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Report No: ICR00004869

IMPLEMENTATION COMPLETION AND RESULTS REPORT

IDA-51130 AND TF-14293

ON A

CREDIT

FROM THE INTERNATIONAL DEVELOPMENT ASSOCIATION

IN THE AMOUNT OF SDR 64.6 MILLION
(US$100.0 MILLION EQUIVALENT)

AND ON A

GRANT

FROM THE GLOBAL ENVIRONMENT FACILITY

IN THE AMOUNT OF US$6.5 MILLION

TO THE

SOCIALIST REPUBLIC OF VIETNAM

FOR THE

COASTAL RESOURCES FOR SUSTAINABLE DEVELOPMENT PROJECT (P118979)

July 22, 2019

Sustainable Development Global Practice

East Asia And Pacific Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective January 31, 2019)

Currency Unit =	Vietnamese Dong (VND)
VND 23,199 =	US$1.00
US$ 1.40 =	SDR 1.00

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

CMG	Co-management Group
CMU	Country Management Unit
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
CRSD	Coastal Resources for Sustainable Development
CTA	Chief Technical Advisor
DA	Designated Account
DARD	Department of Agriculture and Rural Development
DIV	Species Diversification Zone
DOF	Directorate of Fisheries
DONRE	Department of Natural Resources and Environment
EIRR	Economic Internal Rate of Return
EMDP	Ethnic Minority Development Plan
EMPF	Ethnic Minority Policy Framework
EOP	End of Project
EPC	Environmental Protection Commitment
ESMF	Environmental and Social Management Framework
EU	European Union
FAO	Food and Agriculture Organization
FM	Financial Management
GAP	Good Aquaculture Practices
GEF	Global Environment Facility
ICR	Implementation Completion and Results Report
IRR	Internal Rate of Return
ISM	Implementation Support Mission
ISP	Intersectoral Planning/Integrated Spatial Planning
IUU	Illegal, Unreported, and Unregistered (fishing activity)
LMMA	Locally Managed Marine Areas

M&E	Monitoring and Evaluation
MARD	Ministry of Agriculture and Rural Development
MCS	Monitoring, Control, and Surveillance
MOF	Ministry of Finance
MONRE	Ministry of Natural Resources and Environment
MOU	Memorandum of Understanding
MPA	Marine Protected Area
MPI	Ministry of Planning and Investment
MTR	Midterm Review
NPV	Net Present Value
ODA	Official Development Assistance
PAD	Project Appraisal Document
PCU	Project Coordination Unit
PDF	Project Development Fund (Preparation Grant)
PDO	Project Development Objective
PPC	Provincial People's Committee
PPMU	Provincial Project Management Unit
RIA	Research Institute for Aquaculture
SAP	Sustainable Aquaculture Practice
SEA	Strategic Environmental Assessment
SIL	Specific Investment Loan
TA	Technical Assistance
TTL	Task Team Leader
VDR	Vietnam Development Report
Vnfishbase	Vietnam Fisheries Database System

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DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P118979	Coastal Resources for Sustainable Development Project
Country	**Financing Instrument**
Vietnam	Investment Project Financing
Original EA Category	**Revised EA Category**
Partial Assessment (B)	Partial Assessment (B)

Related Projects

Relationship	Project	Approval	Product Line
Supplement	P124702-Vietnam - Coastal Resources for Sustainable Development	29-Mar-2013	Global Environment Project

Organizations

Borrower	Implementing Agency
The Socialist Republic of Vietnam	Ministry of Agriculture and Rural Development, State Bank of Vietnam

Project Development Objective (PDO)

Original PDO

The project development objective is to improve the sustainable management of coastal fisheries in Project Provinces.

