inherent governance risk associated with decentralized implementation of this project with five participating provinces with uneven capacity and varying levels of experience. Differences in capacity can lead to different pace of implementation of project activities. Risks due to decentralized governance and institutional capacity will be mitigated by supporting PPMUs with extensive training on project management and coordination to support them in coordinating activities at the provincial level. This risk will also be mitigated by confirmation of counterpart funds by provinces and close supervision and capacity support by the MPI. In addition, after 18 months of project implementation, budget allocation among the provinces will be adjusted and reallocated if any of the provinces do not meet the time frame and milestones set up in the 18-month Procurement Plan.

43. **Institutional capacity for implementation and sustainability risks are considered Substantial.** Mobilizing the existing PPMUs in each of the provinces that have experience with the implementation of other projects financed by the World Bank will advantage the preparation. Adding more tasks and responsibilities to them could however strain their capacities. These capacity constraints will be addressed by the following: (a) technical support from qualified project management consultants for fiduciary, procurement, and safeguards measures; (b) adequate project manuals, such as a POM, which will clarify respective roles and responsibilities, and a Financial Management Manual, spelling out procedures and internal controls designed to prevent and detect potential funds misuse; (c) training of staff on procurement, project governance and integrity, FM, and safeguards, among others, if necessary, and (d) sustained support from the task team throughout the project life for implementing agencies. Environmental and social safeguards risks will be addressed through agreed safeguards instruments. Including the detailed O&M plan in the technical design documents of all subprojects, as well as leveraging and promoting the O&M systems established by other World Bank-financed projects in the project implementation, will further enhance the sustainability of the reconstruction investments.

44. **The fiduciary risk is rated Substantial** given that procurement and financial management systems for the project have been established and being operational and that the implementing agencies have had considerable experience with Bank procurement and financial management. To mitigate these risks, the

following measures, agreed with the PPMUs, will be implemented: (a) urgent recruitment of qualified consultants for preparation of detailed designs and bidding documents; (b) urgent preparation, finalization, and regular updating of the PPSD and Procurement Plan; (c) continuous training for PPMU staff and relevant officials on the World Bank's Procurement Regulations and contract management throughout project preparation and implementation; (d) preparation of a detailed procurement guidance for the PPMUs; and (e) recruitment of qualified consultants to support PPMUs in procurement and contract management.

45. **Macroeconomic risk is mainly associated with Vietnam's medium-term economic outlook and macroeconomic stability.** On balance, while this outlook remains positive, it is subject to downside risks. Domestically, delayed implementation of structural and fiscal reforms may worsen medium-term growth prospects. On the external side, Vietnam's economy remains susceptible to a further slowdown in the global economy and a potential rise in protectionist policies through trade and investment channels, which may eventually erode the expected impacts of this operation. Weakening growth prospects may in turn intensify demand for further loosening of monetary and fiscal policies, with the risk of stoking inflationary pressures, which will erode the expected impacts of this operation. These risks are partially being mitigated by the ongoing macroeconomic policy dialogue with the authorities on maintaining sound and supportive macroeconomic stance that will strengthen resilience, mitigate risks, and place Vietnam on a higher sustainable growth path that delivers robust long-term prosperity.

VI. APPRAISAL SUMMARY

A. Economic and Financial (if applicable) Analysis

46. The project investments focus on three infrastructure categories, namely, transportation, irrigation, and flood control. Road and bridge subprojects help save travel time and vehicle operating costs. Restoration of irrigation facilities supports agricultural livelihoods and, in some cases, had combined irrigation and flood protection or water supply benefits. Restoration and strengthening of flood control facilities protect human lives and household assets, agricultural livelihoods, private and public infrastructure, and so forth.

47. A cost-benefit analysis was conducted to calculate the economic internal rate of return (ERR) and net present value (NPV) of the project. Benefits of the project are the direct and indirect income and impact from the project's activities. Shadow pricing conversion factors (CFs) of 0.9 for investments and 0.8 for labor were used. The aggregate economic impact considered the expected ERR from the subproject investments and the aggregate costs and benefits of the project areas. The estimated ERRs vary between 11.3 percent and 32.4 percent and all show positive NPVs. This sample scheme is a good combination of all investments to be financed. The overall economic analysis shows that the aggregate project investments have an ERR of about 18.9 percent and NPV of about VND 1,671.9 billion.

48. The financial assessment confirmed that reducing the expected losses due to natural hazards is contributing significantly to improving the livelihood of the poor in the project areas. The analysis focused on the beneficiaries' income and how by reducing the expected losses the project improves expected income of poor families. Crop and livestock activity budgets and farm models were prepared for quantifying the effects of the expected reduction of production and other losses before and after the

project improvements. The project improvements allowed for increases in household income of about 21.0-35.0 percent depending on the area and the type of works implemented.

B. Technical

49. Component 1 supports the reconstruction and rehabilitation of the most critical road, bridge, irrigation, and flood control/prevention infrastructures in the selected provinces to quickly restore access to basic services for flood-affected communities and enable them to resume their livelihood activities. Road, bridge, irrigation, and flood control/prevention infrastructures will be designed and built in a resilient manner. In addition, road safety issues will also be adequately considered in the design and implementation stages of the reconstruction and rehabilitation of damaged roads and bridges. During the course of the project, engineers from the provinces will be given training on design and construction supervision of disaster-resilient water infrastructure, especially dykes and riverbank protection works, so that the irrigation and flood control infrastructure to be constructed in future will be resilient to extreme weather events.

50. Component 2 focuses on learning from global experiences in integrated flood risk management that will help Vietnam and its communities respond better to disaster. Equally important, the project will support the Government to address the fragmented and incoherent procedures for planning and resource mobilization across administrative levels, as well as to develop financing options for swift access to funds after a natural disaster, a time when liquidity constraints are usually very high. This is a key part of a broader risk management strategy in countries such as Vietnam.

C. Financial Management

51. **Implementation arrangements.** The existing PPMUs will be solely responsible for FM of the projects. Key proposed FM personnel have experience in managing other World Bank projects, particularly the Dam Rehabilitation and Safety Improvement Project. The FM function arrangement for the implementation of this project in the target provinces meets the World Bank's minimum FM requirements. Key FM functions to be performed by PPMUs include project annual financial statements and external audits; management of the Designated Account (DA); expenditures approval; contract management and payments; maintenance of accounting records; and working with auditors/inspectors. Funds flow will be channelled through the DAs at commercial banks. Each of the five PPMUs will manage one DA for the activities implemented in their provinces. The ceiling of each account will be US$10 million for each of the five DAs.

52. **The action plan to strengthen PPMUs includes** (a) preparation of a POM with detailed FM guidelines and (b) adequate budget allocation for both ODA and counterpart funding for project implementation.

D. Procurement

53. In each of the five project provinces, namely, Ha Tinh, Quang Ngai, Binh Dinh, Phu Yen, and Ninh Thuan, PPMUs have been established that are currently executing several projects including some World Bank-financed ones. A procurement risk and capacity assessment was conducted that identified the following main procurement risks to project implementation: (a) delays in preparation of detailed designs and bidding documents that could lead to overall project implementation delays; (b) the PPMU's unfamiliarity and inexperience with the World Bank's new Procurement Regulations that could lead to

procurement delays or noncompliance; and (c) limited experience of PPMUs in contract management. To mitigate these risks, the following measures, agreed with the PPMUs, will be implemented: (a) urgent recruitment of qualified consultants for preparation of detailed designs and bidding documents; (b) urgent preparation, finalization, and regular updating of the PPSD and Procurement Plan; (c) continuous training for PPMU staff and relevant officials on the World Bank's Procurement Regulations and contract management throughout project preparation and implementation; (d) preparation of a detailed procurement guidance for the PPMUs; and (e) recruitment of qualified consultants to support PPMUs in procurement and contract management. The project procurement risk is rated Substantial and the residual risk after the mitigation measures are implemented is rated Moderate.

54. Procurement for the project shall be carried out in accordance with the World Bank's 'Procurement Regulations for IPF Borrowers: Procurement in IPF - Goods, Works, Non-Consulting, and Consulting Services' dated July 2016 (the Procurement Regulations) and the specific provisions stipulated in the Financing Agreement. The procurement arrangements for the project are presented in annex 2. All procurement activities under the proposed project will be entered into, tracked, and monitored online through the World Bank's STEP system. All PPMUs have already received training on STEP.

E. Social (including Safeguards)

55. **Social impacts.** In situations of urgent need of assistance because of a natural disaster, the World Bank's OP 10.00 (IPF) allows for the safeguards requirements set out in OP/BP 4.01, OP/BP 4.10, and OP/BP 4.12 that are applicable during project preparation to be deferred to the project implementation phase. When compliance with the environmental and social requirements is recommended to be deferred to the project implementation stage, project documents include an action plan addressing the application of environmental and social policies (see annex 6).

56. The project will support resilient recovery and reconstruction in five priority provinces affected by the 2016 floods and future climate-related events. The project will generate positive benefits to disaster-affected people including the poor, women, and ethnic minorities, in the form of improved access to critical infrastructure and services and resilience enhancement as well as agricultural production support by improved irrigation systems. Specific investments for the first 18 months of implementation have been identified. Additional benefits include local employment and income generation for men and women in the project areas, as civil works in infrastructure reconstruction will require both skilled and unskilled labor. This will help the local population rebuild their livelihoods that have been damaged by the disasters. According to preliminary assessment of the provinces, it is expected that land acquisition will be marginal with no household relocation anticipated. In addition, there is potential loss of livelihoods due to the temporary restriction of access and interruption of irrigation water supply during the construction period. The detailed assessment of the impact level will be conducted during preparation of the Resettlement Action Plan (RAP).

57. **Involuntary resettlement.** The project will require land acquisition and hence OP/BP 4.12 (Involuntary Resettlement) is triggered. In accordance with OP 4.12, for sector investment operations that may involve involuntary resettlement, the World Bank requires that the project implementation agency screen subprojects to be financed by the World Bank to ensure their consistency with this operational policy. For these operations, the borrower submits, before appraisal, a Resettlement Policy Framework (RPF) that conforms to this policy. According to GoV requirements set forth in the Land Law 2013 and Decree 16/2016/ND-CP guiding the ODA utilization and management, an RPF for five project provinces

has been prepared and will be approved in June 2017. The RPF guides principles and procedures to identify, assess, minimize, and mitigate social impacts, including screening criteria, eligibility criteria, the entitlement matrix and valuation methodology, and implementation arrangements to be applied to subproject RAPs. All subproject RAPs will be prepared and submitted to the World Bank for approval. The respective PPC will then approve the RAPs and all compensation, assistance, and resettlement activities should be completed before civil works commencement. According to the World Bank's requirements of public consultation and disclosure, the draft RPF was disseminated and disclosed in-country to relevant stakeholders during the week of March 9-22, 2017 in the five project provinces. The consultation results were reflected in the draft RPF. The first draft Vietnamese version of the RPF was disclosed on the website of Binh Dinh (as a coordinating/focal point) on March 22, 2017. The final draft RPF was disclosed on the World Bank portal on March 27, 2017. The final RPF once approved will be disclosed on the borrower's respective websites and on the World Bank internal and external websites subsequently.

58. **Indigenous peoples.** An initial screening conducted by a World Bank specialist has confirmed that there are ethnic minority communities according to the World Bank's OP 4.10 definition, to be benefited from the project, and hence the World Bank policy on Indigenous Peoples, OP/BP 4.10, will be triggered. An Ethnic Minority Planning Framework (EMPF) will be prepared, guiding procedures to ensure free, prior, and informed consultation with affected ethnic minority communities to ascertain their broad community support and measures to ensure they benefit from project supports and to minimize/mitigate any adverse impacts on them. The EMPF outlines and guides the preparation and implementation of subproject Ethnic Minority Development Plans (EMDPs) based on the social assessment (SA) to be carried out to identify ethnic minorities and potential project impacts on them in the project area. The SA and preparation of the EMPF will be carried out early in the project implementation stage to adequately inform the preparation of site-specific EMDPs.

59. In addition to the RPF, other social safeguard documents to be prepared under the project include the EMPF, RAPs, and EMDPs, and are all deferred to the project implementation. Given the nature of emergency for implementing the critical works to be completed before the upcoming flooding season in September, subproject RAPs/EMDPs for critical works should be available and approved before commencement of civil works tentatively in June 2017. Given that the subprojects/activities for the priority investment for the first 18 months of implementation have been identified, all five provinces will require subproject RAPs that involve involuntary resettlement and three EMDPs for Quang Ngai, Binh Dinh, and Ninh Thuan, where there are affected ethnic minority people. They will be prepared and submitted to the World Bank for review and clearance in June 2017. No civil works will commence before approval and disclosure of these safeguard instruments.

60. **Gender.** The rapid assessment found that overall women have been more negatively affected than men by the 2016 flood events. With the loss of food stocks and livestock, inundation of farmland and subsequent loss of agricultural labor, and the inability to look for alternative livelihoods, women are under considerable burden to provide food and nutrition for their families, and they have fewer resources and options for alternative livelihoods when compared with men. Consultation with communities will involve both men and women during implementation. The PPMUs will engage with local chapters of the women's unions to carry out flood information dissemination as part of outreach efforts to flood-vulnerable communities, especially poor and ethnic minority women. Engaging the women's unions will also help disseminate information about job opportunities in civil construction works to women, especially poor and ethnic minority ones, and mobilize them to take those opportunities to earn incomes. Special measures and assistance will be developed to help men/women better cope with the flood risks and

consequences. At the same time, efforts will include awareness-raising activities on hygiene, sanitation, and waste disposal issues at the household and community levels to reduce health problems, especially for women and children in flood-prone areas.

F. Environment (including Safeguards)

61. **Applicable environmental safeguard policies.** The project has been classified as Category B under OP 4.01. All works will focus on rehabilitation and reconstruction of infrastructures damaged during the flood, which are expected to be of small and medium scale and to be implemented in the existing road's and bridge's right-of-way, generating only minor to moderate and localized environmental and social impacts that can be easily identified, mitigated, and managed. No large-scale, significant, and/or irreversible impacts are expected. Overall, the expected environmental impacts are mostly associated with the construction phase of the rehabilitation works and include debris management, worker sanitation, noise control, use of hazardous materials, soil erosion, and so on. Further screening of subprojects should be undertaken during implementation to ensure their eligibility, and Category A subprojects will be excluded. The impacts and mitigation measured will be addressed during the preparation of the project Environmental and Social Management Framework (ESMF) and Environmental and Social Management Plans (ESMPs) or Environmental Codes of Practice (ECOPs) for these subprojects, including those associated with labor influx. Therefore, the project has been categorized as Category B for environment. The following World Bank safeguard policies have been triggered: (a) Environmental Assessment (OP 4.01); (b) Natural Habitats (OP/BP 4.04); (c) Pest Management (OP 4.09); and (d) Physical Cultural Resources (OP/BP 4.11).

62. The project's overall potential socio-environmental impacts will be positive as it is expected to benefit the affected communities in the districts that were affected by loss of public service infrastructure, which will be restored and improved under the project. In addition, the total population of the five provinces, around 5.1 million, will benefit either directly or indirectly from improvements expected to result from incorporating the 'build back better' approach in the technical designs, as well as the increased capacity of the provinces to manage and respond to disasters.

63. During project preparation, environmental and social safeguard screening was conducted for the whole project, with a focus on the five subprojects for the first 18 months of implementation, to ensure that the proposed project is subject to the appropriate extent and type of environmental assessment (EA). The screening of these five subprojects confirmed the scope of impacts described below and that no significant adverse impacts on natural habitats, physical cultural resources, land acquisition, resettlement, and ethnic minorities would be anticipated. The screening identified that five ESMPs, five RAPs, and three EMDPs will be prepared for the five subprojects for the first phase of implementation to satisfy the World Bank's safeguard requirements.

64. The potential adverse social and environmental impacts would be those associated with construction and operation of the proposed physical investments under Component 1 and ancillary works such as quarry areas, sources of construction materials, disposal sites for nonhazardous wastes, and so on. These include commonly known construction impacts and risks, such as (a) safety risks related to unexploded ordinances left from the war; (b) loss of vegetation cover and trees (c) increased level of dust, noise, and vibration; (d) pollution risks related to removal and disposal of substantial quantities of nonhazardous construction materials associated with the destroyed structures (embankment protection devices and bridges) consisting of concrete, scrap metal, stone, and sand from irrigation canals and small

streams; (e) traffic disturbance and increased traffic safety risks; (f) erosion and landslide risk on slopes and in deeply excavated areas as well as potential negative impacts on existing weak facilities; (g) interruption of existing infrastructure and services such as water and power supply; (h) disturbance to daily socioeconomic activities in the project areas; (i) health and safety issues related to the public and the workers at construction sites; (j) social impacts associated with business disruption by construction-related activities and mobilization of workers to the site including due to relocation of graves; (k) land acquisition in case of widening/improving the damaged structures; and (l) impact on ethnic minority communities in the project areas. Screening of the five subprojects for the first 18 months of implementation also confirmed these scopes of impacts

65. The project is considered an emergency operation and procedures described in OP 10.00 apply. Accordingly, the RVP reached a decision to allow safeguard requirements to be deferred to the implementation stage. Specifically, preparation of the project ESMF, EMPF, and subproject ESMPs/ECOPs, RAPs, and EMDPs will be deferred to the implementation. As a result, and consistent with this policy and the RVP decision, a Safeguard Action Plan has been prepared (see annex 6).

66. **ESMF.** Since only subprojects for the first 18 months have been identified in detail, and the remaining specific interventions will be further developed during implementation, an ESMF will be developed to provide general guidelines to the client to ensure that the proposed project is implemented in an environmentally and socially sustainable manner and in line with the applicable World Bank safeguard policies and Government regulations. The ESMF will be reviewed and cleared by the World Bank.

67. **Subproject ESMPs/ECOPs.** Given that the subprojects/activities for the priority investment for the first 18 months of implementation have been identified, five subproject ESMPs, one for each province, will be prepared immediately at implementation by the client meeting the World Bank's requirements to enhance the positive impacts and address the adverse impacts. Preparation of the ESMPs for these investments will be completed for review and clearance by the World Bank in June 2017. Preparation of the remaining subproject ESMPs/ECOPs will follow the guidance provided in the ESMF. All the ESMPs/ECOPs will be reviewed and cleared by the World Bank. No civil works will commence before approval and disclosure of these safeguard instruments.

68. **Safeguard Implementation and Monitoring.** The PPMU, as an implementing agency, will be responsible for the preparation and implementation of safeguard instruments, which will include monitoring. During project implementation, the PPMUs will be responsible for preparing and ensuring the effective implementation of safeguard measures (such as the RPF, EMPF, RAPs, EMDPs, ESMF, ESMPs, and ECOPs) and regularly liaising with local authorities and communities. There will be regular reporting on safeguard implementation. The PPMUs, contractors, construction supervision consultants, and local community representatives will receive training on preparation and implementation of the project's safeguard instruments.

69. **Public consultation and information disclosure.** The affected people and communities and other relevant stakeholders will be consulted on the ESMF, RPF, EMPF, RAPs, EMDPs, ESMPs, and ECOPs. At least one public consultation will need to be conducted when the drafts of these safeguard instruments are prepared. Feedbacks from the consultations as appropriate will be incorporated into the subproject design and the final draft RPF, EMPF, RAPs, EMDPs, ESMF, ESMPs, and ECOPs. Consultation with the affected communities and people and other related stakeholders will be continued during project

implementation. The Vietnamese version of the RPF, EMPF, RAPs, EMDPs, ESMPs, ESMPs, and ECOPs will be disclosed locally at the PPMUs' offices, related provincial and district departments, and subproject areas. The English version of these documents will be disclosed on the World Bank's internal and external websites.

G. Other Safeguard Policies (if applicable)

70. No other safeguard policies are triggered for the project.

H. World Bank Grievance Redress

71. 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/GRS. For information on how to submit complaints to the World Bank Inspection Panel, please visit http://www.inspectionpanel.org.

VII. RESULTS FRAMEWORK AND MONITORING

Note to Task Teams: The following sections are system generated and can only be edited online in the Portal.

Results Framework

COUNTRY : Vietnam

Vietnam - Emergency Natural Disaster Reconstruction Project

Project Development Objectives

The Project Development Objective (PDO) is to reconstruct and rehabilitate infrastructure assets in disaster-affected project provinces and strengthen the capacity of the Government to effectively respond to future disaster events.

The PDO will be achieved by rebuilding key infrastructure assets based on a 'build back better' approach emphasizing all stages of infrastructure life cycle including design, construction, and maintenance and strengthening institutional capacities for climate and DRM. Achievement of efficacy will be assessed with 85 percent weight on reconstruction and rehabilitation of infrastructure assets and 15 percent weight on strengthening of the capacity of the government to effectively respond to future disaster events.

Project Development Objective Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Direct project beneficiaries		Number	0.00	1257245.00	Annual	Reports	PPMUs
Female beneficiaries		Percentage	0.00	52.00	Annual	Monitoring report	PPMUs

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Beneficiaries (Poor)		Percentage	0.00	9.43	Annual	Reports	PPMU
Description: Direct beneficiaries are people or groups who directly derive benefits from an intervention (i.e., children who benefit from an immunization program; families that have a new piped water connection). Please note that this indicator requires supplemental information. Supplemental Value: Female beneficiaries (percentage). Based on the assessment and definition of direct project beneficiaries, specify what proportion of the direct project beneficiaries are female. This indicator is calculated as a percentage.							
Name: Number of beneficiaries provided with improved/restored transport connectivity		Number	0.00	460152.00	Annual	Reports	PPMUs
Description: Beneficiaries are people or groups directly benefited from the improved/restored transport connectivity (i.e. people who are living on/around the roads improved/restored by the project; people or groups who get access to bridges improved'/restored by the project, and so on.)							
Name: Area of land protected with reconstructed flood prevention/control infrastructure (ha)		Hectare(Ha)	0.00	31605.00	Annual	Monitoring reports	PPMUs
Description: Total area of land is protected from flood prevention/control infrastructures restored and rehabilitated under the project							
Name: Area provided with new/improved irrigation or drainage services	✓	Hectare(Ha)	0.00	20601.00	Annual	Monitoring reports	PPMUs
Area provided with	✓	Hectare(Ha)	0.00	0.00			

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
improved irrigation or drainage services							
Area provided with new irrigation or drainage services	✓	Hectare(Ha)	0.00	20601.00	Annual	Monitoring reports	PPMUs
Description: This indicator measures the total area of land provided with irrigation and drainage services under the project, including in (i) the area provided with new irrigation and drainage services, and (ii) the area provided with improved irrigation and drainage services, expressed in hectare (ha).							
Name: Satisfaction of beneficiaries with reconstructed/rehabilitated flood-damaged infrastructure that reflected their needs (percentage - disaggregated by gender and poor)		Percentage	0.00	60.00	Annual	Beneficiary survey	PPMUs
Description: Satisfaction rate towards improved services for the needs of beneficiaries, calculated as a percentage of total direct beneficiaries. Survey samples should present adequate representative proportion of female and poor in the project areas. This will be assessed through a beneficiary surveys conducted at mid term (third year) and end of project implementation, which will also assess gender specific aspects.							
Name: Operations and maintenance plans of built infrastructures are adopted, budgeted and implemented		Number	0.00	47.00	Annual	Reports	PPMUs
Description: Number of O&M plans, including budget allocation are developed, adopted and implemented by the project provinces							

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Number of provinces using improved damage and loss assessment methodology to prioritize post-disaster recovery and/or reconstruction		Number	0.00	5.00	Annual	Monitoring reports	PPMUs
Description: Number of provinces uses the improved damage and loss assessment methodology for prioritization of post-disaster recovery and/or reconstruction							

Intermediate Results Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Number of bridges reconstructed		Number	0.00	28.00	Annual	Monitoring reports	PPMUs
Description: Number of bridges rehabilitated/reconstructed in the five provinces							
Name: Length of canals reconstructed		Kilometers	0.00	126.80	Annual	Monitoring reports	PPMUs
Description: Kilometers of canals rehabilitated, reconstructed or upgraded under the project in the five provinces							

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Length of dykes and revetment reconstructed		Kilometers	0.00	78.80	Annual	Monitoring reports	PPMUs
Description: Kilometers of dykes and revetments rehabilitated, reconstructed or upgraded under the project in the five provinces							
Name: Integrated flood risk management plan for three river basins in the Central Region, including Phu Yen province, prepared		Text	No plan available	Integrated flood risk management plan for three river basins in the Central Region, including that in Phu Yen, prepared	Annual	Monitoring reports	MARD PMU
Description: Prepare integrated flood management master plans for three river basins in the central region, which covers Phu Yen province. The plan will be based on the flood models to be developed for the three selected river basins. Completion to be determined by final deliverable acceptance by MARD and provinces.							
Name: Streamlined procedures for resource mobilization and allocation for recovery developed		Yes/No	N	Y	Annual	Monitoring reports	MARD PMU
Description: Government procedures for fast-track preparation, prioritization, financial resources mobilization and implementation of the emergency reconstruction and recovery will be reviewed and developed in order to timely respond to and recover from future disasters. Completion determined by the final deliverables discussed among line ministries							

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Number of provincial government officials trained in improved damage and loss assessment methodology		Number	0.00	50.00	Annual	Monitoring reports	PPMUs
Description: Officials from the central and provincial governments will be trained on a simplified damage and loss assessment methodology. Completion determined by the training reports, including training evaluation forms							

Target Values

Project Development Objective Indicators

Indicator Name	Baseline	YR1	YR2	YR3	YR4	End Target
Direct project beneficiaries	0.00	218120.00	652371.00	1040190.00	1257245.00	1257245.00
Female beneficiaries	0.00	52.00	52.00	52.00	52.00	52.00
Beneficiaries (Poor)	0.00	14.00	10.46	9.46	9.43	9.43
Number of beneficiaries provided with improved/restored transport connectivity	0.00	77585.00	247740.00	398553.00	460152.00	460152.00
Area of land protected with reconstructed flood prevention/control infrastructure (ha)	0.00	4833.00	18453.00	28189.00	31605.00	31605.00
Area provided with new/improved irrigation or drainage services	0.00	2117.00	9653.00	16444.00	20601.00	20601.00
Area provided with improved irrigation or drainage services	0.00	0.00	0.00	0.00	0.00	0.00
Area provided with new irrigation or drainage services	0.00	2117.00	9653.00	16444.00	20601.00	20601.00
Satisfaction of beneficiaries with reconstructed/rehabilitated flood-damaged infrastructure that reflected their needs (percentage - disaggregated by gender and poor)	0.00	0.00	0.00	40.00	60.00	60.00

Indicator Name	Baseline	YR1	YR2	YR3	YR4	End Target
Operations and maintenance plans of built infrastructures are adopted, budgeted and implemented	0.00	7.00	17.00	35.00	47.00	47.00
Number of provinces using improved damage and loss assessment methodology to prioritize post-disaster recovery and/or reconstruction	0.00	0.00	1.00	3.00	5.00	5.00

Intermediate Results Indicators

Indicator Name	Baseline	YR1	YR2	YR3	YR4	End Target
Number of bridges reconstructed	0.00	2.00	14.00	25.00	28.00	28.00
Length of canals reconstructed	0.00	5.00	60.50	120.80	126.80	126.80
Length of dykes and revetment reconstructed	0.00	7.00	43.40	73.80	78.80	78.80
Integrated flood risk management plan for three river basins in the Central Region, including Phu Yen province, prepared	No plan available	Agree on ToR by end of year 1	Development of integrated flood management plans	Consultation on the plans on going	Integrated flood risk management plan for three river basins in the Central Region, including that in Phu Yen, prepared	Integrated flood risk management plan for three river basins in the Central Region, including that in Phu Yen, prepared
Streamlined procedures for resource mobilization and allocation for recovery developed	N	N	N	N	Y	Y

Indicator Name	Baseline	YR1	YR2	YR3	YR4	End Target
Number of provincial government officials trained in improved damage and loss assessment methodology	0.00	13.00	25.00	38.00	50.00	50.00

ANNEX 1: DETAILED PROJECT DESCRIPTION

COUNTRY: Vietnam
Vietnam - Emergency Flood Disaster Reconstruction Project

1. Vietnam is highly vulnerable to natural hazards such as floods, typhoons, droughts, and landslides that pose a significant risk to development gains. Every monsoon season, Vietnam is highly exposed to a combination of river plain flooding, flash floods, and associated landslides.[10] Almost 60 percent of the country's total land area and over 70 percent of its population are at risk to hydrometeorological hazards.[11] Over the past two decades, extreme weather events have caused more than 13,000 deaths and property damage in excess of US$6.4 billion. Vietnam loses 1-1.5 percent of GDP annually due to natural disasters, with a peak loss of 2.9 percent of GDP in 2006. With climate change, the frequency and intensity of natural hazards are expected to increase. Vietnam is likely to incur, on average, US$1.4 billion (VND 30.2 trillion) per year in direct damage due to floods, typhoons, and earthquakes. In the next 50 years, it has a 40 percent chance of experiencing economic loss exceeding VND 141.2 trillion (US$6.7 billion) and a 20 percent chance of experiencing loss exceeding VND 171.2 trillion (US$8.1 billion).[12] The poor and extreme poor including ethnic monitories are particularly vulnerable to economic shocks including from disasters, weather extremes, and climate variability.

2. High poverty rates and extreme exposure to floods and storms make the Central Region of Vietnam a priority area for efforts to strengthen disaster and climate resilience and improve well-being of vulnerable communities. The Central Region is marked by higher-than-average poverty rates. The rivers here are mainly short and steep, and heavy rainfall, typically related to tropical cyclones, results in riverine or flash flooding. Recurring extreme weather events risk slowing down economic growth and poverty contributes to vulnerability of local communities, particularly in disaster-prone areas.

3. From mid-October to December 2016, 18 provinces in Central, South Central, and the Central Highlands of Vietnam were affected by prolonged flooding due to five consecutive rainfall events resulting from a combination of tropical depressions and the northeastern monsoon, adversely affecting its people and economy. These repetitive flood events resulted in substantial human loss and widespread damage to infrastructure, agriculture, and aquaculture and disproportionally affected the livelihoods of poor and vulnerable communities. Approximately 10-30 percent of the population of the provinces was affected, with over 1 million people in need of assistance. As reported by the Government's CCNDPC and the United Nations in December 2016, approximately 134 lives were lost and/or missing and 151 people were injured; 233,271 houses were flooded (of which 163,682 were flooded above 1 m) and 4,093 houses were damaged or collapsed. Further, an estimated 53,247 ha rice fields were damaged, and 23,294 ha perennial crops and 44,437 ha vegetable fields were submerged. An estimated 18,371 cattle and 1,218,449 poultry were also killed. The flood events involved extensive infrastructure damage with 1,782 km of roads

[10] Recent experience has illustrated that the country's financial risk from extreme weather efforts is increasing, along with the growing density of physical infrastructure and commercial activities in vulnerable areas.
[11] GFDRR (Global Facility for Disaster Reduction and Recovery). 2011. *Fiscal Impact of Natural Disasters in Vietnam*.
[12] Vietnam Sovereign Disaster Risk Finance Study led by the World Bank Disaster Risk Financing and Insurance Program, with technical assistance from impact forecasting and financial support of SECO (2016).

damaged or eroded and 585 bridges or culverts and 60 km of dykes damaged, contributing to an overall estimated economic loss of US$460 million. On October 15, 2016, the GoV declared a state of emergency.

4. Findings from the rapid assessment showed that the economic impact of the October-December flood events was approximately US$228.2 million, equivalent to 2.3 percent of Vietnam's 2016 GDP.[13] Of this, US$146.4 million was attributed to damages and US$81.8 million to losses.[14] The most affected sector was transport with a total damage of US$70 million followed by flood protection and irrigation infrastructure with damages of US$42.9 million. Estimates of damages to the agriculture, livestock, and fisheries sectors were US$22.6 million and for housing approximately US$10.2 million.

5. Based on the assessment and consultations with local communities and national and provincial government representatives, transport, flood protection, and irrigation infrastructures were identified as priority sectors for reconstruction and recovery. Investments to be funded by the project were prioritized based on (a) damage costs, (b) number of beneficiaries, (c) area benefitted, (d) cost of recovery and reconstruction, (e) lack of funding from other sources, (f) impact on poverty, (g) strategic importance, and (h) readiness for implementation (for example, availability of engineering designs) for selected subprojects. Reconstruction of these investments is particularly urgent given the upcoming monsoon season and history of occurrence of cyclonic storms or typhoons every year.

6. The PDO is to reconstruct and rehabilitate infrastructure assets in disaster-affected project provinces (85 percent) and strengthen the capacity of the Government to effectively respond to future disaster events (15 percent). The PDO will be achieved by rebuilding key infrastructure assets based on a 'build back better' approach emphasizing all stages of infrastructure life cycle including design, construction, and maintenance and strengthening institutional capacities for climate and DRM.

7. The PDOs will be achieved through three components.

Component 1: Resilient Reconstruction of Damaged Public Use and Preventive Infrastructure at the Provincial Level (US$121.08 million, of which US$110.69 million IDA and US$10.39 million counterpart fund)

8. The objective of Component 1 is to strengthen resilience of flood-affected communities in five selected provinces through the reconstruction and rehabilitation of damaged critical provincial-scale infrastructure, especially irrigation, flood control, and road/bridge infrastructure. This component will be implemented by the selected provinces. The affected areas will benefit from restored access to public services/facilities, thereby increasing the economic growth and access to social services. The reconstructed critical flood prevention structures and the restored roads and bridges will also increase the safety of people and assets and serve as supply and rescue lines in the event of a disaster. It will have five subcomponents.

(a) **Subcomponent 1: Resilient Reconstruction in Binh Dinh Province (US$49.75 million IDA, US$4.07 million counterpart fund).** This subcomponent will fund resilient reconstruction of

[13] World Bank Data 2017. Vietnam.
[14] Please refer to annex 5 for further details. The losses were only assessed for the agriculture, livestock, and fishery sectors. The other sectors only estimated the direct physical damage.

damaged roads, bridges, irrigation systems and natural disaster prevention/control structures in Binh Dinh Province.

(b) **Subcomponent 2: Resilient Reconstruction in Phu Yen Province (US$15.05 million IDA, US$1.26 million counterpart fund).** This subcomponent will fund resilient reconstruction of damaged roads, bridges, irrigation systems and natural disaster prevention/control structures in Phu Yen Province.

(c) **Subcomponent 3: Resilient Reconstruction in Quang Ngai Province (US$14.58 million IDA, US$2.21 counterpart fund):** This subcomponent will fund reconstruction of damaged roads, bridges, irrigation systems, and natural disaster prevention/control structures in Quang Ngai Province.

(d) **Subcomponent 4: Resilient Reconstruction in Ninh Thuan Province (US$14.84 million IDA, US$1.67 million counterpart fund).** This subcomponent will fund reconstruction of damaged roads, bridges, irrigation systems, rural water supply system, and natural disaster prevention/control structures in Ninh Thuan Province.

(e) **Subcomponent 5: Resilient Reconstruction in Ha Tinh Province (US$16.47 million IDA, US$1.18 counterpart fund).** This subcomponent will fund reconstruction of damaged roads, bridges, irrigation systems, and natural disaster prevention/control structures in Ha Tinh Province.

9. The following first 18-month procurement plan lists out subprojects that urgently need to be complete within the first 18-month project implementation.

Table 1.1. First 18-month procurement plan

No.	Ref. No	Contract Description	Estimated Cost (USD)	Selection Method	Approach to market	Review by Bank (Prior/ Post)	Expected Bid-Opening Date	Expected Contract Award Date	Impl. Time (months)
I	**Construction works**		**42,191,000**						
1	BĐ-01-XL	Repair and reconstruction of flood embankments/ dikes along La Tinh (severe damaged sections)	4,599,000	DS	N/A	Post	17-Jul	17-Aug	10
2	BĐ-02-XL	Repair and reconstruction of flood embankments/ dikes along Can River	2,123,000	DS	N/A	Post	17-Jul	17-Aug	10
3	BĐ-03-XL	Repair and reconstruction of flood embankments/ dikes along Kon River (severe damaged sections)	3,381,000	DS	N/A	Post	17-Jul	17-Aug	10
4	BĐ-04-XL	Repair and reconstruction of collapsed or severe damaged bridges	1,651,000	DS	N/A	Post	17-Jun	17-Aug	12

No.	Ref. No	Contract Description	Estimated Cost (USD)	Selection Method	Approach to market	Review by Bank (Prior/ Post)	Expected Bid-Opening Date	Expected Contract Award Date	Impl. Time (months)
5	BĐ-05-XL	Repair and reconstruction of provincial roads number 635, 639 and 639B	2,359,000	DS	N/A	Post	17-Jul	17-Aug	10
6	HT-01-XL	Repair and reconstruction of drainage system on 19/5 river along Phuc- Long-Nhuong dyke, Cam Xuyen District	1,515,000	DS	N/A	Post	17-Jul	17-Aug	8
7	HT-02-XL	Repair and reconstruction of Khe Tria drainage system, Nghi Xuan District; and Tan Dua and My Thuan spillway bridges	1,620,000	DS	N/A	Post	17-Jul	17-Aug	8
8	NT-01-XL	Reconstruction of embankment of Dinh river bank in Phuoc Son Commune, Ninh Phuoc District	1,726,000	DS	N/A	Post	17-Jul	17-Aug	8
9	NT-02-XL	Reconstruction of embankment to protect Ba Rau residential area, Thuan Bac District and Reconstruction of embankment to protect residential area, Ninh Phuoc District	1,718,000	DS	N/A	Post	17-Jul	17-Aug	8
10	PY-01-XL	Reconstruction of embankment of Ba river, Phong Nien village, Ha Thang Commune, Phu Hoa District	3,976,000	DS	N/A	Post	17-Jul	17-Aug	12
11	PY-02-XL	Reconstruction of spillways and embankment of Suoi Da at An Hiep Commune; and reconstruction of An Hiep - An Linh road, Tuy An District	2,394,000	DS	N/A	Post	17-Jul	17-Aug	12
12	PY-03-XL	Reconstruction of embankment of Ky Lo river at Ngan Son bridge, Tuy An District	3,976,000	DS	N/A	Post	17-Jul	17-Aug	12
13	PY-04-XL	Reconstruction of provincial road ĐT-643, ĐT-650, ĐT-642 at Tuy An District, Dong Xuan Distrits,, and Song Cau Town	3,762,000	DS	N/A	Post	17-Jul	17-Aug	10

No.	Ref. No	Contract Description	Estimated Cost (USD)	Selection Method	Approach to market	Review by Bank (Prior/ Post)	Expected Bid-Opening Date	Expected Contract Award Date	Impl. Time (months)
14	PY-05-XL	Reconstruction of road for management and maintainance of Xuan Binh lake, Xuan Binh Commune, Song Cau Town	1,759,000	DS	N/A	Post	17-Jul	17-Aug	12
15	QN-01-XL	Reconstruction of embankment on northern bank of Cay Bua river, southern bank of Ve river at Duc Thang Commune; and northern bank of Ve river at Nghia Hiep Commune	1,553,000	DS	N/A	Post	17-Jul	17-Aug	10
16	QN-02-XL	Reconstruction of embankment on northern bank of Tra Khuc river	1,941,000	DS	N/A	Post	17-Jul	17-Aug	10
17	QN-03-XL	Reconstruction of Va Ranh bridges (Tra Lanh), Dong Yen 3 bridges, Ha Rieng bridges and road to resettlement area in Ha Rieng village	2,138,000	DS	N/A	Post	17-Jul	17-Aug	10
II	**Consulting services**		**734,000**						
1	BĐ-10-TV	Construction supervision service for construction works: BĐ-01-XL, BĐ-02-XL and BĐ-03-XL	134,000	DS	N/A	Post	17-Jul	17-Aug	10
2	BĐ-11-TV	Construction supervision service for construction works: BĐ-04-XL and BĐ-05-XL	100,000	DS	N/A	Post	17-Jul	17-Aug	12
3	HT-01-TV	Construction supervision service for construction works: HT-01-XL and HT-02-XL	72,000	DS	N/A	Post	17-Jul	17-Aug	8
4	NT-02-TV	Construction supervision service for construction works: NT-01-XL and NT-02-XL	74,000	DS	N/A	Post	17-Jul	17-Aug	8
5	PY-01-TV	Construction supervision service for construction works: PY-01-XL	57,000	DS	N/A	Post	17-Jul	17-Aug	12
6	PY-02-TV	Construction supervision service for construction works: PY-02-XL and PY-03-XL	75,000	DS	N/A	Post	17-Jul	17-Aug	12
7	PY-03-TV	Construction supervision service for construction	98,000	DS	N/A	Post	17-Jul	17-Aug	12

No.	Ref. No	Contract Description	Estimated Cost (USD)	Selection Method	Approach to market	Review by Bank (Prior/ Post)	Expected Bid-Opening Date	Expected Contract Award Date	Impl. Time (months)
		works: PY-04-XL and PY-05-XL							
8	QN-16-TV	Construction supervision service for construction works: QN-01-XL, QN-02-XL and QN-03-XL	124,000	DS	N/A	Post	17-Jul	17-Aug	10

10. 'Build back better' is defined as "the use of the recovery, rehabilitation and reconstruction phases after a disaster to increase the resilience of nations and communities through integrating disaster risk reduction measures into the restoration of physical infrastructure and societal systems, and into the revitalization of livelihoods, economies and the environment."[15] The infrastructure reconstruction under this project will be built in a resilient manner. The designs will be carried out by the provinces, supported by sectoral ministries in case of need. Each subproject will include several investments of the same type, but with different dimensions and locations. Detailed hydrological and geological survey and investigation for each investment are critical to confirm the appropriateness of the technical design solutions to avoid over- or under-designs. Results gained from other ongoing projects, including the flood hazard analyses, data, and information, will also be used for technical design of the proposed civil works. The provinces will employ independent consulting firms for design and construction supervision/quality control. The World Bank will review the first batch of designs to ensure that appropriate technical solutions and technical specifications are followed.