FINANCING

	Original Amount (US$)	Revised Amount (US$)	Actual Disbursed (US$)
World Bank Financing			
P118979 IDA-51130	100,000,000	100,000,000	91,127,727
P124702 TF-14293	6,500,000	6,500,000	6,460,923
Total	**106,500,000**	**106,500,000**	**97,588,650**
Non-World Bank Financing			
Borrower/Recipient	11,700,000	11,700,000	11,700,000
Local Sources of Borrowing Country	6,200,000	6,200,000	6,200,000
Total	**17,900,000**	**17,900,000**	**17,900,000**
Total Project Cost	**124,400,000**	**124,400,000**	**115,488,650**

KEY DATES

Project	Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
P118979	10-May-2012	02-Nov-2012	22-Jul-2015	31-Jan-2018	31-Jan-2019

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US$M)	Key Revisions
22-Jun-2016	40.21	
05-Aug-2016	42.85	Change in Disbursements Arrangements
25-Jan-2018	75.84	Change in Loan Closing Date(s)

KEY RATINGS

Outcome	Bank Performance	M&E Quality
Satisfactory	Satisfactory	Substantial

RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US$M)
01	30-Oct-2012	Satisfactory	Satisfactory	0
02	26-Jun-2013	Satisfactory	Satisfactory	4.55
03	18-Mar-2014	Satisfactory	Moderately Satisfactory	7.22
04	23-Jun-2014	Satisfactory	Moderately Satisfactory	9.07
05	09-Oct-2014	Satisfactory	Satisfactory	12.67
06	29-Apr-2015	Satisfactory	Moderately Satisfactory	21.64
07	24-Nov-2015	Satisfactory	Moderately Satisfactory	31.14
08	27-Jun-2016	Satisfactory	Moderately Satisfactory	40.26
09	22-Dec-2016	Satisfactory	Moderately Satisfactory	49.27
10	25-Jun-2017	Moderately Satisfactory	Moderately Unsatisfactory	53.50
11	30-Nov-2017	Moderately Satisfactory	Moderately Satisfactory	73.26
12	12-Jun-2018	Satisfactory	Satisfactory	82.62
13	27-Dec-2018	Satisfactory	Satisfactory	87.94

SECTORS AND THEMES

Sectors

Major Sector/Sector	(%)
Agriculture, Fishing and Forestry	**41**
Fisheries	18
Public Administration - Agriculture, Fishing & Forestry	23
Public Administration	**24**
Sub-National Government	24

Transportation	**32**
Ports/Waterways	32
Water, Sanitation and Waste Management	**3**
Other Water Supply, Sanitation and Waste Management	3

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3)	(%)
Private Sector Development	**100**
Jobs	100
Urban and Rural Development	**62**
Rural Development	62
Rural Non-farm Income Generation	46
Rural Infrastructure and service delivery	15
Land Administration and Management	1
Environment and Natural Resource Management	**51**
Climate change	14
Mitigation	14
Renewable Natural Resources Asset Management	27
Biodiversity	26
Landscape Management	1
Water Resource Management	10
Water Institutions, Policies and Reform	10

ADM STAFF

Role	At Approval	At ICR
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I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

1. Vietnam's sustained high rates of growth over the previous decades have transformed it into a middle-income country. Although poverty rates have fallen dramatically during this time, a large number of households remain vulnerable to income uncertainty from natural hazards, macroeconomic instability, and growing pressures on the country's natural resource base.

2. The fisheries sector (including aquaculture) had grown rapidly in terms of production volume, export value, and domestic consumption[1]. However, the sector was at risk due to a depleting resource base for marine fisheries, increasing environmental and disease problems in aquaculture, reputational issues related to the quality of exported products, and financial difficulties suffered by farmers and fishers. Marine capture fisheries suffered from overfishing, especially in the nearshore areas, and increasing volume of "trash fish" in landing sites. In aquaculture, disease was a major risk along with the lack of high-quality seed and broodstock. Production expansion also contributed to environmental damage and water pollution. Many small producers abandoned their farms as a result.

Sectoral Technical and Institutional Issues

3. Responsibilities for coastal zone planning cut across different ministries with overlapping and competing mandates, priorities, and interests. To avoid fragmented planning, inter-sectoral planning (ISP) was introduced under the project. While integrated coastal zone management had already been piloted in several coastal provinces through donor-supported initiatives, it was not institutionalized nor widely adopted in the country. The introduction of ISP in eight project provinces would help to address one of the key governance issues of provincial competition which was raised in the Vietnam Development Report (VDR) 2010. The national fisheries database system, as a management and governance tool, also needed to be upgraded and made available to the public.

4. To address over-capacity of fishing fleets and destructive fishing practices which were affecting nearshore fisheries resources and the livelihoods of coastal communities, co-management was introduced. Previously, fisheries co-management pilots had been implemented in closed systems (for example, lagoons, reservoirs) but not in open access areas/coastal areas. In 2010, the government issued Decree No. 33 which authorized local authorities and fishing communities to enter into a partnership on co-management for open access areas.