11. With respect to reconstruction of transport infrastructures, the 'build back better' principles will be used for the proposed road/bridges though the following:

(a) Upgrade of the damaged infrastructures to a higher category with improved structural resilience following the relevant design standards. A number of vented causeways and bridges will be upgraded to larger bridges, some rural roads type A or B will be upgraded to Categories VI, V, or IV Roads (classified in accordance with highway design standards). Earthen/gravel road/road sections will be paved using bituminous or cement concrete surface.

(b) Improvement of quality in terms of both design and construction. Supports will be provided to strengthen provinces and their consultants for better designs and construction supervision.

(c) Increased maintenance to enhance the climate resilience through helping the provinces set up better requirements for management and maintenance, taking into account of the lessons learned from other World Bank-funded projects in Vietnam.

[15] United Nations Office for Disaster Risk Reduction, terminology on disaster risk reduction at *https://www.unisdr.org/we/inform/terminology#letter-b*

12. **Reconstruction of damaged roads and bridges.** Consecutive heavy rains between October and December 2016 caused serious damages to many sections of the road as well as in whole or in part of bridges. Critical sections of the roads and bridges will be rehabilitated/reconstructed with designs to withstand floods and landslides.

13. **Landslide protection and slope stabilization.** Slopes in some road sections were seriously damaged due to long-lasting and heavy rains causing soil to fully saturate and lose its structure. Slope stabilization and landslide protection are required to increase resilience and avoid future damage.

14. **Drainage system.** The drainage system has limited capacity with shortage of crossroad culverts and side ditches. Water flows and inadequate drainage can cause damage to the road sections. The drainage system needs to be improved, for example, by adding culverts and/or widening the existing culverts to cope with the required drainage capacity. In addition to building the side ditches to a sufficient capacity, masonry and/ or concrete structures should be applied to the sections where the slope is greater than 6 percent.

15. Local labor force and local material will be used to create employment opportunities and income for men and women from disaster-affected communities and to develop local maintenance capacity. The process of rehabilitation/reconstruction of rural roads will generate unskilled to skilled employment opportunities providing income opportunities for local families. In the post-disaster context, additional incomes will greatly enhance people's ability to rebuild their livelihoods and recover from losses caused by the disasters. For women, local employment opportunities are of even greater importance, because their ability to migrate to other provinces/regions to undertake alternative livelihoods options is more limited due to their greater burden of unpaid care works within the family. The project will require contractors to utilize local labor force and materials to the maximum extent possible, with priority given to the poor, women, and ethnic minorities.

16. As far as irrigation and flood control infrastructure is concerned, design standard is not the major issue as modern design standards are being used for other ongoing or new projects. The problem is in the selection of right type of design and material for a particular scheme or structure. Hydrological analyses in view of recent flood events should be reviewed and revised for affected rivers and streams, followed by the engineering solutions. If engineering design is made based on old hydrological data, then it may prove to be inadequate to protect the beneficiaries from the disastrous effects of floods of similar magnitudes, irrespective of structural design standards followed. Therefore, the improved design should ensure that all adverse situations and the likelihood of their recurrence are appreciated and adequately included in the revised designs with appropriate standards and design parameters. This is particularly necessary for flood embankments as overtopping of dykes can affect vast areas.

17. Irrigation modernization as a core part of the 'build back better' approach will include lining of unlined canals to ensure (a) reduction in water losses, (b) better distribution of available water within schemes, and (c) expansion of the area to be irrigated. For the lining, both cement concrete lining with cast-in-situ lining and stone or concrete slab lining can be considered, depending on the availability of materials and other restrictions/requirements. Wherever required, existing canal structures will be replaced for ease of conveyance, distribution, and application of irrigation water.

18. Drainage improvement will include removal of accumulated silts from the channel beds, removal of blockages including those created by vegetative growths, and trimming of sections to enhance

the efficiency of drains so that floods of similar magnitudes could be released quickly or within a reasonable time. These measures are applicable to comparatively low lying flat areas. If necessary, particularly in areas affected by tidal inflows, provision of additional sluice structures and consideration of tide lockage periods will be built into the improved designs.

19. Riverbank slope protection by stone revetment or using concrete blocks and so on could be adequate. Concrete lining is susceptible to damage and breaking when the subsoils are disturbed or too weak. This can always happen during the occurrence of floods. In these situations, the use of stone-filled gabion is most recommended instead of using concrete lining. Gabion structures can adjust their shape if the subsoils are disturbed and continue protection even where the concrete linings fail. Thus, this option should be seriously considered under the project.

20. The break of flood protection embankments or dykes, in most cases found during the damage assessment, was mainly due to overtopping embankments during peak flood periods. As such all embankment protection measures were rendered ineffective when such overtopping took place. On the other hand, it is very difficult to pinpoint the locations where breach of embankments will take place in the event of a very high flood. The uncertainties and adverse effects of highest high flood levels can be countered if adequate freeboard is provided in the design of flood protection dykes. For this purpose, it will be important not only to establish the past highest high flood levels, but also to carry out flood frequency analyses and arrive at new sets of design floods for rivers or streams needing dykes for flood protection. Therefore, the solution lies in preventing overtopping, rather than in strengthening rigid protective works. If overtopping is unavoidable, then concrete lining for both river and countryside slopes are the most suitable technical solution.

21. **Citizen engagement.** Consultations with local people on the designs will be promoted to make sure that people's needs and concerns are fully reflected in the engineering design solutions. This is particularly important for doing the irrigation canal works that might affect the crop cultivation. The designs should also consider the mobilization of unskilled labor locally so that local people could benefit from the project by participating in the construction activities. Participatory construction supervision by local beneficiaries will be encouraged to improve the quality of construction to be performed by contractors.

22. O&M of rehabilitated or reconstructed infrastructure will be discussed and agreed up front between local communities and provincial administrative parties before the investments are finalized. To this effect the FSs of subprojects will include O&M plans. The provinces will be responsible for allocating budget to implement the O&M plans and oversee the implementation of such plans through their designated agencies or departments. Depending on the size and importance of the infrastructure, this responsibility will be given to either the provincial irrigation management company or the district or commune authorities.

Component 2: Disaster Recovery Capacity Enhancement (US$2.43 million, of which US$2.00 million GFDRR grant and US$0.43 million counterpart fund)

23. The objective of this component is to further strengthen the institutional capacity of the Government both at the central and provincial levels to better respond to future disasters, increase resilience, and reduce the risk and disruption from natural disasters to the communities. In particular, this component will focus on the following activities:

(a) **Evaluation of the effectiveness of the existing flood risk reduction efforts in the Central Region, using the 2016 floods as a case study.** This activity is to enable the GoV to revise its existing strategic regional integrated flood risk management plan for the Central Region and to further increase the capacity in the provincial authorities to develop, use, and update the existing provincial (DRM) Plan using the integrated/river basin approach that is, the Integrated Flood Risk Management Plan supported by JICA and/or the River Basin Scale DRM Plan supported by the Vietnam: Managing Natural Hazards Project (P118783). The review of the 2016 flood also helps identify gaps in the current response capacity and recommends the improvement of other sectoral strategic development frameworks/plans in the Central Region.

(b) **Building capacity of DRM agencies on damage and loss assessment methodology.** The GoV has been using the Damage and Needs Analysis (DANA) methodology to carry out damage and loss assessments for many years. The provinces are responsible for collecting and collating the information that is then submitted to the Central Government, together with the request for assistance to deal with the immediate relief and recovery activities to assist the affected local population. During the damages and losses in the four selected provinces for this project, there were some inconsistencies in the formatting of the data and the calculation methods, as well as the complexity in collecting and processing the analysis. To ensure consistency of the application of the methodology across provinces and meet the requirements for emergency recovery and reconstruction planning, the grant will support the simplification of the existing Government's DANA process into a friendly guidance note for a rapid damage and loss assessment. Counterpart funding will partially support the participation of provincial officials in the training and workshop organized by Component 2.

(c) **Development of emergency reconstruction and recovery procedures.** The preparation of this project showed a visible gap of there being no mechanism in place allowing central ministries and provinces to quickly prepare and utilize available resources to support the emergency recovery and reconstruction. This is preventing the community from minimizing the disruption to people's lives and livelihood activities. The activity will fund the review of the existing system and procedures, as well as the development of appropriate financing models for emergency response and reconstruction investment that can be considered by the GoV for revision of its current laws/legal frameworks.

Component 3: Project Management Support (US$12.32 million, of which US$7.31 million IDA and US$5.01 million counterpart fund)

24. The objective of this component is to provide efficient and effective management and implementation support to the project, including independent project-related financial audits, safeguard monitoring, and project implementation monitoring, construction supervision and management, midterm review and end-of-project impact evaluation, equipment and training to strengthen the PPMUs, and individual consultants and operating costs. This component will also provide efficient coordination and reporting of the different components of the project.

25. Project budget allocation per sectors and components in each province is as below:

Table 1.2. Project allocation of funds in five Targeted Province (US$) *

Province	IDA/ Counterpart	Component 1				Component 2	Component 3	Total
		Flood Control	Irrigation	Transport	Total			
Binh Dinh	IDA	22,378,667	9,204,667	18,167,667	49,751,000	-	2,249,000	**52,000,000**
	Counterpart	1,812,988	776,354	1,481,658	4,071,000	88,000	2,080,000	**6,239,000**
Phu Yen	IDA	3,702,330	6,096,579	5,248,348	15,047,256	-	952,744	**16,000,000**
	Counterpart	310,354	496,567	449,716	1,256,637	50,885	608,584	**1,916,106**
Quang Ngai	IDA	5,390,667	2,944,667	6,244,667	14,580,000	-	1,420,000	**16,000,000**
	Counterpart	811,252	470,538	930,210	2,212,000	88,000	1,053,000	**3,353,000**
Ninh Thuan	IDA	3,600,471	5,389,529	5,850,000	14,840,000	-	1,160,000	**16,000,000**
	Counterpart	414,544	603,253	652,203	1,670,000	100,000	330,000	**2,100,000**
Ha Tinh	IDA	10,135,000	182,000	6,153,000	16,470,000	-	1,530,000	**18,000,000**
	Counterpart	602,984	19,234	557,782	1,180,000	100,000	940,000	**2,220,000**
Total	**IDA**	**45,207,134**	**23,817,441**	**41,663,681**	**110,688,256**	**-**	**7,311,744**	**118,000,000**
	Counterpart	**3,952,122**	**2,365,945**	**4,071,570**	**10,389,637**	**426,885**	**5,011,584**	**15,828,106**

**Note: this table only presents IDA and counterpart financing and excludes the trust fund.*

ANNEX 2: IMPLEMENTATION ARRANGEMENTS

COUNTRY: Vietnam
Vietnam - Emergency Flood Disaster Reconstruction Project

Project Institutional and Implementation Arrangement

Overall Organization

1. The project will be implemented in a decentralized manner under the direction of PPCs which will become the project owners. The PPCs will guide, support, and supervise the respective PPMUs. The Central Government has assigned Binh Dinh People's Committee to play a coordination role at provincial level; thus, this province will be responsible for liaising and coordinating the project implementation with other selected provinces. In addition to their regular responsibility, the Binh Dinh PPMU will be in charge of the day-to-day overall implementation and management of the project, except Component 2, which will be managed by MARD. The Binh Dinh PPMU will hire a project M&E and Coordination Consultant that helps coordinate project activities.

2. Component 2 will be implemented by MARD through its PMU to be established in the Directorate of Water Resources, in collaboration with line ministries (for example, MPI, MOF, MOT) and provinces. The MARD PMU will be responsible for the implementation monitoring, audit, procurement, FM, contract administration, and payment to contractors and handing over.

3. The organizational chart for the project presented in Figure 2.1, is based on discussions with the head of the MPI and the selected PPCs and shows the proposed institutional set up, described in the following sections.

Overall Institutional Arrangements

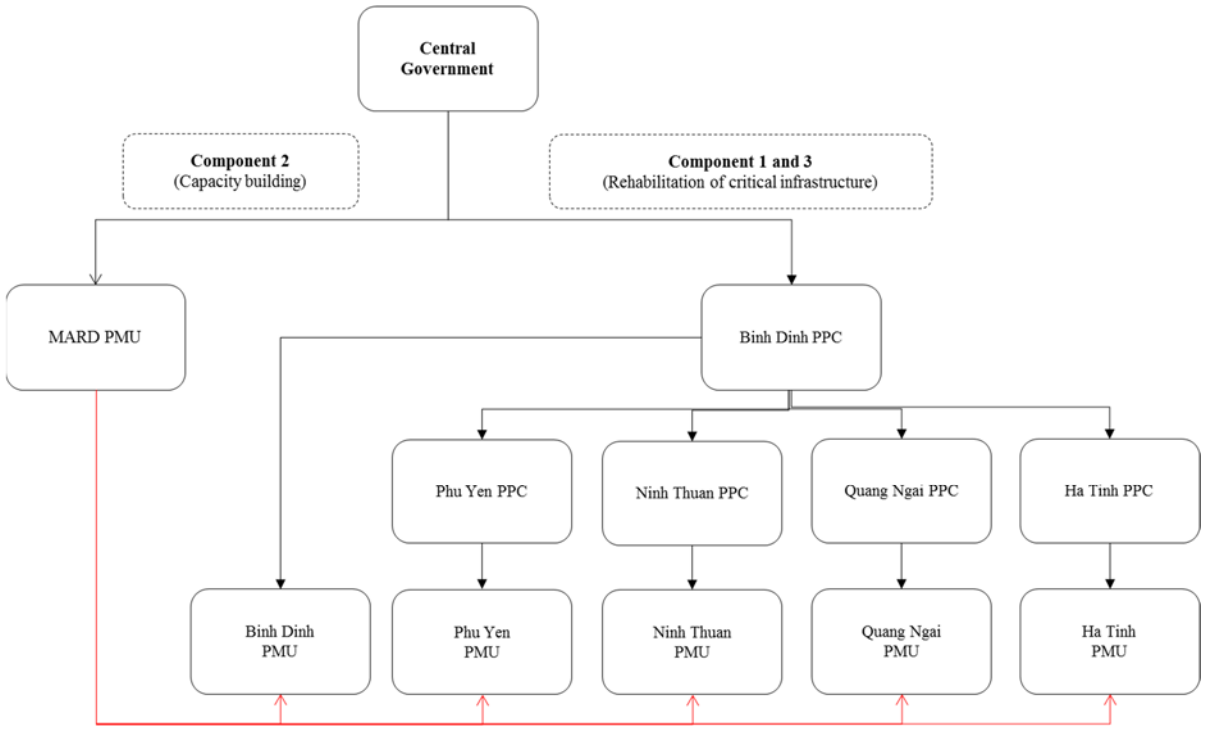
4. **PPMUs.** The existing PPMUs at selected provinces, which are currently in charge of implementing the World Bank-funded Dam Rehabilitation and Safety Improvement Project, will be utilized for this project. These units are familiar with the World Bank's requirements and procedures on fiduciary and safeguard policies. As such, they will be in charge of the day-to-day management and implementation of the project in their respective province. However, additional staff will need to be added to each of the PPMUs, who can dedicate efforts to implementation of the emergency project. Qualified full-time senior Transport Engineers and Procurement Experts with an engineering background, fully responsible for handling the STEP, the World Bank's procurement network that is mandatorily used, has been mobilized by all PPMUs. The PPMUs will be responsible for the preparation of engineering designs, safeguard mitigation plans, procurement, FM, contract administration, and all aspects of project management at the provincial level.

5. Component 2 will be implemented by the MARD under the guidance of the CCNDPC. The CCDPC will provide overall strategic, policy, and overall coordination among various Government agencies (for example, MPI, MOF, MOT) and provinces to facilitate the implementation of the component as designed. A PMU will be established in the Directorate of Water Resource of MARD to be in charge of the

implementation monitoring, audit, procurement, FM, contract administration, and payment to contractors and handing over.

6. **Staffing and organization of PPMU**. The PPMU Director will be appointed by the PPC and the Director will appoint other qualified key staff such as an accountant, procurement officer, and project planning/monitoring officer. The PPMU will engage national consultants as needed to ensure timely and technically sound design, supervision, quality control, and safeguard activities.

Figure 2.1. Vietnam EFDR Program Management Structure



Financial Management, Funds Flow and Disbursements, and Procurement

Financial Management

7. **Risk assessment.** The overall FM risk for the project is assessed as Moderate. The FM function of the implementing agencies meets the World Bank's minimum FM requirements. The key risks identified at appraisal stage were (a) unclear design of project activities and inadequate guidance causing confusion to disburse at the subnational level; and (b) insufficient budget allocation for both ODA and counterpart funds to implementing agencies that could result in delays to project implementation. However, since appraisal, the Project Operational Manual has been approved. Moreover, counterpart funds have been allocated for FY 17 for all Provinces. All PPMUs have received STEP training. Further, the Project Procurement Strategy for Development (PPSD) has been prepared and is being prepared to be submitted to the Bank for clearance.

8. **Interim financial reports (IFRs).** PPMUs will prepare financial reports for all project expenditures incurred at the province and submit to the World Bank biannually within 45 days of the end of the semester. The IFRs, which are unaudited, will cover all project activities.

9. The IFRs include the following forms:

- IFR1: Sources and Uses of Funds;
- IFR2: Disbursement by Component and by Province;
- IFR3: Statements of Designated Accounts Reconciliation

10. **External audit.** Project financial statements will be prepared by each PPMU and the MARD PMU for their own components. The project's annual financial statements will be audited in accordance with international auditing standards and in compliance with the independent auditing regulations of Vietnam. Each PPMU will be responsible for the appointment of the auditor for the entire project in accordance with the World Bank's guidelines. PPMUs will submit their audited project financial statements to the World Bank annually by June 30 of the following year.

11. **Governance and anticorruption.** To strengthen the FM arrangements for the project and to help reduce the risk of fraud and corruption, particular emphasis is needed in the following areas: (a) transparent criteria and procedures of approving subprojects, including FM arrangement; (b) authorization by expenditures verification agencies (state treasury and Vietnam Development Bank (VDB) before payments, following the procedures in the country.

Disbursements

12. **Funds flow.** The primary disbursement method will be advances and replenishment. Fund flow will be channeled through the segregated designated accounts (DAs) opened in USD by each of the five (5) Project Provinces (Binh Dinh, Phu Yen, Quang Ngai, Ninh Thuan and Ha Tinh) at commercial banks acceptable to the World Bank. The ceiling of each of the 5 DA is variable based on forecast for one (1) quarter of approved annual financing plan.

13. Supporting documentation required for documenting eligible expenditures paid from the DA are Statement of Expenditures and supporting statements or documents indicated in the disbursement letter. The frequency for reporting eligible expenditures paid from the DA is quarterly or more frequent if required. The Reimbursement, Special Commitment, and Direct Payment disbursement methods will also be available. Reimbursements would also be documented by Statement of Expenditures and supporting statements indicated in the disbursement letter. Direct Payments will be documented by records. The Minimum Application Size for Reimbursement, Special Commitment, and Direct Payments is US$100,000 equivalent.

14. The project will be financed by the World Bank at 100%, inclusive of taxes, as indicated in the table below. Component 2 of the project of $2.43 million is expected be financed by GFDRR grant of $2 million. Counterpart funds of US$15.83 million will mainly finance site clearances to support the construction of infrastructural investments, technical design, land acquisition, training and workshops and project management.

Table 2.1. Allocation of IDA Credit proceeds

Category	Amount of the Credit Allocated		Percentage of Expenditures to be Financed (inclusive of Taxes)
	(SDR)	(USD)	
(1) Goods, works, and consulting services for Component 1.1 and Component 3 of the Project (Binh Dinh Province)	37,934,504	52,000,000	100%
(2) Goods, works, and consulting services for Component 1.2 and Component 3 of the Project (Phu Yen Province)	11,676,682	16,000,000	100%
(3) Goods, works, and consulting services for Component 1.3 and Component 3 of the Project (Quang Ngai Province)	11,676,682	16,000,000	100%
(4) Goods, works, and consulting services for Component 1.4 and Component 3 of the Project (Ninh Thuan Province)	11,676,682	16,000,000	100%
(5) Goods, works, and consulting services for Component 1.5 and Component 3 of the Project (Ha Tinh Province)	13,135,450	18,000,000	100%
TOTAL AMOUNT	**86,100,000**	**118,000,000**	

15. **Retroactive financing.** Retroactive financing for an amount up to US$40 million from the IDA credit for disbursement category (1), (2), (3), (4) and (5) will be available for eligible expenditures incurred between June 15, 2017 and signing date of the Financing Agreement, provided that relevant Bank safeguard and procurement guidelines are followed.

16. **Disbursement arrangements.** The project will have a disbursement deadline date (final date on which the World Bank will accept applications for withdrawal from the recipient or documentation on the use of credit proceeds already advanced by the World Bank) four months after the closing date. This 'grace period' is granted to permit the orderly project completion and closure of the credit account through the submission of applications and supporting documentation for expenditures incurred on or before the closing date. Expenditures incurred between the closing date and the disbursement deadline date are not eligible for disbursement.

Procurement

17. **Procurement capacity and risk assessment.** The project procurement will be carried out by the five project provinces of Quang Ngai, Binh Dinh, Phu Yen, Ninh Thuan, and Ha Tinh. Each project province has assigned a PMU to implement its provincial subproject. These PPMUs are currently executing several projects including some World Bank-financed ones. The World Bank conducted a procurement risk and capacity assessment and found that these PMUs have procurement capacity in place and considerable experience with World Bank procurement. However, they are not familiar with the World Bank's new Procurement Regulations and lack contract management experience. This assessment identified the following main procurement risks to the project implementation: (a) delays in preparation of detailed designs and bidding documents leading to overall project implementation delays; (b) the PMU's unfamiliarity and inexperience with the World Bank's new Procurement Regulations leading to

procurement delays or noncompliance; and (c) the PMU's limited experience in contract management leading to contract implementation delays or substandard works. The overall procurement risk level is rated Substantial.

18. Risk mitigation measures. To strengthen the procurement capacity and mitigate the identified risks, the following major mitigation measures have been agreed with the project provinces and are being implemented. It is expected that after these measures are fully implemented, the residual risk will be reduced to Moderate.

Table 2.2. Procurement Action Plan

No	Actions	Responsible Agency	Expected Date of Completion
1	Recruiting qualified consultants for preparation of detailed designs and bidding documents	Project provinces/PMUs	Recruitment of consultants for most critical works in the first 18-month procurement plan completed. Consultants for remaining works items to be contracted by July 2017
2	Preparing and regularly updating a PPSD and Procurement Plan that best fit the project needs and specific conditions	Project provinces/PMUs	Final 18-month Procurement Plan is completed. PPSD is being finalized by provinces and will be submitted for World Bank clearance in mid-May 2017. Regular updating throughout the project implementation
3	Developing a POM including a detailed guidance on each step of procurement process for PMU staff's regular reference	Project provinces/PMUs	Completed
4	Regularly training staff and officials in the PMU and the project provinces' relevant departments on STEP, Procurement Regulations, contract management, and fraud and corruption	World Bank/project provinces/PMUs	Throughout project implementation period. STEP training already received.
5	Employing qualified consultants to support procurement and contract management	Project provinces/PMUs	Supervision consultants for critical works employed by September 2017; consultants for other works hired by March 2018

19. **Applicable procurement rules.** Project procurement that is proposed for World Bank financing mainly includes civil works (repair and reconstruction of dams, embankments, irrigation canals, water supply systems, roads and bridges, and so on-estimated at 80-90 percent of the total World Bank financing amount) and consulting services (detailed designs, construction supervision, safeguards monitoring, financial audit, and so on). Procurement of such World Bank-financed works and consulting services shall be carried out in accordance with the World Bank's 'Procurement Regulations for IPF Borrowers: Procurement in IPF - Goods, Works, Non-Consulting and Consulting Services' dated July 2016 (the Procurement Regulations) and the specific provisions stipulated in the Financing Agreement. Project

procurement activities (for example, detailed design and construction supervision for urgently needed works) that are wholly financed by the Government's budget will be procured in accordance with the Government's procurement regulations.

20. **PPSD and Procurement Plans.** The project provinces have prepared a preliminary Procurement Plan for their respective subproject. These preliminary Procurement Plans propose to use the following main selection methods:

- For civil works: Request for Bids with national market approach and one envelope and Direct Selection;
- For consulting services: Selection based on Consultants' Qualifications with national market approach and Direct Selection.

21. The project provinces are also in the process of preparing a PPSD for the project. This PPSD will present how specific procurement activities are to be conducted to support the PDOs and deliver the best value for money under a risk-managed approach that reflects the country, sectors, and market contexts. Based on this PPSD, the project provinces will finalize a detailed Procurement Plan for the initial 18-month period which will be reviewed and cleared with the World Bank. The final 18-month Procurement Plan is completed, and the PPSD is being finalized by provinces and is expected to be submitted for the World Bank's review and clearance in May 2017. The PPSD and Procurement Plans shall be regularly updated during the project implementation.

22. **Bank review, supervision, and support.** Based on the value, complexity, and risk level of project procurement, it is envisaged that most of project procurement activities would be subject to post review, except the Procurement Plans and their updates. The World Bank will carry out post review on an annual basis. The World Bank will closely supervise the project procurement performance in collaboration with the external financial auditors as well as the project provinces' supervisory agencies. The World Bank will also provide training, hands-on support, and guidance to the project provinces/PMUs especially in updating the PPSD, Procurement Plan, and contract management.

Environmental and Social (including safeguards)

Environmental

23. **Applicable environmental safeguard policies.** The following World Bank safeguard policies have been triggered: (a) Environmental Assessment (OP 4.01); (b) Natural Habitats (OP/BP 4.04); (c) Pest Management (OP 4.09); and (d) Physical Cultural Resources (OP/BP 4.11).

24. The project's overall potential socioenvironmental impacts would be positive as it is expected to bring about change to the affected communities in the districts that were affected by loss of public service infrastructure, which will be restored and improved under the project. Specifically, the project will benefit the population affected by the 2016 floods across five of the most affected provinces. Under Component 1, direct beneficiaries will include over 1.2 million inhabitants in five provinces, 9.4 percent of whom are poor. In addition, the total population of the five provinces, around 5.1 million, will benefit either directly or indirectly from improvements expected to result from incorporating the 'build back better' approach

in the technical designs, as well as the increased capacity of the provinces to manage and respond to disasters.

25. During project preparation, environmental and social safeguard screening has been conducted for the whole project and with a focus on the five subprojects for the first 18 months of implementation to ensure that the proposed project is subject to the appropriate extent and type of EA. The screening of these five subprojects confirmed the scope of impacts described in the following sections, and that no significant adverse impacts on natural habitats, physical cultural resources, land acquisition, resettlement, and ethnic minorities would be anticipated. The screening identified that five ESMPs, five RAPs, and three EMDPs will be prepared for the five subprojects for the first phase of implementation to satisfy the World Bank's safeguard requirements.

26. The potential adverse socioenvironmental impacts would be those associated with construction and operation of the proposed physical investments under Component 1 and ancillary works such as quarry areas, sources of construction materials, disposal sites for nonhazardous wastes, and so on. These include commonly known construction impacts and risks, such as: (a) safety risks related to unexploded ordinances left from war; (b) loss of vegetation cover and trees (c) increased level of dust, noise, and vibration; (d) pollution risks related to removal and disposal of substantial quantities of nonhazardous construction materials associated with the destroyed structures (embankment protection devices, and bridges) consisting of concrete, scrap metal, stone, and sand from irrigation canals and small streams; (e) traffic disturbance and increased traffic safety risks; (f) erosion and landslide risk on slopes and deeply excavated areas as well as potential negative impacts on existing weak facilities; (g) interruption of existing infrastructure and services such as water and power supply; (h) disturbance to daily socioeconomic activities in project areas; (i) health and safety issues related to the public and the workers at construction sites; (j) social impacts associated with business disruptions by construction-related activities and mobilization of workers to the site including due to relocation of graves; (k) land acquisition in case of widening/improving the damaged structures; and (l) impact on ethnic minority communities in the project areas. Screening of the five subprojects for the first 18 months of implementation also confirmed these scopes of impacts.

27. However, these potential negative impacts would be expected to be moderate, localized, temporary, limited range, and reversible, and can be mitigated through the application of good construction and management practices and with close supervision of contractor performance by field engineers and in close consultation with local communities. The impacts and mitigation measures will be addressed during the preparation of the ESMPs/ECOPs/RAPs/EMDPs for these subprojects, including those associated with labor influx. Therefore, the project has been categorized as a Category B project for environment.

28. **Natural Habitats (OP/BP 4.04).** The project interventions are not located near critical habitats and mainly involve rehabilitation and reconstruction activities on the existing infrastructures. Therefore, it will not impact any protected area nor will it affect important/endangered flora or fauna species or biodiversity areas of high value. However, dredging and removal of sand and silt materials from natural streams for rehabilitation and reconstruction works could affect natural habitats such as waterways. Therefore, this policy is triggered. Impacts on natural habitats and associated mitigations measures will be addressed in the relevant subproject ESMPs.

29. **Forests (OP/BP 4.36).** The project activities and locations of the different subprojects would not have the potential of having impacts on the health and quality of forests or the rights and welfare of people and their level of dependence upon or interaction with forests or bring about changes in the management, protection, or utilization of natural forests or plantations. As a result, this policy is not triggered.

30. **Pest Management (OP 4.09).** The project will not finance any procurement or use of pesticides. However, improvements in agricultural production from improved and more stable water supply may lead to the use of pesticides in some subprojects. In those situations, a pesticide management plan will be required to be included in the subproject ESMP/ECOP. No pesticides are to be used for land clearance.

31. **Physical Cultural Resources (OP/BP 4.11).** It is not expected that the project will require relocation of physical cultural resources such as monuments, temples, churches, religious/spiritual, and cultural sites. However, project rehabilitation and new construction activities may involve relocation of graves, which are also considered physical cultural resources, and thus this policy is triggered. Some civil works may also include excavation activities, which may result in chance finds; the 'chance find procedures' will be included in the ESMP/ECOP and civil works contracts.

32. **Safety of Dams (OP/BP 4.37).** The project does not involve construction or rehabilitation of dams and new canals nor changing the quantity of water flow. All proposed canals will not tap water directly from a dam/reservoir. They are on-farm irrigation water distribution systems (grade IV and V) from the existing primary and secondary irrigation canals. The ESMF will include screening procedures to ensure that subprojects that are dependent on existing dams will not be financed.

33. **Projects on International Waterways (OP/BP 7.50).** The project investments will be implemented in the river basins that are entirely located within Vietnam territory. Therefore, this policy is not triggered.

34. **Projects in Disputed Areas (OP/BP 7.60).** Project activities will not be undertaken in disputed areas.

35. **ESMF.** Since only subprojects for the first 18 months have been identified in detail and the remaining specific interventions will be further developed during implementation, an ESMF will be developed to provide general guidelines to the client to ensure that the proposed project is implemented in an environmentally and socially sustainable manner and in line with the applicable World Bank safeguard policies and Government regulations. The ESMF provides guidance for screening for potential environmental and social impacts, determining applicable World Bank operational policies and categorization, discerning the appropriate environmental and social instrument to be created, and managing and monitoring mitigation measures. The ESMF will be reviewed and cleared by the World Bank.

36. **Subproject ESMPs/ECOPs.** Given that the subprojects/activities for the priority investment for the first 18 months of implementation have been identified, five subproject ESMPs, one for each province, will be prepared immediately at implementation by the client. Preparation of the ESMPs for these investments will be completed for review and clearance by the World Bank in June 2017. Preparation of the remaining subproject ESMPs/ECOPs will be done following the guidance provided in the ESMF. Further screening of subprojects will be undertaken during implementation to ensure their eligibility. Category A subprojects will be explicitly excluded. All the ESMPs/ECOPs will be reviewed and cleared by the World Bank. No civil works will commence before approval and disclosure of these safeguard instruments.

37. The ESMP will detail (a) all anticipated adverse generic construction and site-specific environmental and social impacts (including those involving indigenous people or involuntary resettlement); (b) the mitigation measures, including ECOPs for generic construction impacts and site-specific impact mitigation measures, to be taken during the implementation and operation of the subprojects to eliminate or offset adverse environmental impacts, or to reduce them to acceptable levels; (c) monitoring objectives and type of monitoring with linkages to the impacts assessed in the EA report and the mitigation measures described in the ESMP; (d) the actions needed including institutional arrangements to implement these measures; (e) capacity development and training to support timely and effective implementation of environmental project components and mitigation measures; (f) implementation schedule and cost estimates for implementing the ESMP, and (g) integration of the ESMP with the subprojects.

Social

38. **Social impacts.** In situations of urgent need of assistance because of a natural disaster, the World Bank's OP 10.00 (IPF) allows for the safeguards requirements set out in OP/BP 4.01, OP/BP 4.10, and OP/BP 4.12 that are applicable during the project preparation phase to be deferred to the project implementation phase. When compliance with the environmental and social requirements is recommended to be deferred to the project implementation stage, project documents include an action plan addressing the application of environmental and social policies.

39. The project will support resilient recovery and reconstruction in five priority provinces affected by the 2016 floods and future climate-related events. The project will generate positive benefits to disaster-affected people including the poor, women, and ethnic minorities, in the form of improved access to critical infrastructure and services and resilience enhancement as well as agricultural production support by improved irrigation systems. According to a preliminary assessment of the provinces, it is expected that land acquisition would be marginal with no household relocation anticipated.

40. In addition, potential loss of livelihoods due to the temporary restriction of access and interruption of irrigation water supply during construction period is envisaged.

41. **Involuntary resettlement.** The project will require land acquisition and hence OP/BP 4.12 (Involuntary Resettlement) is triggered. In accordance with OP 4.12, for sector investment operations that may involve involuntary resettlement, the World Bank requires that the project implementation agency screen subprojects to be financed by the World Bank to ensure their consistency with this operational policy. For these operations, the borrower submits, before appraisal, an RPF that conforms to this policy. As per GoV requirements set forth in the Land Law 2013 and Decree 16/2016/ND-CP guiding the ODA utilization and management, an RPF for five project provinces has been prepared and will be approved in June 2017. The RPF guides principles and procedures to identify, assess, minimize, and mitigate social impacts, including screening criteria, eligibility criteria, entitlement matrix and valuation methodology, and implementation arrangements to be applied to subproject RAPs. The RPF has already been cleared by the Regional Safeguard Secretariat (RSS) in April 2017. The RPF will be approved by the government before the project implementation. All subproject RAPs will be prepared and submitted to the World Bank for approval. The respective PPC will then approve the RAPs and all compensation, assistance, and resettlement activities should be completed before civil works commencement. According to the World Bank's requirements of public consultation and disclosure, the draft RPF has been disseminated and disclosed in-country to relevant stakeholders during the week of March 9-22, 2017 in the five project

provinces. The consultation results were reflected in the draft RPF. The first draft Vietnamese version of the RPF was disclosed on the website of Binh Dinh (as a coordinating/focal point) on March 22, 2017. The final draft RPF was disclosed on the World Bank portal on March 27, 2017. The final RPF once approved will be disclosed on the borrower's respective websites and on the World Bank internal and external websites subsequently.

42. **Indigenous peoples.** An initial screening conducted by a World Bank specialist has confirmed that there are ethnic minority communities as per the World Bank's OP 4.10 definition, to be affected by and benefited from the project, and hence OP/BP 4.10 (Indigenous Peoples) will be triggered. An Ethnic EMPF will be prepared, guiding procedures to ensure free, prior, and informed consultation with affected ethnic minority communities to ascertain their broad community support and measures to ensure they benefit from project supports and minimize/mitigate any adverse impacts on them. The EMPF outlines and guides the preparation and implementation of subproject EMDPs based on the SA to be carried out to identify ethnic minorities and potential project impacts on them in the project area. The SA and preparation of the EMPF will be carried out early in the project implementation stage to adequately inform the preparation of site-specific EMDPs.

43. In addition to the RPF, other social safeguard documents prepared under the project include the EMPF, RAPs, and EMDPs, and are all deferred to the project implementation. Given the nature of emergency for implementing the critical works to be completed before the upcoming flooding season in September, subproject RAPs/EMDPs for critical works should be available and approved and implemented before the civil works commencement, tentatively by June 2017. Given that the subprojects/activities for the priority investment for the first 18 months of implementation have been identified, all five provinces will require subproject RAPs that involve involuntary resettlement and three EMDPs for Quang Ngai, Binh Dinh, and Ninh Thuan, where there are affected ethnic minority people, to be prepared and submitted to the World Bank for review and clearance. No civil works will commence before approval and disclosure of these safeguard instruments.

44. As proposed by project provinces, civil works for the first 18-month subprojects will be commenced latest by July 2017. Thus, the required social and environment safeguard instruments could take two months for preparation and should be available and cleared by the World Bank by June 2017.

45. **Gender.** The rapid assessment found that overall, women are more negatively affected than men. The loss of food stocks and livestock, inundation of farmland and subsequent loss of agricultural labor, and the inability to look for alternative livelihoods due to the high burden of care work means that they are under considerable burden to provide food and nutrition for their families, and they have fewer resources and options for alternative livelihoods when compared with men. Participatory consultation activities will involve both men and women during project preparation and implementation. As such, the project will engage with local chapters of the women's unions to carry out flood information dissemination to outreach to flood vulnerable communities, especially poor and ethnic minority women. Engaging the women's unions will also help disseminate information about job opportunities in civil construction works to women, especially poor and ethnic minority ones, and mobilize them to take those opportunities to earn incomes. Special measures and assistance will be developed to help men/women better cope with the flood risks and consequences. At the same time, efforts will include awareness-raising activities on hygiene, sanitation, and waste disposal issues at the household and community levels to reduce health problems, especially for women and children in flood-prone areas.

46. **Safeguard implementation and monitoring.** The PPMU, as an implementing agency, will be responsible for the preparation, implementation of safeguard instruments, and its monitoring. During project implementation, the PPMUs will be responsible for preparing and ensuring the effective implementation of safeguard measures (such as the RPF, EMPF, RAPs, EMDPs, ESMF, ESMPs, and ECOPs) and regularly liaising with local authorities and communities. There will be regular reporting on safeguard implementation. The PPMUs, contractors and construction supervision consultants, and local community representatives will receive training on the project's safeguard instruments. The PPC will give approval for land acquisition, allocation, and compensation rates. Compensation and land acquisition costs will be financed by counterpart funds. An independent monitoring consultant will be hired to monitor and evaluate safeguard instruments implementation as well.