5. There were over 80 small fishing ports and hundreds of traditional landing sites in the country; however, most of them lacked facilities to provide necessary support services to fishermen (for example, clean ice, nets, and boat repair). Improving their hygienic conditions and operational efficiency would reduce losses, improve handling of fish catch, and reduce environmental pollution.

[1] Between 2000 and 2010, the sector's average annual growth was 13.6 percent in volume terms and 10.4 percent in value terms. Fisheries production in 2010 was estimated at 5.2 million tons, including 2.5 million tons from capture fisheries and 2.7 million tons from aquaculture. The sector is very labor intensive: nearly eight million people now rely on fisheries-related activities for a major source of income and employment.

6. In shrimp farming, diseases were mainly caused by low quality and infected seed; there was no system in place to certify sources of quality seeds and ensure that adequate biosecurity measures would be taken at the farm level. Good aquaculture practices (GAP) were deemed key to managing disease and environmental risks. Other weaknesses in the sector which needed to be addressed included (a) the strengthening of the public veterinary services for aquaculture disease diagnostic, surveillance, containment, and response; (b) the frequent use of antibiotics and chemicals by farmers to manage disease risks, which was the cause of poor reputation for Vietnam's seafood exports; and (c) environmental monitoring, management, and enforcement, especially about pond-effluent treatment.

7. The sector's new master plan meant to shift the prevailing orientation from meeting (ever-increasing) production and catch volume targets to emphasizing improved management of coastal resources, improved risk management, improved product quality, and value addition. The Master Plan for Fisheries Development to 2010 had expired and the Government was in the process of preparing a new Master Plan for Fisheries Development to 2020. Studies were needed to support the Ministry of Agriculture and Rural Development (MARD) and coastal provinces in this planning exercise.

8. Vietnam's Fisheries Development Strategy through 2020 approved by the Prime Minister on September 16, 2010 (Decision No. 1960/2100/QD-TTG) re-oriented the development of the fisheries sector to focus more on product quality and sustainable growth. The Coastal Resources for Sustainable Development (CRSD) Project supported MARD in implementing its new Development Strategy and was consistent with (a) the World Bank's Country Partnership Strategy (CPS) for 2011–2015[2] and (b) cross-cutting themes of strengthening governance and gender equity. The project addressed key governance challenges including duplicative and poorly coordinated infrastructure, insufficient consideration of spillover effects between provinces, a need for regional planning and collective action for sustainable aquaculture and nearshore capture fisheries. In addition, the project addressed the Government's priorities with regard to building climate resilience along the coastlines, improving infrastructure, and promoting the competitiveness of coastal area resources.