47. **Public consultation and information disclosure.** Key stakeholders are principally individuals and families affected by these devastating flood events as well as by the project activities, including those affected by land acquisition. Consultation with those affected by the floods will be critical because in most instances, the subprojects will not be a simple replacement of what was previously in place before the floods, but may well be alternative structures which will be more flood resistant or resilient. These differences may require careful explanation to the flood-affected parties. The affected people and communities and other relevant stakeholders will be consulted on the RPF, EMPF, RAPs, EMDPs, ESMF, ESMPs, and ECOPs. At least one public consultation will need to be conducted when the draft of these safeguard instruments are prepared. The feedbacks from the consultations will be incorporated into the subproject design and the final draft RPF, EMPF, RAPs, EMDPs, ESMF, ESMPs, and ECOPs. Consultation with the affected communities and people and other related stakeholders will be continued during project implementation. The Vietnamese version of the RPF, EMPF, RAPs, EMDPs, ESMF, ESMPs, and ECOPs will be disclosed locally at the PPMUs' offices, related provincial and district departments, and subproject areas. The English version of these documents will be disclosed on the World Bank's internal and external websites.

48. **Institutional strengthening and capacity building.** The PPMU will establish a coordination and implementation group to address environmental and social issues, including a social focal point. The social focal point will be responsible for (a) coordination of social safeguards; (b) leading preparation and implementation of safeguards instruments; (c) leading the social safeguard experts (consultants) and overseeing the training and capacity-building activities; and (d) coordinating all safeguard activities with donors, implementing agencies, including local authorities and/or other potential financial supporters. All the implementing agencies (PPMUs) have intensive experience in implementing the World Bank safeguard policies under different World Bank-financed projects. All the PPMUs, through their dedicated staff/unit, will be responsible for implementing and monitoring the safeguard instruments (ESMF, ESMP, ECOP, RPF, EMPF, EMDP, and RAP) as well as mitigation measures defined in the safeguard instruments. The implementation of safeguard instruments will be internally monitored by the PPMUs in close coordination with the respective PPCs and line departments at different administrative levels and externally supervised by independent monitoring agencies. Implementing agencies will ensure that activities related to environmental and social safeguards will be properly tracked, reported, and documented. Independent monitoring will start around the same time as implementation of activities and will continue until the end of the project/subproject. The performance of and compliance with safeguard instruments will also be subject to regular supervision by the World Bank task team. During the project implementation, appropriate training will be provided to the PPMUs, consultants, and local community representatives on the safeguard instruments to be applied to the project.

49. **GRMs.** Each subproject safeguard instrument (ESMF, ESMP, ECOP, RPF, EMPF, RAP, and EMDP) also includes a GRM to provide the framework within which complaints about safeguards compliance can be handled, grievances can be addressed, and disputes can be settled quickly. The GRM will be in place before the subproject construction commences. Within the Vietnamese legal framework, citizen rights to complain are protected. As part of overall implementation of the subproject, the GRM will be established by the PPMU, based on the GoV regulations. It will be readily accessible, handle grievances, and resolve them at the lowest level as quickly as possible. The key process and elements of the GRM include procedures for submission of complaints and grievance resolution, responsible person, and contact information.

50. The complaints can be received verbally or in written forms, by telephone, fax, or email. They can be sent to the local authorities, contractor, construction supervision engineer, PPMU, or the independent safeguard monitoring consultants and will be logged in the record system and sent to the responsible person for taking action. To facilitate the complaint process, subproject information leaflets will be prepared and distributed at the subproject sites to provide practical information about grievances to local residents, including contacts and addresses.

51. The GRM also refers to the World Bank's GRS and clearly indicates that subproject affected communities and individuals may submit their complaints to the World Bank's independent Inspection Panel which determines whether harm occurred or could occur, as a result of World Bank noncompliance with its safeguards policies and procedures. The website address to provide information on how to submit complaints to the World Bank's GRS is also provided.

Monitoring and Evaluation

52. The project will be monitored by the PPMUs and the MARD PMU for Components 1 and 2, respectively, through regular progress reports on the basis of the indicators and milestones developed in the Results Framework (section VII). All such indicators and corresponding sources have been defined. Information for indicators will mostly be collected with the assistance of support agencies and checked, processed, analyzed, and disseminated by the PPMUs' and the MARD PMU's M&E units. Information and data collected by each of the implementation agencies will be fed into an overall M&E system. The PPMUs will carry out community-level surveys to record data, in line with the identified indicators. Regular supervision missions will be undertaken which will consider aspects such as implementation pace, expenditure efficiency, due processes, and quality construction checks. All processes and reports will be mentioned in the POM.

ANNEX 3: IMPLEMENTATION SUPPORT PLAN

COUNTRY: Vietnam
Vietnam - Emergency Flood Disaster Reconstruction Project

1. The Implementation Support Plan (ISP) describes how the World Bank and other development partners will support the implementation of the risk mitigation measures identified in the risk matrix and provide the necessary technical advice to facilitate the implementation of the project activities in achieving the PDO. The ISP also identifies the minimum requirements to meet the World Bank's fiduciary obligations.

Strategy and Approach for Implementation Support

2. **The implementation support strategy addresses the design and implementation requirements of the project, including the implementation of the risk mitigation measures and lessons learned from similar projects in the region/across the world.** Key risks identified for this project include political and governance risks, institutional capacity for implementation and sustainability, fiduciary, and macroeconomic context.

3. The ISP has been developed considering (a) the emergency nature of the project; (b) project focus on resilient recovery of a critical infrastructure; (c) lessons learned from similar operations; (d) planned implementation schedule; and (e) risks and needs as summarized in the Systematic Operations Risk-Rating Tool.

4. A number of steps were taken as part of project preparation to facilitate effective implementation, including the following:

(a) PMUs have already been established in each of the selected provinces. The project will use existing PPMUs previously established in the provinces for the implementation of other World Bank-financed projects. This ensures the suitability and soundness of the existing FM and procurement systems.

(b) Several consultations were conducted between the central and provincial governments to firm the scope of the activities as part of the project identification phase.

(c) For Component 1, FSs (five in total, one per province) of all the activities to be undertaken in each province are currently being undertaken. Findings of these studies will continue to shape the designs of the works to be carried out under the project.

(d) For Component 2, the World Bank team has closely liaised and discussed the implementation of this component with in-country JICA representatives to ensure that the proposed initiative is aligned with Japanese priorities within Vietnam and with broader Japanese interests, such as the 'Quality Infrastructure' partnership principles.

5. **Key elements of the ISP include monitoring and reporting, capacity building, and quality supervision, including project investment site missions.** Review of the performance of the experts hired under the project will be part of the implementation support missions and midterm review. The task team

leader (TTL) will also continually validate that the project objectives, project design, economic justification for the project, and key performance indicators are still relevant to the higher objectives to which the project contributes, primarily through the implementation support arrangements already established but also in response to any issues related to these aspects of the projects that may be raised by counterparts in the Government or other stakeholders. The TTL will also be proactive in considering the need for project restructuring based on substantive issues that may be raised during missions or on an ad hoc basis by the Government or other stakeholders.

6. The ISP includes frequent review of implementation performance and progress, and a multisectoral team. The World Bank's team will monitor implementation through (a) reporting of key performance indicators as defined in the Results Framework; (b) independent verification of project activities through field visits and documentation review; (c) proper fiduciary management of all activities carried out by the PPMUs; (d) reconciliation of payments with contracts; and (e) regular communication with PPMUs.

7. Information from various sources will be used to assess and monitor implementation progress. In addition to the data generated through the project's management information system and M&E systems, the World Bank will also review the findings and results of third-party assessments and environmental and social audits. In addition, and as required, targeted support including short missions by subject matter experts will be carried out.

Implementation Support Plan and Resource Requirements

8. To ensure timely, efficient, and effective implementation support to the client, the ISP foresees standard semiannual implementation support missions, complemented with follow-up meetings, field visits, and fiduciary reviews, to gather data that validates that the project is being implemented in accordance with the plan that is set out. The World Bank team members will lead these, majority of whom are based in the Vietnam Country Office. Fiduciary specialists will identify capacity-building needs to strengthen procurement and FM to address fiduciary and governance risks. The project task team will continue to support coordination and engagement with project stakeholders throughout the life cycle of the project. Implementation support details are outlined in the following paragraphs.

9. **Strategic.** Formal implementation support missions will meet with the PPMUs to (a) review project activities; (b) reconfirm strategic alignment of the project's multisector aspects; and (c) ensure the necessary coordination across respective stakeholders.

10. **Technical advice.** Priority will be placed on the implementation of the civil works. On-demand technical advice will be provided to the client throughout the project, particularly related to (a) integrated flood risk management; (b) climate-resilient transport infrastructure; (c) gender and citizen engagement elements in the project.

11. **Procurement.** During implementation, continued guidance and specific targeted training will be provided on procurement aspects as needed. Continued support will be provided through permanent technical support and semiannual field visits by the World Bank team during project implementation. Implementation support will therefore include (a) prior review of procurement documents; (b) ex post reviews at least twice a year; (c) training for procurement staff and providing detailed guidance on the World Bank's procurement guidelines; and (d) monitoring of procurement progress in relation to the

detailed Procurement Plan.

12. **FM.** Semiannual implementation support missions will focus on the adequacy of the FM system to ensure that funds are used for the intended purpose. In line with the identified FM risks, the reviews may focus on any of the following aspects: (a) review and verification of specific transactions; (b) review of internal controls of FM; (c) analysis of the financial statements in relation to the funds disbursed by the World Bank; and (d) physical verification of structures and others as to existence. Desk reviews will also be conducted on a regular basis and upon submission of the annual external audit of the project and the biannual IFRs. Issues arising from these reports will be used to revise and adjust the scope of the planned FM implementation support.

13. **Project management.** Advice on the overall management and supervision of the project will be provided to ensure technical soundness and consistency; transparency and good governance; inclusiveness; and compliance with relevant guidelines and procedures. Assistance will be provided to review the selection and management of national and international advisers and consultants to the project, ensuring the adequacy of expertise and quality of experts employed under the project.

14. **Environmental and social safeguards.** The World Bank worked with and advised the GoV on the preparation of and consultation for the social and environmental safeguards instruments for the proposed project. This support will continue throughout project implementation with regard to the investments financed under the project. The project is required to fully implement the ESMPs according to World Bank safeguard policies, in line with the POM. There will be multiple construction contracts and associated works that require adequate supervision. Support will include supervision and provision of technical inputs in the implementation of the ESMF/ESMP/ECOP/RPF/EMPF/RAP/EMDP in line with World Bank safeguard policies. Capacity building will be provided to relevant project staff for the preparation, implementation, and monitoring of environmental and social safeguard instruments. Risks will also be closely monitored and actively mitigated as far as practicable throughout the life cycle of the project.

15. **Client relations.** The TTL will (a) coordinate World Bank support to ensure consistent project implementation, as specified in the Legal Agreement and POM; and (b) meet regularly with senior representatives from the GoV to gauge project progress (including the midterm review) in achieving the PDO and address implementation roadblocks, as they may arise.

16. The following ISP reflects the preliminary estimates of the skill, timing, and resource requirements over the implementation period of the project. Keeping in mind the need to maintain flexibility over project activities from year to year, the ISP will be reviewed from time to time to ensure that it continues to meet the implementation support needs of the project. In addition, the team will work toward taking advantage of opportunities for cross-learning, combining external expertise, and carrying out joint missions with other ongoing projects.

17. Implementation support will be more intense during the first half of the project. As capacity develops, technical support will be reduced. The main focus of support to implementation during the first 12 months and thereafter is described below.

Implementation Support Plan

Time	Focus	Skills Needed	Resource Estimate	Partner Role
First 12 months	Supervision of Phase 1 investments	Civil engineers (transport, flood protection, irrigation infrastructure)	Supervision budget estimated - US$200,000	n.a.
	Technical review of documents (terms of reference, technical reports)			
	Procurement review of documents (bidding documents) and training	Procurement		
	Safeguards: implementation support and training	Social and environment safeguards		
	Project management and project implementation support coordination	Project management, M&E		
12–48 months	Supervision and management of construction contracts	Technical/construction experts	Supervision budget estimated - US$600,000	n.a.
	Environmental and social support and training	Social and environmental		
	Fiduciary	- Procurement - FM		
	Monitoring	M&E		
Other	-	-	-	-

Note: Procurement training will only be provided during the first 12 months.

Skills Mix Required

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Team leadership (TTL and Co-TTL)	24	8	HQ-based/CO-based
Operations analyst/specialist	20	8	HQ-based/CO-based
DRM specialist	14	8	HQ-based/CO-based
Flood risk management and	10	8	HQ-based/CO-based

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
irrigation specialist/civil engineer			
Transport specialist/civil engineer	10	8	HQ-based/CO-based
Procurement	4	4	In-country
FM	4	4	In-country
Social safeguards	10	4	In-country
Environmental safeguards	10	4	In-country
Support staff	14	2	In-country

Collaboration with JICA and other partners

18. For Component 2, the World Bank is joining efforts with JICA leveraging the technical expertise and lessons learned on building disaster resilience in Vietnam. To enhance the disaster recovery capacity of the Government, the World Bank will draw on Japanese expertise through the ongoing JICA-funded technical assistance on the assessment of the institutional capacity and legal frameworks for integrated flood risk management, especially to support the development of Integrated Flood Management Plans for the selected provinces.

ANNEX 4: ECONOMIC ANALYSIS

COUNTRY: Vietnam

Vietnam - Emergency Flood Disaster Reconstruction Project

1. The efficiency and benefits of preventive disaster management measures to reduce and avoid disaster impacts have been assessed in a limited number of projects. Mostly large returns to preventive measures have been found in studies appraising the potential benefits before implementation or evaluating the actual benefits ex post. In Vietnam, very few analyses for efficiency and benefits of preventive disaster management projects were conducted due to lack of information on the costs and benefits and the profitability of natural DRM projects. Benefits are the savings from avoided direct, indirect, and macroeconomic costs as well as the reduction in variability of project outcomes. Only those costs and benefits that can be measured likewise are included. Often, an attempt is made to monetarize those costs or benefits that are not given in such a metric, such as loss of life, environmental impacts, and so on. Generally, some effects and benefits will be left out of the analysis due to estimation problems.

2. The project's expected results were to support the GoV's reconstruction and recovery efforts, reduce vulnerability to flood and storm hazards in project areas, increase the efficiency of post-disaster recovery and reconstruction efforts, and strengthen resilience and the capacity of national and local DRM institutions. Investments for enhancing disaster response capability and reducing vulnerability generate returns with regard to capital stock damages being avoided and lives being saved in the events of natural hazards. By repairing the damage of key protective facilities and/or upgrading the structures located in affected regions, vulnerability of the selected areas is clearly reduced. The conventional cost-benefit analysis method might be considered inadequate to assess investments on structures protecting areas prone to disasters and post-disaster recovery investments and activities, because there are no empirical data to measure the correlation between pre-disaster preventing investments and reduction of future losses. However, a probability-based analysis using dynamic hydraulic models allows calculating incremental benefits as the difference in expected value of losses under the alternative scenarios before and after the project.

3. The project investments focus on three infrastructure categories, namely, transportation, irrigation, and flood control. The benefits of the project were estimated from most of the subprojects financed under Component 1 (US$121.08 million). Table 4.1 summarizes the types of subprojects financed under Component 1. In large part, Component 1 benefits reflect the considerable financing gap that exists for post-disaster reconstruction activities in Vietnam, even of basic public infrastructure, implying considerable needs, combined with measures to allocate the scarce available funds as effectively as possible to meet the most urgent reconstruction needs.

4. Reduced expected losses that were considered included (a) those directly affecting the family households (lost agricultural production and household assets); (b) private and public infrastructure (roads, electricity, water systems, and so on); and (c) human health costs, lives saved, and environmental values.

Table 4.1. Number of Subprojects, Per Type of Subproject under Component 1

Province	Types of Works/Infrastructures		
	Flood Control	Irrigation and Drainage	Transport
Ha Tinh	4	1	5
Binh Dinh	4	2	3
Quang Ngai	3	2	11
Phu Yen	1	1	2
Ninh Thuan	3	4	2
Total	**15**	**10**	**23**

5. The estimation of these benefits was based on data provided by local consultants. Some can be estimated using flood maps prepared to determine possible losses and weighted by the corresponding frequency of occurrence of different natural hazards. By mapping the expected flooded areas in alternative hazard events, together with the duration and depth of water in the affected areas, and overlapping the land use and existing assets in each location, the expected value of damages and corresponding rehabilitation costs were estimated.

6. Some values of Component 1 benefits are difficult to quantify. For instance, its road and bridge subprojects focused on reconstruction of rural networks, restoring motorized access of affected communes to neighboring ones and to the wider road network. Road and bridge subprojects helped save travel time of local people and fuel and vehicle operating cost. Some bridges have been elevated to reduce the probability of submersion during flooding and have had abutments and abutment toes reinforced and surfaces upgraded. Roads have been upgraded to less flood-vulnerable and reinforced surfaces. For instance, assuming that 20 percent of the households in a subproject area save 15 minutes per day in 200 days per year as a result of new bridges being built, values of saving travel time of local people living in the subproject area can be estimated.

7. The financial assessment confirmed that the reduced expected losses due to natural hazards contribute significantly to improving the livelihood of the poor in the project areas as losses reduced include agricultural and livestock production, as well as their family household asset. The financial analysis focused on the beneficiaries' income and how by reducing the expected losses the project improves poor families' expected income. Crop and livestock activity budgets and farm models were developed for quantifying these effects before and after the project investments based on average yields, costs of production, and existing cropping patterns. The expected reduction of lost assets for each area was introduced in the household budget models for both scenarios.

8. The economic analysis considered costs and benefits from the country's perspective. Costs and benefits were valued at market prices in most of the cases because there are very few significant market distortions in agricultural prices and production costs in Vietnam. Shadow pricing CFs were used only for the project investments and for the family labor costs used for agricultural activities. These adjustments account for an average 10 percent of taxes included in investments in the first case and for the low opportunity cost of rural labor in the second. Rural labor is provided mainly from the family household members who usually have very few employment opportunities. CFs of 0.9 for investments and 0.8 for labor were used for the economic analysis. Table 4.2 summarizes the financial and economic results for the selected Component 1 subproject investments. The financial results represent the impact of investments with regard to the expected value of the average annual net income of benefited farmers

and expressed as a percentage increase in their family income. As an economic impact indicator, the EIRR expected from the analyzed subproject investments was estimated considering the aggregate most direct benefits attained at the respective affected areas.

9. Farm models prepared for the relevant crops and activity models for livestock activities (cow/buffalo, pigs, and poultry production) in each of the area show both 'with' and 'without' scenarios, which differ on the expected percentages and value of lost production due to natural hazards. Primary sources of income, production costs, off-farm employment, and on-farm consumption were used to estimate the expected impact of the project on beneficiaries' incomes. The resulting net income before and after labor costs provides an estimate of the incremental net benefit that could be attained through each of the relevant crop/activities once the project improvements are operational. Farm models combining typical cropping patterns and livestock activities for each project area representing typical rural household systems were also prepared. These models allowed for quantifying the financial impact of the project on typical benefited households. The project improvements allowed for increases in household income of about 21–35 percent depending on the area and the type of works implemented. Models confirmed that the financial impacts of project interventions have a significant effect on the poor families' income.

Table 4.2. Economic and Financial Results of Representative Project Investments

Subprojects Location	Financial Results (VND, millions per year)			Economic Results
	Expected Value of Beneficiary's Income			
	Before Project	After Project	Increase (%)	ERR (%)
Ninh Thuan	59.7	77.3	29.5	23.0
Phu Yen	51.3	69.2	35.0	11.3
Quang Ngai	54.6	73.2	22.4	19.8
Binh Dinh	51.3	69.3	35.1	14.2
Ha Tinh	110.1	122.1	21.0	32.4
Overall Project Result				**18.9**

10. Table 4.3 illustrates crop models as an example of what was done for all relevant activities for the assessed project in Binh Dinh Province. Rice production is the most important economic activity in most of the affected areas. Market prices at the farm level for 2016 were used for products, inputs, and labor in both scenarios. The 'without project' columns show the situation before the project assuming that the situation would remain unchanged if the project is not implemented, and the 'with project' columns show the average results being expected under the completed project improvements.

Table 4.3 Crop models illustration in Binh Dinh province

AN5-3
Viet Nam
RAPID ASSESSMENT AND EMERGENCY RECOVERY LOAN (Vietnam ERL)
1. BINH DINH Household (Financial Analysis) FM
FINANCIAL BUDGET (AGGREGATED)
(In VND '000)

	April -- March			
	Without Project	With Project		
	1 to 20	1	2	3 to 20
Main Production				
Rice	12,403	12,403	13,261	14,119
Other Crops	1,495	1,495	1,719	1,929
Livestock Products	55,056	55,056	62,531	70,725
Sub-total Main Production	68,954	68,954	77,511	86,773
On-Farm Consumption				
Rice	14,600	14,600	14,600	14,600
Net Value Of Production	54,354	54,354	62,911	72,173
Purchased Consumption				
Rice	2,197	2,197	1,339	481
INFLOWS	52,158	52,158	61,573	71,692
Production Cost				
Purchased Inputs				
Fertilizers	2,118	2,118	2,118	2,118
Agrochemicals	216	216	216	216
Planting Materials	884	884	884	884
Hired Machinery & Other	1,145	1,145	1,145	1,145
Livestock Inputs	10,200	10,200	11,000	11,800
Sub-Total Purchased Inputs	14,563	14,563	15,363	16,163
Labor				
Labor	845	845	845	845
Sub-Total Production Cost	15,408	15,408	16,208	17,008
Other Costs				
Other Costs	50	1	1	1
OUTFLOWS	15,458	15,409	16,209	17,009
Cash Flow Before Financing	36,700	36,749	45,364	54,684
Farm Family Benefits Before Financing	51,300	51,349	59,964	69,284
Net Financing	-	13,787	-80	-
Cash Flow After Financing	36,700	50,536	45,284	54,684
Change in Net Worth				
Contribution from own savings	-	13,867	-	-
Residual value of Transfer to Next Period	-	-	-	-
Sub-Total Change in Net Worth	-	-13,867	-	-
Farm Family Benefits After Financing	51,300	51,269	59,884	69,284
Returns per Family-Day of Labor	511	510	598	694

11. The changes in family benefits appear mainly due to higher expected yields as production losses are reduced after the project investments, while production costs remain constant. For example, rice in the wet season in the subproject area in Binh Dinh shows a 9 percent annual expected loss due to natural hazards, which results in an average yield of 6.3 tons per hectare without the project. With the reduced risk of floods, the expected losses are now reduced to 3 percent with the project structures in place. Consequently, the expected yield became 6.9 tons per hectare. Similar models were built for production activities in the different areas. All models represent average conditions for the crop or livestock activity in the respective subproject area.

Table 4.4. Overall economic analysis of the project

AN5-4
Viet Nam
RAPID ASSESSMENT AND EMERGENCY RECOVERY LOAN (Vietnam
Project Summary
ECONOMIC BUDGET (AGGREGATED)
(In VND Billion)

	April -- March									
	Without Project			With Project						
	1	2	3 to 30	1	2	3	4	5	6	7 to 30
Main Production										
Rice	1,205	1,205	1,205	1,205	1,207	1,215	1,233	1,292	1,339	1,339
Other Crops	81	81	81	81	81	82	83	93	101	101
Livestock Products	2,958	2,958	2,958	2,958	2,959	2,974	3,015	3,285	3,550	3,550
Sub-total Main Production	4,245	4,245	4,245	4,245	4,247	4,271	4,331	4,669	4,990	4,990
On-Farm Consumption										
Rice	732	732	732	732	732	732	732	732	732	732
Net Value Of Production	3,513	3,513	3,513	3,513	3,515	3,539	3,599	3,937	4,258	4,258
Purchased Consumption										
Rice	79	79	79	79	79	78	74	45	18	18
INFLOWS	3,434	3,434	3,434	3,434	3,436	3,462	3,525	3,893	4,241	4,241
Production Cost										
Investment										
Component 1: Resilient Reconstruction of Flood Damaged Infrastruc	-	-	-	43	850	850	383	-	-	-
Component 1: Resilient Reconstruction of Road Infrastructure (C1)	-	-	-	26	519	519	234	-	-	-
Sub-total Investment Costs	-	-	-	69	1,369	1,369	616	-	-	-
Operating										
Purchased Inputs										
Rehabilitation of Road Infrastructure	1	1	1	1	1	1	0	0	0	0
Rehabilitation of Schools and Other Infrastructure	3	3	3	3	3	2	1	0	0	0
Rehabilitation of Electricity & Water Infrastructure	1	1	1	1	1	1	0	0	0	0
Losses in Human Lives	4	3	1	4	4	3	1	0	0	0
Losses from Natural Hazards	5	5	5	5	5	4	2	0	0	0
Operation & Maintenance of Structures	24	24	24	24	22	18	11	7	5	5
Fertilizers	187	187	187	187	187	187	187	187	187	187
Agrochemicals	20	20	20	20	20	20	20	20	20	20
Planting Materials	83	83	83	83	83	83	83	83	83	83
Hired Machinery & Other	107	107	107	107	107	107	107	107	107	107
Livestock Inputs	595	576	556	595	568	550	527	537	549	547
Sub-Total Purchased Inputs	1,031	1,010	988	1,031	1,001	975	940	943	952	950
Labor										
Labor	1,181	1,181	1,181	1,181	1,180	1,180	1,179	1,175	1,172	1,172
Sub-total Operating Costs	2,211	2,190	2,169	2,211	2,181	2,155	2,119	2,118	2,124	2,122
Sub-Total Production Cost	2,211	2,190	2,169	2,280	3,550	3,524	2,736	2,118	2,124	2,122
Other Costs										
Component 2: Enhance the disaster recovery capacity of GoV (C2)	-	-	-	12	12	12	12	-	-	-
Component 4: Contingent Emergency Response (C4)	-	-	-	0	0	0	0	0	-	-
Component 3: Project Management (C3)	-	-	-	25	25	25	25	-	-	-
Rehabilitation of Household Assets	20	20	20	20	19	17	4	4	4	4
Sub-Total Other Costs	20	20	20	58	57	55	42	4	4	4
OUTFLOWS	2,232	2,210	2,189	2,338	3,607	3,579	2,778	2,122	2,129	2,127
Cash Flow	1,202	1,224	1,245	1,096	-171	-117	747	1,770	2,112	2,114
Net Economic Benefits	1,934	1,956	1,977	1,828	561	615	1,479	2,502	2,844	2,846

IRR = 18.9%, NPV = 1,671.94

12. Each group of each type of subproject in a province financed under Component 1 was assessed. The ERRs of the investment estimated for each province are listed in Table 4.2. The aggregate economic impact considered the expected ERR from the subproject investments, considering the aggregate costs and benefits on the project areas. The estimated ERRs vary between 11.3 percent and 32.4 percent and all show positive NPVs. The sample schemes are a good combination of all investments to be financed under Component 1. Considering that the analysis did not quantify indirect benefits (occurring as a consequence of direct stock losses mostly with regard to production and wage losses due to interruption of economic activities) and macroeconomic or secondary effects (comprising the aggregate impacts on

economy-wide variables such as GDP, consumption, and inflation as well as reallocation of Government resources to post-disaster efforts), all subprojects are fully justified from the country's perspective.

13. The overall economic analysis shows that the aggregate investments have an ERR of about 18.9 percent and NPV of about VND 1,671.9 billion (Table 4.4). The economic analysis considered costs and benefits from the country's perspective valued at market prices in most of the cases because there are few market distortions in agricultural prices and production costs in Vietnam. The aggregate economic impact considered the expected ERR mostly from Component 1 subprojects. With Component 4 being zero funded, Component 2 and 3 costs were also included in the analysis since they contributed to the efficiency of the overall investment.

ANNEX 5: SUMMARY OF DAMAGES AND LOSSES FROM THE DECEMBER 2016 FLOOD EVENTS

COUNTRY: Vietnam
Vietnam - Emergency Flood Disaster Reconstruction Project

Brief Description of the Event

1. Since mid-October 2016 until the end of December 2016, 18 provinces in Central and South Central Vietnam and the Central Highlands were affected by five consecutive periods of flooding due to very heavy rainfall caused by a combination of tropical depressions and the north-eastern monsoon, which significantly affected its people and economy.

2. The total rainfall on average over a two-month period reached up to 2,000 mm, with peaks in Quang Nam (2,611 mm), Quang Ngai (2,729 mm), and Binh Dinh (2,417 mm). The 2016 floods were a rare event; while rainfall-induced flooding occurs annually in these regions, they rarely occur so frequently and this late in the year. During the three months, new floods were occurring in the low-lying areas of the South Central Coast regions, while the effects from the previous floods were still being felt, thus exacerbating the impacts. Irrigation and hydropower reservoirs in all affected regions reached their maximum capacity, leading to a series of controlled water discharges and further intensifying the flood impact.

Damages and Losses

General

3. **The six most affected provinces are: Binh Dinh, Phu Yen, Ha Tinh, Quang Ngai, Quang Binh, and Nghe An.** The flood periods and provinces affected were as follows:

- October 13-18: from Nghe An to Thu Thien Hue provinces;
- October 30-November 7: from Ha Tinh to Phu Yen, and the Central Highland provinces;
- November 29-December 4: from Thua Thien Hue to Binh Dinh provinces;
- December 5-9: South Central and Central Highland provinces (from Thua Thien Hue to Ninh Thuan); and
- December 12-18: Central and Central Highland provinces (Quảng Nam, Quảng Ngãi, Bình Định, Phú Yên, and Gia Lai).

4. Approximately 10–30 percent of people per province were affected, with over one million people temporarily displaced and in need of recovery assistance. As reported by the Government's CCNDPC and the UN in December 2016, the total damage and loss of all five floods in the 18 provinces was as follows:

(a) Human impact: 134 lives lost and missing and 151 people injured;

(b) Housing: 233,271 houses flooded (of which 163,682 were flooded above 1 meter) and 4,093

damaged or collapsed;

(c) Crops: 53,247 ha rice damaged, of which 23,294 ha perennial crops and 44,437 ha vegetables submerged;

(d) Livestock: 18,371 cattle and 1,218,449 poultry killed;

(e) Infrastructure: 1,782 km of roads damaged or eroded, and 585 bridges or culverts and 60 km of dykes damaged;

(f) Estimated economic loss: VND 10,520 billion (approximately US$460 million).

5. On October 15, 2016, the GoV declared a state of emergency.

Per Province

6. Out of the four provinces, the rapid assessment showed that the most affected province is Binh Dinh, followed by Quang Ngai, Phu Yen, and Ninh Thuan. Table 5.1 shows a summary of the estimated damages and losses per province.

Table 5.1. Estimated Disaster Effects (Damages and Losses) by Province[a]

Province	Damage		Loss		Total	
	(VND, millions)	(US$, millions)	(VND, millions)	(US$, millions)	(VND, millions)	(US$, millions)
Binh Dinh	1,785,443.5	78.7	183,619	8	1,966,883.5	86.7
Quang Ngai	736,754.5	32.5	220,564	10	963,554.5	42.5
Phu Yen	358,572.4	15.9	1,081,428	48	1,447,212.4	63.9
Ninh Thuan	221,036.0	9.7	369,022	16	583,916.0	25.7
Total	**3,101,806.4**	**136.8**	**1,854,634**	**82**	**4,961,566.4**	**218.8**

Note: a. The losses reported are only from the agriculture, livestock, and fishery sectors.

7. Subsequently, as mentioned in earlier sections, an extra province has been added to be covered under this project upon request from the GoV. Due to the extremely short time to collect damage and reconstruction need information for Ha Tinh province, the report is mainly on the flood protection and irrigation sectors. The reported disaster effects are as described in table 5.2.

Table 5.2. Estimated Disaster Effects (Damages and Losses) for Ha Tinh

Province	Damage		Loss		Total	
	(VND, millions)	(US$, millions)	(VND, millions)	(US$, millions)	(VND, millions)	(US$, millions)
Ha Tinh (for flood protection and irrigation only)	219,380	9.7	n.a.	n.a.	689,007	30.4

Per Sector

8. In terms of impacts on the four sectors, the most affected is the road sector with a total damage of US$70 million (VND 1,588,501.0 million), followed by flood protection and irrigation infrastructure with

a total damage of US$33.9 million (VND 769,507.8 million), agriculture, livestock, and fishery with a total damage of US$22.6 million (VND 512,142.8 million), and housing with a total damage of US$10.2 million (VND 231,655 million). Table 5.3 shows the breakdown of the estimated damage and reconstruction needs cost by sector. Only the agriculture sector included an estimate of the losses to the sector. In terms of reconstruction costs, flood protection and irrigation infrastructure is the sector with the most reconstruction need.

Table 5.3. Estimated Disaster Effects and Needs by Sector

Sector	Disaster Effects						Needs	
	DAMAGE		Loss		Total		Reconstruction	
	VND, millions	US$, millions	VND, millions	US$, millions	VND, millions	US$, millions	VND, millions	US$, millions
Social Sectors								
Housing	231,655	10.2	-	-	231,655	10.2	394,208	17.4
Productive Sectors								
Agriculture	118,481	5.2	1,516,901	66.8	1,635,382	72	-	-
Livestock	377,574	16.6	35,336	1.6	412,910	18.2	-	-
Fisheries	16,088	0.7	302,398	13.3	318,486	14.0	-	-
Irrigation and Flood Control	973,585	42.9	-	-	973,585	42.9	451,7901	199.2
Infrastructure								
Transport	1,588,501	69.9	-	-	1,588,501	69.9	3,241,327	142.9
Total	**3,321,187**	**146.4**	**1,854,635**	**81.8**	**5,175,821**	**228.2**	**7,571,034**	**333.8**

Note: Exchange rate of US$1 = VND 22,680 was used for the conversion.

9. **Vietnam's transport infrastructure was extensively damaged by the flooding and landslides**. As reported, the five floods during October-December 2016 caused heavy damages to the transport infrastructure, mostly roads and bridges, in 18 provinces in the Central Region. The flood flows from various rivers, after overtopping and/or breaching the riverbanks and dykes, flooded the surrounding areas, including the roads, and at many places, washed away a length of the road and eroded the pavement and embankments and destroyed or damaged many bridges. In hilly terrains, the heavy rainfall caused landslides, blocking and damaging the roads, as well as heavy surface water flow down the steep slope caused erosion of the road foundations, leading to failure of the road pavement. Flooding and landslides had a major impact on road connectivity and the transport sector alone contributed to about 54 percent of the total damages in four provinces, namely Quang Ngai, Binh Dinh, Phu Yen, and Ninh Thuan, which are considered suffering most from the last events. Damages are mainly concentrated in Binh Dinh Province, representing nearly 55 percent of the total damage in the transport sector in the selected four provinces. Access to essential services was cut off as a result of the flooding and landslides, with destroyed bridges blocking access to even the most basic mode of transport-foot traffic. Road infrastructure remains vulnerable to further damage and failure until permanent repair works (including strengthening and raising of riverbanks and dykes) can be completed. The disaster has worsened the existing poor accessibility in the rural areas. The lack of access on the road network also restricts the delivery of emergency supplies and will continue to hamper recovery efforts for the most-affected

communities. The rapid assessment estimates total damages in the transport sector in the selected four provinces at US$70 million, for which the recovery and reconstruction needs are approximately US$143 million considering a more resilient standard structure.

10. The flood control and irrigation infrastructure sector in the impacted provinces was also severely damaged. In this subsector, all damaged schemes and infrastructure identified are public investments. The disaster caused damage to flood embankments/dykes, riverbank erosion protection works, irrigations canals and canal structures, temporary and raised dams and drainage culverts/sluices, and water supply schemes. However, the majority of the damage was to dykes, riverbanks, and irrigation canals. Major impacts were seen in rural areas and to rural infrastructure including dykes and embankments, riverbank protection works, irrigation canals, diversion dams, roads, bridges, culvers, and so on.

11. The reported damage to this sector in Binh Dinh Province exceeds that of the other provinces, as was observed by the assessment team during the field mission. The estimated direct damage for the four sectors under review in the rapid assessment for Binh Dinh Province was twice as high as the other provinces included in the rapid assessment (see **Error! Reference source not found.**)

12. Respective provincial governments with the assistance of the Central Government had undertaken temporary restoration measures such as initial and/or partial closing of breaches, strengthening critical bunds/revetments, and so on. Many of these works would require immediate attention and permanent measures to avert possibilities of losses and/or damages in the near future. This is particularly urgent as Vietnam is exposed to cyclonic storms and heavy rain during the monsoon season annually. Given the frequency of occurrence of severe events in Vietnam, it is important to carry out the repair and strengthening works of damaged infrastructure immediately.

13. The total estimated cost of damages to infrastructure including dyke/embankments, irrigation canals, and other infrastructure in the four provinces under review in this report is approximately US$113 million. The aggregate cost of reconstruction, with improved design standards for the flood control and irrigation infrastructure, in the five provinces that are the focus of the reconstruction project is estimated at US$200 million, with approximately half of the total required by Binh Dinh Province.

Government's Response

14. The Central Government has been acting promptly according to the prearranged response plans. Warnings and operational directives were disseminated via the media (television and radio) to guide the preparedness and response efforts.

15. At the provincial level, the Provincial Steering Committee for Natural Disaster Prevention of the PPC instructed the local governments, departments, and sectors to implement the preagreed response plan. The Steering Committee for Natural Disaster Prevention were on standby 24/7, collecting and disseminating information on the flood situations. For the response, the core principles of '4-on-spot motto' were carried out by the provincial governments: deploying human resources, devices, materials, equipment, water and food, preventative medicines, and other necessities.

16. Other actions taken by the provincial-, district-, and commune-level committees include the following:

- The operation of the reservoirs conducted according to the preagreed procedures, resulting in no major incidents;
- Traffic was guided to avoid areas with collapsed bridges, landslides, and flooded roads, ensuring safety;
- People living in the severely affected areas were evacuated promptly to safe places.

17. As of end-December 2016, all evacuated people have returned to their houses or are living with relatives. The media constantly provided updates of the situation and disseminated instructions from the Central Committee for Natural Disaster Prevention and Control (CCNDPC) on actions to be taken by the residents being affected by the event.

18. The provincial governments annually set aside contingency budgets that can be used for supporting immediate relief operations following a natural disaster. The proportion of contingency budget is 5-10 percent of the annual budget. Using this contingency budget, relief items such as food and water, seeds for replanting, livestock, and search and rescue equipment were quickly mobilized. Temporary measures such as sand bags for breached riverbanks or erecting temporary shelters were put in place.

19. Following natural disasters in Vietnam, the provincial governments provide extraordinary financial support to social protection beneficiaries, that is, people affected by the events. For example, in Binh Dinh, for the 2016 events the provincial government provided VND 4.5 million per person for loss of life; VND 1.5 million per seriously injured person; VND 50 million per house for destroyed houses that can be rebuilt on the same plot; and VND 100 million per house for those that have been washed away and need to be relocated due to the vulnerability of the original plot to future events, with one alternate land plot granted without land use fee.

Provincial military supported the affected households by assisting in the cleanup of the inundated houses and erecting temporary shelters for those that cannot go back to their houses. Temporary dykes were also erected allowing for the winter-spring crops to be planted. Contaminated wells have been treated, and schools have been cleaned up so that children can resume their education. Most of the affected areas have had their electricity restored.

ANNEX 6: ENVIRONMENTAL AND SOCIAL SAFEGUARDS ACTION PLAN

COUNTRY: Vietnam
Vietnam - Emergency Flood Disaster Reconstruction Project

1. According to the World Bank's policy OP 10.0 (IPF), in cases where the borrower/beneficiary is deemed by the World Bank to be in urgent need of assistance because of a natural or man-made disaster the World Bank may provide support through IPF under normal IPF policy requirements with the following exceptions for safeguards:

- The environmental and social requirements set out in the World Bank's safeguard policy that are applicable during the project preparation phase may be deferred to the implementation phase. Given the emergency response nature of the project, and to facilitate the project processing, this policy has been followed, and an SAP has been prepared addressing the application of environmental and social policies.

2. This SAP includes: (a) planned project activities, locations, and general environmental and social baseline (as far as known), and the expected environmental and social impacts; (b) sequencing and, if practical, a tentative implementation schedule for safeguard processing such as the subproject RPF, EMPF, RAPs, ESMPs, EMDPs, ESMF, ESMPs, and ECOPs; (c) preparation time for safeguard instruments, including World Bank review, revisions, clearance, and approval steps; (d) disclosure and consultations; (e) roles and responsibilities, including supervision arrangements for safeguard preparation, implementation, and monitoring; (f) estimated costs for the safeguard preparation and implementation process.