9. Theory of Change (Results Chain)

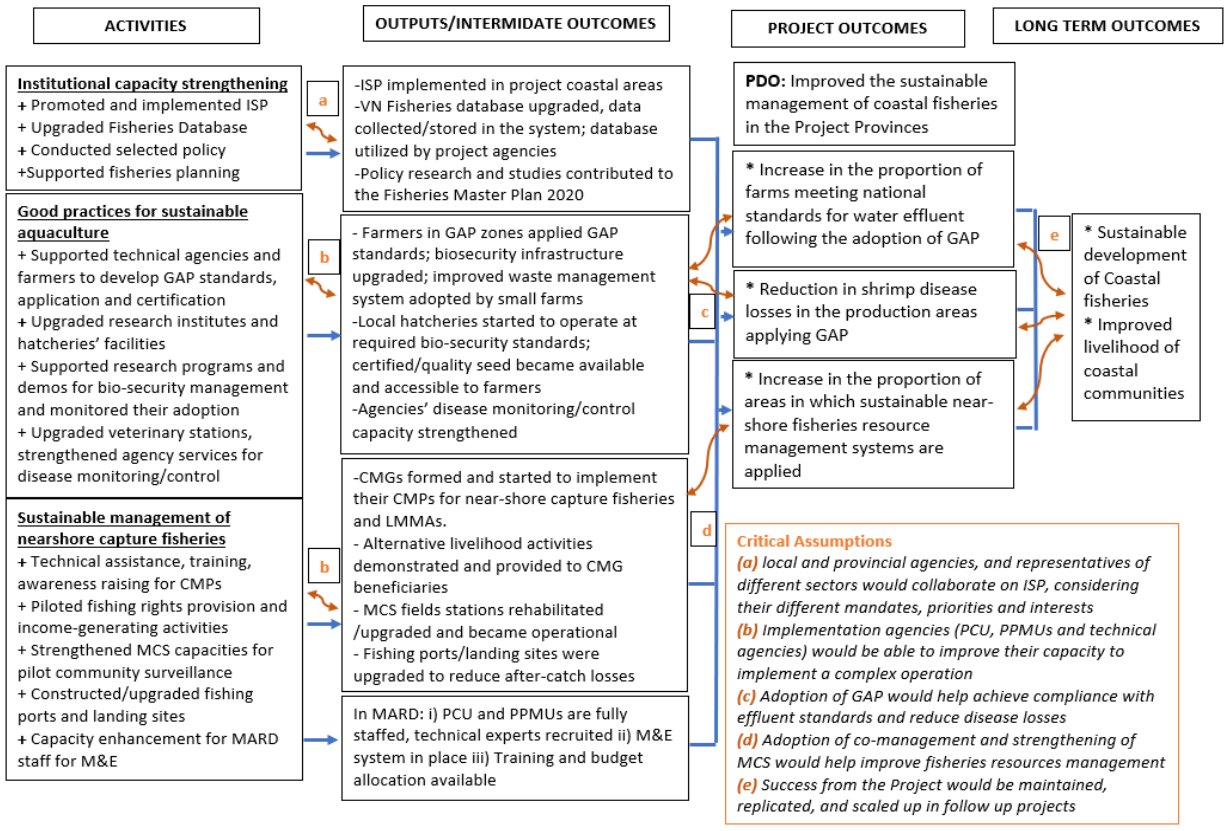
10. The Project Appraisal Document (PAD) does not describe a theory of change; however, the long-term goals and how the changes can be achieved were implied in the project components and Results Framework. The long-term objective was to find a sustainable balance in the project areas between the exploitation of coastal fisheries resources for economic development and the sustainable management of these resources (and ecosystems) on which the fishing and farming communities depend for their livelihood. It is important to note that achieving this long-term objective would require a decade or more of collective effort, capacity building and financing. In that long journey, a first critical step was to improve the planning approach for the coastal areas together with the mobilization of coastal fishing communities into co-management groups (CMGs) and organization of aquaculture farmers into GAP groups to reduce their non-sustainable fishing and farming practices for the better use and management of coastal resources for long-term sustainability development.

11. The initiatives introduced by the project would require a new mindset and were to be piloted and rolled out with the premise that involving stakeholders in the management of their resources would

[2] Specifically, Pillar 1 (Competitiveness) through improved production quality and reduction in physical losses, Pillar 2 (Sustainability) through improved natural resource management, and Pillar 3 (Poverty Reduction and Economic Opportunity).

enhance sustainability. At the base, the initiatives would be reinforced through institutional strengthening and capacity building. ISP would be introduced to encourage harmonized/collaborative planning for development in the project zones, which also required a behavioral change. Training, sensitization, and technical assistance (TA) were provided to implementing agencies, MARD technical departments, representatives of local government, and stakeholder groups to familiarize them with the new approaches. At the policy level, the policy framework was supported through selective studies and research which would feed into modifications of the Government's Fisheries Master Plan 2020, important for obtaining Government endorsements or defining legal status (fishing rights, boundary demarcations, co-management areas, CMGs). At the community and farm levels, technological support was also provided through training (introduction of GAP, improved quality of seeds and broodstock, farming methods, disease monitoring and control); demonstrations and pilots; and improvements in facilities and infrastructure. Capacity building was provided for data collection and analysis; surveillance and disease containment; enhanced management of water pollutants on shrimp farms; and the monitoring, control, and surveillance (MCS) for nearshore capture fisheries.

Figure 1. Theory of Change



12. The expected outcomes of the project in the short term which are captured in the project design included (a) improved sectoral planning for coastal areas introduced through consultative ISP processes; (b) co-management concepts and methods successfully introduced to fishing and aquaculture groups, supported by the legal framework in country; and (c) improved access to supporting infrastructure (that is, ports/landing sites for capture fisheries and biosecurity infrastructure for aquaculture). These provided the basis for the project's intermediate outcome and output indicators included in the Results Framework.