Project Activities and Locations

3. The project area will cover the five central provinces of Ha Tinh, Quang Ngai, Binh Dinh, Phu Yen, and Ninh Thuan as having suffered the worst devastation from the severe floods from October through December 2016. A majority of the investments will be in located in the following four river basins: (a) Ha Vang and Rac river basin-Ha Tinh Province; (b) Ve river basin-Quang Ngai Province; (c) Kon river basin-Binh Dinh Province; (d) Ba river basin-Phu Yen Province; and (e) Dinh river basin-Ninh Thuan Province. These river basins are considered to be Vietnam's most disaster-prone areas. They are located entirely within Vietnam territory.

4. Most of the rivers are short and steep, causing fast water flows and accumulation of sediment at the river mouths. The project area lies within the tropical monsoon region, with an average temperature of 27˚C, and two major climate patterns, the North Central and the South Central Coast. In the project area, 70 percent of the total land area is used for agriculture. The rest consists of non-agriculture land (about 10 percent) and unused land (20 percent). The terrestrial ecosystems of the region mainly consist of the old-growth forests. Freshwater ecosystems are found not to be unique. In the area, many national parks and natural reserves of high biodiversity value have been established; however, none of the proposed subprojects will be located within and/or near these areas.

5. The Central Region experiences most of the different types of natural disasters in Vietnam, of which the most frequent are floods, typhoons, heat waves, and droughts. Floods and inundations in the region usually occur on a large scale, simultaneously in several provinces, and sometimes cover the entire region. Floods have been hitting the region more frequently and more fiercely, causing human casualties,

property damage, and soil and water pollution. Storms and tropical low pressure are happening more regularly and intensely.

6. In general terms, the proposed project will support recovery, rehabilitation, and reconstruction activities in the same locations/sites where the original infrastructure was located. The project will support analytical work (for example, FSs, environmental, and social instruments) to support the design and location of the investments. Recovery, rehabilitation, and reconstruction works are expected to be relatively limited in small and moderate scope, largely labor based, and spread throughout flood damaged areas in four priority flood-prone areas in the project provinces. These include: rehabilitation/upgrading of the existing dykes, roads, bridges, embankments, irrigation canals and pumping stations, weirs, water supply systems, and reconstruction of the bridges damaged by the floods. The project will not support the building of new infrastructure or activities that will cause significant loss of land or private assets. It is possible, however, that trees, structures, and housing within project construction footprints might be affected by recovery, rehabilitation, and reconstruction activities. Broad, diverse, permanent, and/or irreversible environmental and social impacts are not anticipated. Category A subprojects will be excluded from project financing due to the scope of the expected rehabilitation works and the restrictions in timing typical of an emergency operation.

7. The project will support 'build back better' approaches on a case-by-case basis. Build back better approaches will promote integration of resilient and innovative technologies (for example, flood resistant structures, slope stabilization, and so on). Build back better, in the case of road reconstruction/rehabilitation, may include minor realignments, use of stronger paving materials, or more robust surface covering designs. The project will focus on four major sectors: transport, agriculture, housing, and water supply.

Potential Environmental and Social Impacts/Risks

8. The project's overall potential socioenvironmental impacts would be positive as it is expected to bring about change to the affected communities in the districts that were affected by loss of public service infrastructure that will be restored and improved under the project. Specifically, the project will benefit the population affected by the 2016 floods across five of the most-affected provinces. Under Component 1, direct beneficiaries will include some 1,273,045 inhabitants in five provinces, 9.5 percent of whom are poor. In addition, the total population of the five provinces, around 5.1 million, will benefit either directly or indirectly from improvements expected to result from incorporating the build back better approach in the technical designs, as well as the increased capacity of the provinces to manage and respond to disasters.

9. There are also potential adverse socioenvironmental impacts associated with construction and operation of the proposed physical investments under Component 1. These include commonly known construction impacts and risks, such as (a) safety risks related to unexploded ordinances left from the war; (b) loss of vegetation cover and trees (c) increased level of dust, noise, and vibration; (d) pollution risks related to removal and disposal of substantial quantities of nonhazardous construction materials associated with the destroyed structures (embankment protection devices and bridges) consisting of concrete, scrap metal, stone, and sand from irrigation canals and small streams; (e) traffic disturbance and increased traffic safety risks; (f) erosion and landslide risk on slopes and deeply excavated areas as well as potential negative impacts on existing weak facilities; (g) interruption of existing infrastructure and services such as water and power supply; (h) disturbance to daily socioeconomic activities in project area

and social disturbance; (i) health and safety issues related to the public and the workers at construction sites; (j) social impacts associated with construction disrupting businesses by construction related activities and mobilization of workers to the site, including due to relocation of graves; (k) land acquisition in case of widening/improving the damaged structures; and (l) impact on ethnic minority communities in the project areas.

10. However, these potential negative impacts would be expected to be moderate, localized, temporary, limited range, and reversible, and can be mitigated through the application of good construction and management practices and with close supervision of contractor performance by field engineers and in close consultation with local communities. The impacts and mitigation measured will be addressed during the preparation of the ESMPs and ECOPs for these subprojects. Land acquisition impact is expected to be insignificant, which will be minimized and mitigated through adequate compensation/assistance measures in consultation with affected people to be reflected in the RPF/RAPs. Ethnic minority communities will mostly be beneficiaries of the project. The adverse impact on them (if any) will be identified and mitigated with appropriate measures to be proposed in the EMPF/EMDPs. Therefore, the project has been categorized as a Category B project for environment.

11. **Consideration of alternatives.** The proposed project will support recovery, rehabilitation, and reconstruction activities for damaged roads, bridges, riverbank and irrigation canal erosion control structures, water supply systems, and flood control systems and schemes. During implementation, alternatives for specific road alignment, paving materials, road surface designs (thickness, construction techniques, and so on), canal and riverbank erosion control designs, construction materials, construction techniques, and so on will be considered to build back better and avoid or minimize adverse environmental or social impacts. Some of these alternatives could entail minor alignments in landslide-prone areas, demolition and clearing land of debris and sand, dredging river beds and canal bottoms producing large amounts of solid wastes that could present disposal issues.

Project Approach at Addressing Environmental and Safeguard Issues

12. During project preparation, an environmental and social safeguard screening form has been sent to the project provinces to collect information on the subproject investment type, scale, location, and environmental and social issues including forests, natural habitats, physical cultural resources, land acquisition, resettlement, and ethnic minority people. The information collected has been then furnished by field visits to the subproject sites in the project provinces to identify the main environmental and social issues, determine the policies to be triggered, and proposed environmental category of the project. Subproject activities have been well-defined before Loan Approval with regard to design, location, costs and so on. All individual subprojects have been screened and it has been determined that the following World Bank safeguard policies are triggered for the projects: (a) Environmental Assessment (OP/BP 4.01); (b) Natural Habitats (OP/BP 4.04); (c) Pest Management (OP 4.09); (d) Physical Cultural Resources (OP/BP 4.11); (e) Indigenous People (OP/BP 4.10), and (f) Involuntary Resettlement (OP/BP 4.12). The rationales for triggering of these policies are provided in annex 2. In addition, each province has ordered their investment needs and arranged them on a priority basis.

13. **ESMF.** Since only subprojects for the first 18 months have been identified in detail, and the remaining specific interventions will be further developed during implementation, an ESMF will be developed to provide general guidelines to the client to ensure that the proposed project is implemented in an environmentally and socially sustainable manner and in line with the applicable World Bank

safeguard policies and Government regulations. The ESMF provides guidance for screening for potential environmental and social impacts, determine World Bank operational policies applicable and categorization, discern the appropriate environmental and social instrument to be created, and manage and monitor mitigation measures. The ESMF will be reviewed and cleared by the World Bank.

14. **Subproject ESMPs/ECOPs.** Given that the subprojects/activities for the priority investment for the first 18 months of implementation have been identified, subproject ESMPs or standardized ECOPs will be prepared immediately at implementation by the client, meeting the World Bank's requirements to enhance the positive impacts and address the adverse impacts. Preparation of the remaining subproject ESMPs/ECOPs will follow the guidance provided in the ESMF. All the ESMPs/ECOPs will be reviewed and cleared by the World Bank. No civil works will commence before approval and disclosure of these safeguard instruments.

15. Provincial Governments will be responsible for preparing World Bank safeguard documents, and supervising implementation and reporting to the World Bank. In addition, the provincial governments will be responsible for receiving all necessary environmental and social approvals, permits, and licenses as required by national and provincial regulations and for ensuring consistency between World Bank and Government environmental and social documentation.

16. The environmental and social workflow and implementation arrangements will be further developed during implementation, but overall, it will include the following steps:

- **Step 1.** Preparation of safeguard instruments
- **Step 2.** Consultation with affected groups
- **Step 3.** Review and clearance of safeguard instruments
- **Step 4.** Disclosure of safeguard instruments
- **Step 5.** Implementation of agreed actions, supervision, and reporting

17. The project will support numerous (in the order of 100) subproject investments. Therefore, the following strategic approach to addressing these steps has been devised.

Step 1: Preparation of Safeguard Instruments

Environmental

18. **ESMF.** Binh Dinh PPMU, as a focal point, will be responsible for preparation of the project ESMF in line with the World Bank safeguard policies, immediately after the project approval. Preparation of the ESMF instruments will follow the World Bank policies and the in-country good practice notes, namely:

- Summary of Process for Environmental Safeguards Implementation in World Bank-Financed Projects in Vietnam.
- **ESMF toolkit.** The ESMF will:

- Identify, characterize, and evaluate potential environmental and social risks of the project and subproject investments to determine subproject EA category;
- Identify which safeguard policies apply to the project and subprojects;
- Identify specific instruments to be prepared for each subproject based on the evaluation of risk and environment category;
- Determine procedures for screening, review, approval, and disclosure of subproject safeguards instruments;
- Set up implementation arrangements for supervision, monitoring, and reporting;
- Assign responsibilities for screening, preparation of subproject instruments, implementation, and monitoring of subproject ESMPs/ECOPs;
- Develop a safeguard capacity building and training program; and
- Set up a GRM, consultation, and disclosure. Timing for preparation of the ESMF are indicated in Table 6.1.

19. The ESMP will detail (a) all anticipated adverse generic construction impacts (such as dust, noise, solid waste management, materials storage, labor health and safety, and so on) and site-specific environmental and social impacts (including those involving indigenous people or involuntary resettlement); (b) the mitigation measures, including ECOPs for generic construction impacts and site-specific impact mitigation measures, to be taken during the implementation and operation of the subprojects to eliminate or offset adverse environmental impacts, or to reduce them to acceptable levels; (c) monitoring objectives and type of monitoring with linkages to the impacts assessed in the EA report and the mitigation measures described in the ESMP; (d) the actions needed including institutional arrangements to implement these measures; (e) capacity development and training to support timely and effective implementation of environmental project components and mitigation measures; (f) implementation schedule and cost estimates for implementing the ESMP; and (g) integration of the ESMP with the subprojects.

20. As part of the ESMP for the subproject, the general measures will be translated into standard environmental specifications to be incorporated into the bidding and contract documents. These are referred to as ECOPs, and they will be applied to mitigate typical impacts of the subproject's civil works under Component 1. The ECOPs describe typical requirements to be undertaken by contractors and supervised by the construction supervision consultant during construction. The ECOPs will be incorporated into the bidding and contract documents' annexes. Construction activities for civil works governed by these ECOPs are those whose impacts are of limited extent, temporary and reversible, and readily managed with good construction practices. The measures identify typical mitigation measures for the following aspects: (a) dust generation, emission, noise, and vibration; (b) wastewater management; (c) solid waste management; (d) hazardous waste management; (e) water pollution; (f) plants and aquatic species; (g) sedimentation, erosion, flooding subsidence, and landslide; (h) traffic management; (i) existing infrastructure and services; (j) social impacts; (k) chance finds procedures; (l) community's safety and health; (m) workers' health safety; (n) management of warehouses and borrow pits; and (o)

communication to local community.

21. Site-specific impacts will require site-specific mitigations measures that are beyond the scope of ECOPs.

Social

22. Specific investments for the first 18 months of implementation have been identified. According to preliminary assessment of the provinces, it is expected that land acquisition would be marginal with no household relocation anticipated. In addition, potential loss of livelihoods due to the temporary restriction of access and interruption of irrigation water supply during construction period is envisaged. The detailed assessment of the impact level will be conducted during RAP preparation.

23. In accordance with the OP 4.12, for sector investment operations that may involve involuntary resettlement, the World Bank requires that the project implementation agency screen subprojects to be financed by the World Bank to ensure their consistency with this operational policy. For these operations, the borrower submits, before appraisal, an RPF that conforms to this policy. According to GoV requirements set forth in the Land Law 2013 and Decree 16/2016/ND-CP guiding the ODA utilization and management, an RPF for five-project provinces will be prepared and submitted to the competent authorities for approval during the project preparation. The RPF has already been cleared by RSS in April 2017. The RPF will also be approved by the government before the project implementation.

24. An initial screening has confirmed that there are ethnic minority communities according to the World Bank OP 4.10 (Indigenous Peoples) definition, to be affected by and benefited from the project. An EMPF will be prepared guiding procedures to ensure free, prior, and informed consultation with affected ethnic minority communities to ascertain their broad community support, measures to ensure they benefit from project supports, and minimize/mitigate any adverse impacts on them. The SA and preparation of the EMPF will be carried out early in the project's implementation stage to allow them to adequately inform the preparation of site-specific EMDPs.

25. In addition to the RPF and EMPF, other social safeguard documents will be prepared under the project, including subproject RAPs and EMDPs, and are all deferred to project implementation. Given the nature of emergency for implementing the critical works to be completed before the upcoming flooding season in September, subproject RAPs/EMDPs for critical works should be available, approved, and implemented before the civil works commencement.

Step 2: Consultation with Affected Groups

26. It is anticipated that the investments will aggregate into subprojects of 'clusters' when mapped in this fashion. To the extent feasible, public consultations will be held at each of these 'clusters', addressing environmental and social issues associated with all the investment RPF/EMPF/RAPs/EMDPs/ESMF/ESMPs/ECOPs at the particular cluster center. In this manner, a single public consultation for several subprojects can be conducted, again offering a highly efficient approach for effective public involvement. Public consultations need to be conducted by the subproject owners and in line with the World Bank requirements. People affected by land acquisition will be consulted on compensation and resettlement policies and other related issues in accordance with OP 4.12. Ethnic minority people will be consulted to get their broad support to the project and to enhance the project

benefits as well as to minimize/mitigate any adverse impacts on them.

Step 3: Review and Clearance of Safeguard Instruments

27. Any issues raised at the public consultations will be addressed and as appropriate the project safeguard instruments and designs, RPF, EMPF, and the specific RAPs, EMDPs, ESMF/ESMPs/COPs, will be modified accordingly as a result of the consultation. At least one public consultation will need to be conducted when the draft of these safeguard instruments are prepared. The feedbacks from the consultations will be incorporated into the subproject design and the final draft RPF, EMPF, RAPs, EMDPs, ESMF, ESMPs, and ECOPs. Consultation with the affected communities and people and other related stakeholders will be continued during project implementation. These safeguard instruments will then be sent by the consultant to the subproject PMU safeguard specialists for review before sending them to the World Bank for review and clearance.

28. The draft final RPF for the five provinces has already been cleared by RSS in April 2017. It will also be approved by the government for approval before project implementation. The draft final EMPF/RAP/EMDPs/ESMPs/ECOPs will be sent to the World Bank for review and 'no objection' during the implementation stage, then to the PPC for approval before its implementation.

Step 4: Disclosure of Safeguard Instruments

29. Before sending to the World Bank for clearance/no objection, the draft RPF, EMPF, RAPs, EMDPs, ESMF, ESMPs, and ECOPs will need to be disclosed locally in Vietnamese at the PPMU office, relevant provincial department offices, and subproject sites. The English language version will be sent to the World Bank Hanoi Office for disclosure on the World Bank's internal and external websites.

30. Subsequent to approval of the RPF, EMPF, RAPs, EMDPs, ESMF, ESMPs, and ECOPs, the final documents will be redisclosed locally in Vietnamese at the PPMU office, relevant provincial department offices, and subproject sites. The English language version will be sent to the World Bank Hanoi Office for redisclosure on the World Bank's internal and external websites.

Step 5: Implementation of Agreed Actions, Supervision, and Reporting

31. Each ESMP/ECOP is to be included in any bidding document and in any awarded contract. The RPF, EMPF, RAPs, and EMDPs will be sent to local authorities and relevant organizations for implementation under the PPMU' guidance. The subproject PPMU will be responsible for supervising RAP/EMDP/ESMP/ECOP implementation and reporting to the World Bank as an element of normal project reporting requirements. The PPMU will establish a coordination and implementation group to address environmental and social issues, including environmental and social focal point. The focal point will be responsible for (a) coordination of environmental and social safeguards; (b) leading the preparation and implementation of safeguards instruments; (c) leading the environmental and social safeguard experts (consultants) and overseeing the training and capacity building activities; and (d) coordinating all safeguard activities with donors, implementing agencies, including local authorities, and/or other potential financial supporters. There will be regular reporting on safeguard implementation. An independent monitoring consultant will be hired to monitor and evaluate safeguard instruments implementation as well.

32. The RPF has already been cleared by the RSS in April 2017. It will then be approved by the competent authorities before project implementation according to the GoV's requirement. As proposed by project provinces, civil works for the first 18 month subprojects will be commenced latest by July 2017. Thus the required social and environment safeguard instruments should be prepared and cleared by the World Bank by June 2017. Timelines for preparation of all the safeguards instruments are provided in table 6.1.

Table 6.1. Expected Timelines for Preparation of the Safeguard Instruments for First 18 Months' Subprojects

Activity	Timeline	Responsibility
RPF preparation	February 21-March 2, 2017	Five provinces and consultants
RPF review by World Bank	March 3-8, 2017	World Bank
First round draft RPF public consultation and disclosure with all four provinces	March 9-22, 2017	Five provinces and consultants
Disclosure of the final draft RPF on the World Bank portal	March 27, 2017.	World Bank
RPF submission to World Bank for approval (RSS approval)	March 27-April 04, 2017	Binh Dinh province; World Bank
Submission of final RPF to Government for approval through MPI	April 5-7, 2017	Binh Dinh province; MPI
RPF approval by Prime Minister	April-May, 2017	PM
Final disclosure of the RPF	After Prime Minister's approval	PPMU, the World Bank
Submit draft ESMF, EMPF, RAP, EMDP, ESMP, and ECOP to the to the World Bank office in Hanoi for first review	By May 10, 2017	PPMUs, the World Bank
Disclosure and consultation on draft ESMF, EMPF, RAP, EMDP, ESMP, and ECOP	By May 20, 2017	PPMUs
Submit draft ESMF, EMPF, RAP, EMDP, ESMP, and ECOP to the World Bank office in Hanoi for second review	By May 25, 2017	PPMUs
Submit final draft ESMF, EMPF, RAP, EMDP, ESMP, and ECOP to the RSS for review and clearance	By June 5, 2017	PPMUs, RSS
Final disclosure of safeguards instruments	By June 15, 2017	PPMUs, the World Bank

Implementation Arrangements and Capacity Building

33. All the implementing agencies (PPMUs) have intensive experience in implementing the World Bank safeguard policies under different World Bank-financed projects. Binh Dinh PPMU will be responsible for preparation of the ESMF, RPF, and EMPF, while all PPMUs, through their dedicated staff/unit, will be responsible for implementing and monitoring the safeguard instruments (ESMP, ECOP, EMDP, and RAP) as well as mitigation measures defined in the instruments. The implementation of safeguard instruments will be internally monitored by the PPMUs in close coordination with the respective peoples' committees, line departments at different administrative levels, and externally supervised by independent monitoring agencies. The subproject implementing agencies, through their PPMUs, will ensure that activities related to environmental and social safeguards will be properly tracked, reported, and documented. Independent monitoring will start around the same time as implementation of activities and will continue until the end of the project/subproject. The performance of and compliance with safeguard instruments will also be

subject to regular supervision by the World Bank task team.

34. The PPMU, as an implementing agency, will be responsible for the preparation and implementation of safeguard instruments and its monitoring. The PPMUs have recent and relevant experiences of and are familiar with OP/BP 4.12 and OP/BP 4.10 instruments preparation, implementation, and supervision through involvement in various development operations funded by the ADB and World Bank. During project implementation, the PPMUs will be responsible for preparing and ensuring the effective implementation of safeguard measures (such as RAPs, EMDPs, ESMPs, and ECOPs) and regularly liaising with local authorities and communities.

35. A capacity needs assessment will be made at the outset of project implementation and if appropriate a capacity development plan for each province will be prepared and implemented. PPMU safeguard staff are experienced in implementing ODA-financed social safeguard policies. Enhanced training on social safeguard policy and requirements will also be provided to the PPMU staff during project preparation and implementation. The PPMUs, contractors and construction supervision consultants, local authorities, and local community representatives will receive training on the project's safeguard instruments.

Project Grievance Mechanism

36. Each subproject safeguard instrument (ESMP, RPF, EMPF, RAP, and EMDP) also includes a GRM to provide the framework within which complaints (from communities or individuals who believe they are being adversely affected by a World Bank-supported project) about safeguards compliance can be handled, grievances can be addressed, and disputes can be settled quickly. The GRM will be in place before the subproject construction commences. Within the Vietnamese legal framework, citizen rights to complain are protected. As part of overall implementation of the subproject, the GRM will be established by the PPMU, based on the GoV regulations. It will be readily accessible, handle grievances, and resolve them at the lowest level as quickly as possible. The key process and elements of the GRM include procedures for submission of complaints and grievance resolution, responsible person, and contact information.

37. The complaints can be received in verbal or written form, by telephone, fax, or email. They can be sent to the local authorities, contractor, construction supervision engineer, PPMU, or the independent safeguard monitoring consultants and will be logged in the recording system and sent to the responsible person for taking action. To facilitate the complaint process, subproject information leaflets will be prepared and distributed at the subproject sites to provide practical information about grievances to local residents including contacts and addresses.

38. The GRM also refers to the World Bank's GRS and clearly indicates that subproject affected communities and individuals may submit their complaints to the World Bank's independent Inspection Panel which determines whether harms occurred, or could occur, as a result of World Bank non-compliance with its safeguards policies and procedures. The website address to provide information on how to submit complaints to the World Bank's GRS is also provided. For further information on how to submit complaints to the World Bank Corporate GRS visit www.worldbank.org/grs. For information on how to submit complaints to the World Bank Inspection Panel, visit www.inspectionpanel.org.

Public Consultation and Disclosure

39. Consultation is particularly critical for this project, because with the philosophy of 'build back better', communities may have questions or concerns as to why the restoration investment activities are utilizing different structures or approaches than what was in place before the floods.

40. PPMUs will be responsible for preparing the safeguard documents as previously mentioned. They will also be responsible for conducting public consultations as described above in their respective provinces and include project-affected and beneficiaries groups, community-based organizations, nongovernmental organizations, and so on about the project's environmental and social aspects. For meaningful consultations, the concerned groups will be provided with draft safeguard documents on time before the consultation and in a form and language that is understandable and accessible to the groups consulted. The revised safeguards documents, considering feedback received during the consultations, will be (a) redisclosed at the country level and at public places accessible to project-affected groups and local institutions; and (b) officially submitted to the World Bank for their disclosure at the World Bank's internal and external websites.

Cost Estimation

41. The subproject PPMUs will be responsible for calculating the cost for environmental and social safeguard instrument preparation and implementation. Detailed cost allocation for safeguard implementation, including preparation of safeguard instruments, implementation of mitigation measures, and monitoring and supervision will be developed during implementation. PPC will give approval for land acquisition, allocation, and compensation rates. Compensation and land acquisition costs will be financed by counterpart funds.

Table 6.2. Cost Estimate for Environmental and Social Safeguard Implementation

Estimated Costs (in US$)	
A. Environmental and social instruments based on investment planning costs	
Component 1, 1% of estimated investment	US$1,227,000
Component 3, 0.5% of estimated investment	US$25,500
Subtotal	*US$1,252,500*
B. Safeguard training	
Safeguard capacity building (3 workshops first year)	US$5,000 per workshop
Specific training for local staff/contractors (4 workshop per year)	US$5,000 per workshop
Subtotal	US$95,000
Contingency 10%	US$134,750
TOTAL	**US$1,482,250**

ANNEX 7: NATURAL HAZARDS AND CLIMATE CHANGE CONTEXT

COUNTRY: Vietnam
Vietnam - Emergency Flood Disaster Reconstruction Project

Natural Hazards

1. Vietnam ranks as one of the countries with highest risk from natural disasters in the East Asia and Pacific region, with floods, droughts, severe storms, and landslides, among others, causing substantial economic and human impacts, annually.

2. Over the past two decades, natural disasters in Vietnam have caused more than 13,000 deaths and property damage in excess of US$6.4 billion. The annual average loss from natural disasters is valued at approximately 1 percent of GDP. Climate change will likely exacerbate the impacts from these hazards, due to the increase in the frequency and intensity of hydrometeorological events. The rapid increase in the exposure associated with economic growth is also likely to contribute to the upward trend of the economic impact from natural disasters and climate change.

3. There is high variation in the rainfall pattern from year to year. Intense rainfall associated with typhoons frequently causes immense destruction in heavily populated coastal areas as well as in the Red River and Mekong deltas, the country's major rice-growing areas. These deltas are also vulnerable to flooding caused by heavy monsoon rainfall.

4. According to a report by the World Bank in 2007, Vietnam is one of the countries that will be most affected by the currently projected climate change, potentially affecting one in five communes along the coast, with a 1 m sea level rise, or 11 percent of the population.

5. With a coastline that extends approximately 3200 km, an estimated 70 percent of the population of a total of 90 million people live in low-lying areas close to the coast, making them vulnerable to hydrometeorological disasters such as floods and storm surges/wind storms by tropical cyclones.

6. Vietnam has a tropical climate. The rainy season normally lasts between May and November in the northern regions and from September to November in the central/southern regions, during which time the risk from floods increases due to the heavy rain. In the past 10 years, Vietnam has been affected by severe floods almost annually, particularly in the central regions. In September 2009, Tropical Cyclone Ketsana and the depression associated with it brought heavy rain to Vietnam, Cambodia, and Lao People's Democratic Republic, affecting millions. The cyclone did not make landfall; however, the Central Region of Vietnam was affected severely by the associated rainfall. The 2009 floods resulted in 163 fatalities and an estimated damage cost of US$800 million to the infrastructure, production, and social sectors. Since then, the Central Region has been affected almost annually by severe floods, including in 2012 and 2013, and most recently in 2016, where major impacts were observed.

7. During the last three months of 2016, heavy rain caused five consecutive flooding events, affecting 18 provinces in the Central Region of Vietnam. The intensity and particularly the frequency of floods in the three-month time frame far exceeded what is expected under normal circumstances. The

heavy rain and floods continued beyond the end of the rainy season. Irrigation and hydropower dams in affected regions reached maximum capacity that resulted in controlled water discharges, further intensifying the flood impact downstream of these reservoirs.

Climate Change Projections

8. Effects of climate change have a tendency to exacerbate the effects caused by natural hazards. A particular effect of climate change on natural hazards is that these hazards may occur more frequently and with a higher intensity. In particular, floods and droughts will impact the agricultural production sector because there is a tendency to increase their severity (in volume or duration), a change in observed pattern (increased intensity or delays) and possible regional changes (dry becomes dryer and wet, wetter).

9. Vietnam, and in particular the central provinces, are sensitive to climate change impacts. In 2012, Vietnam's Institute of Meteorology, Hydrology, and Environment within the Ministry of Natural Resources and Environment, published a report titled 'Climate Change, Sea Level Rise Scenarios for Vietnam', where projections of temperature, rainfall, and sea level rise were provided for different climate change scenarios, namely, low emission scenario (B1), medium emission scenario (B2, A1B), and high emission scenario (A2, A1FI). Annual mean temperatures over most regions of Vietnam are projected to increase between 1.6-2.2°C, 2-3°C, and 2.5-3.7°C for the low, medium, and high emission scenarios, respectively (see figure 7.1 and figure 7.2 for B2 scenario). Annual rainfall is projected to increase by about 6 percent, 2-7 percent, and 2-10 percent for the low, medium and high emission scenarios, respectively. Table 7.1 and Table 7.2 provide the projected changes in annual mean temperature and rainfall (percentage) relative to the 1980-1999 baseline under the medium emission scenario (B2) for the five provinces selected for this project

Figure 7.1. Projected Changes in Annual Mean Temperature (˚C) at the end of the 21st century relative to 1980–1999 Baseline under the Medium Emission Scenario (B2)

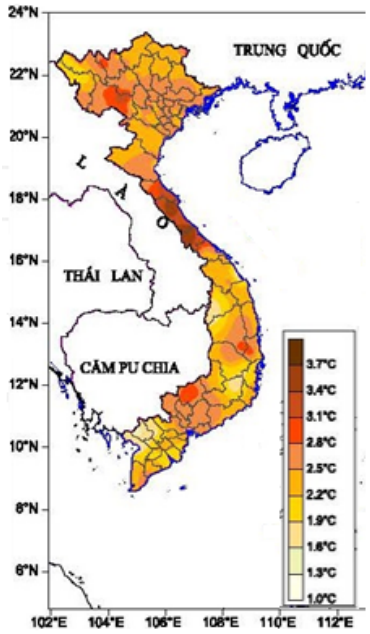


Figure 7.2. Projected Changes in Annual Rainfall (%) at the End of the 21st Century Relative to 1980–1999 Baseline Under the Medium Emission Scenario (B2)

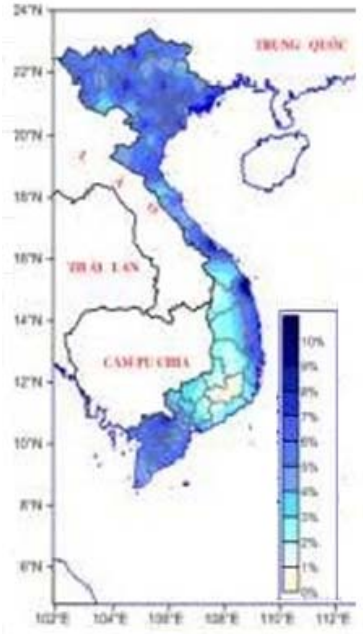


Table 7.1. Projected Changes in Annual Mean Temperature (˚C) Relative to 1980-1999 Baseline Under the Medium Emission Scenario (B2) for the Five Provinces Selected for this Project

Province/ City	Decades in the 21st century								
	2020	2030	2040	2050	2060	2070	2080	2090	2100
Hà Tĩnh	0.6	0.9	1.3	1.7 (1.4 - 1.8)	2.0	2.4	2.7	2.9	3.1 (2.5 - 3.4)
Quảng Ngãi	0.5	0.7	0.9	1.2 (1.0 - 1.4)	1.5	1.7	1.9	2.1	2.3 (1.9 - 2.5)
Bình Định	0.4	0.7	0.9	1.2 (1.0 - 1.4)	1.5	1.7	1.9	2.1	2.3 (2.2 - 2.8)
Phú Yên	0.5	0.7	1.0	1.3 (1.0 - 1.6)	1.6	1.8	2.1	2.3	2.5 (2.2 - 3.1)
Ninh Thuận	0.4	0.7	0.9	1.2 (1.0 - 1.4)	1.4	1.7	1.9	2.1	2.3 (1.9 - 2.8)

Table 7.2. Projected Changes (%) in Rainfall Relative to 1980-1999 Baseline Under the Medium Emission Scenario (B2) for the Five Provinces Selected for this Project

Province/ City	Decades in the 21st century								
	2020	2030	2040	2050	2060	2070	2080	2090	2100
Hà Tĩnh	0.7	1.0	1.5	1.9 (1.0 - 3.0)	2.3	2.7	3.0	3.3	3.6 (3.0 - 6.0)
Quảng Ngãi	1.8	2.7	3.8	4.9 (2.0 - 6.0)	5.9	6.9	7.8	8.5	9.3 (5.0 - 10.0)
Bình Định	1.4	2.0	2.8	3.6 (2.0 - 4.0)	4.4	5.2	5.9	6.4	7.0 (5.0 - 8.0)
Phú Yên	1.4	2.0	2.8	3.6 (2.0 - 4.0)	4.4	5.2	5.8	6.4	6.9 (5.0 - 8.0)

Ninh Thuận	0.6	0.9	1.2	1.6 (1.0 - 3.0)	1.9	2.3	2.5	2.8	3.0 (2.0 - 5.0)

10. On sea level rise, the report indicates that by the 21st century, the average sea level along Vietnam's coast is projected to rise about 49-64 cm, 57-73 cm, and 78-95 cm, for the low, medium, and high emission scenarios, respectively, showing a relatively higher sea level rise at regions from Ca Mau to Kien Giang. Table **7.3.**Table 7.3 shows the projected sea level rise for different regions of Vietnam. This table indicates that the regions that include the provinces of Qunag Ngai, Binh Dinh, Phu Yen (region 4, from Deo Hai Van to Mui Dai Lanh) and Ninh Thuan (region 5, from Mui Dai Lanh to Mui Ke Ga) show some of the highest sea level rise projections in the country.

Table 7.3. Projected Sea Level Rise (cm) Relative to 1980-1999 Baseline Under the Medium Emission Scenario (B2) for Different Regions of Vietnam

Region	Decades in the 21st century								
	2020	2030	2040	2050	2060	2070	2080	2090	2100
Móng Cái-Hòn Dáu	7-8	11-12	15-17	20-24	25-31	31-38	36-47	42-55	49-64
Hòn Dáu-Đèo Ngang	7-8	11-13	15-18	20-24	25-32	31-39	37-48	43-56	49-65
Đèo Ngang-Đèo Hải Vân	8-9	12-13	17-19	23-25	30-33	37-42	45-51	52-61	60-71
Đèo Hải Vân-Mũi Đại Lãnh	8-9	12-13	18-19	24-26	31-35	38-44	45-53	53-63	61-74
Mũi Đại Lãnh-Mũi Kê Gà	8-9	12-13	17-20	24-27	31-36	38-45	46-55	54-66	62-77
Mũi Kê Gà-Mũi Cà Mau	8-9	12-14	17-20	23-27	30-35	37-44	44-54	51-64	59-75
Mũi Cà Mau-Kiên Giang	9-10	13-15	19-22	25-30	32-39	39-49	47-59	55-70	62-82

Increasing Resilience to Climate and Disaster Exposure

11. The increase of resilience to natural hazards and climate change effects can be achieved by different structural and non-structural measures or a combination of different types of measures. This has to be addressed in the planning, upgrading, and rehabilitation processes of existing or new infrastructure. Flood risk mitigation structures specifically need to consider projected changes in rainfall and upstream and downstream flow patterns and, based on that, consider the incorporation of hard engineering, nature-based solutions, DRM, and climate-proofing measures into infrastructure design and management to assist in mitigating these impacts.

Applying Structural and Non-structural Measures to Increase Climate Resilience

12. To avoid or reduce future damages caused by the impact of natural hazards and climate change, preparedness and risk reduction needs to be increased.

13. The development, construction, and implementation of solutions to increase the resilience to

natural hazards and climate change may be done in phases. Priorities need to be identified based on practical needs and available resources in each phase to select the most appropriate scenario. A range of structural and non-structural measures can be undertaken to increase the resilience to natural hazards and climate change.

14. Structural measures pertain mostly to the actual planning, physical construction, and upgrading process of new or existing infrastructure. Possible technical measures to be undertaken to increase the resilience of various types of infrastructure include the following (this is a not an exhaustive listing):

(a) Select suitable climate change and sea level rise scenarios and identify the corresponding key climate parameters to be considered in the design criteria of various types of infrastructure;

(b) Develop hydrological and hydraulic models and impact assessments to provide important design input information such as changes in flow regimes, riverine and coastal flooding (storm surges), shoreline changes, and so on, for building and implementing action plans to respond to extreme events and climate change;

(c) Review design criteria related to water resources and drainage to ensure that the longitudinal drains are sufficiently dimensioned and that drainage cross-structures (mostly culverts and bridges) do not hinder the flood flow which existed before on the flood plains;

(d) Review design criteria related to flood control infrastructure to ensure appropriate typology and dimensioning of structures and appropriate size and quality of materials to be used taking into consideration different extreme events and climate change scenarios; and

(e) Provide technical measures to minimize erosion (for example, vetiver grass, gabions, groynes, rip rap on flow exposed slopes, and so on).

15. In addition to technical solutions to increase the resilience of hard infrastructure (grey measures), soft and non-structural measures should also be considered during the planning process and incorporated as alternative solutions or in combination with hard infrastructure measures (hybrid solutions). Proposed soft and non-structural measures for increasing resilience to natural hazards and climate change include:

(a) Use of ecosystem-based approaches for hazard risk mitigation;

(b) Participatory decision and planning process,

(c) Community-based capacity building on flood preparedness;

(d) Incorporation of early flood warning systems;

(e) Capacity building of Government staff with respect to climate change resilience; and

(f) Preparing contingency plans on province and possibly district level.

16. Investments in hydromet and early warning systems will help prevent or lessen unnecessary loss of lives and damages trough better risk information and improved end-user communication. Analyses of

hydromet investments elsewhere in the East Asia and Pacific region, have demonstrated cost-benefit ratios of between 1:35 and 1:40, while in advanced countries, economic returns are in the order of magnitude of 1:4 to 1:6.[16]

Climate Change Adaptation and DRM Co-benefits

17. The climate adaptation and mitigation co-benefits for this project are to be calculated using the joint-MDB Climate Finance Tracking Methodology[17] by OPCS following board approval. Following the guidance provided from the Climate Change CCSA GP focal points during preparation, the adaptation and mitigation co-benefits were estimated. Co-benefits are reviewed at the sub-project level. Under the conditions that (a) only IDA financing (Component 1) is considered for adaptation and mitigation co-benefits, and (b) for Component 3 (project management) the co-benefits will be pro-rated, the proportion of climate financing for this project is estimated to be approximately 50% of the total investment.

18. Components 1 and 2 are expected to reduce the current and future risks and vulnerabilities that are posed by climate change to Viet Nam, both in the five target provinces where the proposed structural investments are focused (Ha Tinh, Quang Ngai, Binh Dinh, Phu Yen and Ninh Thuan), and also nationally. An explanation of the link between project activities and climate change adaptation co-benefits is listed below for each component:

(a) **Component 1.** There is evidence that climate change is exacerbating extreme weather patterns, leading to more frequent and intense precipitation events such as heavy rainfall, which in turn causes flash flooding. The proposed structural investments such as riverbank protection, dikes, and canal improvements, are designed specifically to enable the selected provinces to cope better with flooding events, which are expected to become more frequent given climate change. In the recent years, Viet Nam has also been exposed to severe droughts. The rural water supply system to be expanded through this project in Ninh Thuan province will strengthen the resilience of the area by providing better access to water in the face of increasing risk from droughts as seen over the recent years and projected into the future.

(b) **Component 2.** The technical assistance associated with this component will strengthen the capacity of the provincial and central governments on integrated flood risk management, emergency response, and rapid damage and loss assessment capacities, which ultimately improves the prevention and preparedness of the selected provinces to climate and weather hazards, enhancing, as a result, the disaster and climate resilience of these provinces. The lessons learned to be extracted by evaluating the 2016 event response and preparedness measures in place by the Government, both in terms of physical capacity and policies, will provide opportunities to enhance climate resilience and incorporate adaptation and mitigation measures in the planning of structural risk reduction measures as well as policy instruments.

[16] Jha, A., and Z. Stanton-Geddes, eds. 2013. *Strong, Safe, and Resilient: A Strategic Policy Guide for Disaster Risk Management in East Asia and the Pacific. Directions in Development*. Washington, DC: World Bank, 78.
[17] 2015 Joint Report on Multilateral Development Bank's Climate Finance, August 2016

(c) **Component 3.** Contribution to climate adaptation co-benefit for component 3 will be pro-rated according to the joint-MDB climate co-financing methodology.

Table 7.4. Climate Co-benefits Calculation

Climate Co-benefits Calculation	Component 1 (IDA)	Component 2 (non-IDA)	Component 3 (IDA)	Total
Total amount of financing (US$, million)	118.00	0.00	0.00	**118.0[a]**
Percentage of climate adaptation co-benefits (estimates)	49.55%	0%	Pro-rated	-
Amount of financing directly providing climate adaptation co-benefits (US$, millions)	58.47	0.00		**58.47 + pro-rated benefits for Component 3[a]**

Note: a. Subject to final confirmation from country management unit and Government.

ANNEX 8: MAP

COUNTRY: Vietnam

Vietnam - Emergency Natural Disaster Reconstruction Project