These, in the short term, would help improve fisheries management in the project areas, and at the same time, establish the base and framework for working toward the long-term goals of sustainable coastal resources management and as a means to improving livelihoods for coastal communities.

13. The results chain was formulated using the following critical assumptions: (a) local and provincial agencies and representatives of different sectors would collaborate on ISP, taking into account their different mandates, priorities, and interests; (b) local farmers and fishers would be willing to adopt new approaches such as GAP, co-management; (c) the implementation agencies (Project Coordination Unit [PCU] and Provincial Project Management Units [PPMUs]) would be able to improve their capacity to implement a complex operation; and (d) commitments from the central and local government would be maintained during project implementation and after project closure.

Project Development Objectives (PDOs)

14. The PDO is to improve the sustainable management of coastal fisheries in the Project Provinces.

Key Expected Outcomes and Outcome Indicators

15. The project outcome was improved sustainable management of coastal fisheries which included both coastal aquaculture and nearshore capture fisheries. In aquaculture, improved management would be reflected through improved management of environmental pollution and disease risks. For nearshore capture fisheries, improved management would be evidenced by shared responsibilities with the Government authorities and community members for sustainable use and management of resources.

16. The PDO-level result indicators were the following:

- Indicator 1: Increase in the proportion of farms meeting national standards for water effluent following the adoption of GAP
- Indicator 2: Reduction in shrimp disease losses in the production areas applying GAP
- Indicator 3: Increase in the proportion of areas in which sustainable Near-Shore fisheries resource management systems are applied

Components

17. **Component A: Institutional Capacity Strengthening for Sustainable Fisheries Management.** Appraisal Estimates: US$5.3 million IDA [100 percent]; Revised: US$6.8 million [US$5.3 million IDA and US$1.5 million GEF]; Actual: US$2.9 million [US$1.8 million IDA and US$1.1 million GEF]. This component provided extended support to MARD and the project provinces in carrying out ISP and strategic environmental assessments in the project provinces for sustainable fisheries management. It also supported the review and upgrade of the Vnfishbase system, including (a) provision of additional information and linking with other fisheries databases; (b) development of a knowledge management system; (c) provision of essential infrastructure; and (d) development of human resources. Finally, it supported selected research topics/studies contributing to the development and implementation of the Fisheries Master Plan to 2020.

18. **Component B: Good Practices for Sustainable Aquaculture.** Appraisal Estimates: US$48.1 million [US$39.9 million IDA and US$8.2 million by government and local beneficiaries]; Actual: US$46.0 million [US$36.5 million IDA and US$9.5 million by government and local beneficiaries]. This component supported the improvement of biosecurity management, including (a) upgrading of rural infrastructure schemes in selected major farming communities; (b) provision of technical training for farmers on GAP application, including establishment of on-farm GAP demonstration sites; (c) provision of technical equipment, training, and operating costs for disease diagnostics, surveillance, early reporting, and outbreak containments for selected provincial and district extension centers and subdepartments of animal health/aquaculture; (d) provision of TA for GAP certification, capacity building, and technical monitoring; and (e) diversification of culture species and farming systems. It also supported improved seed quality management, including (a) upgrading of public biosecurity infrastructure for selected hatchery areas; (b) introduction and implementation of a hatchery standardization program; (c) studies on hatchery planning; (d) the establishment of dedicated and biosecure shrimp hatchery areas which are designated to use only domesticated and specific pathogen-free broodstock; and (e) the provision of support for MARD research institutes to carry out an initial research program on domestication and breeding improvement. Finally, it supported the improvement in environmental management, including (a) strengthening the capacity of the Department of Natural Resources and Environment (DONRE) to conduct regular risk-based water quality monitoring programs and (b) disseminating data and results from the monitoring activities to local authorities and the public.

19. **Component C: Sustainable Management of Near-shore Capture Fisheries.** Appraisal Estimates: US$52.2 million [US$44.8 million IDA and US$7.4 million by government and local beneficiaries]; Revised: US$57.2 million [US$44.8 million, USUS5.0 million GEF, and US$7.4 million by government and local beneficiaries]; Actual: US$57.9 million [US$47.5 million IDA, US$5.4 million GEF, and US$5.0 million by government and local beneficiaries]. This component supported the implementation of co-management of nearshore capture fisheries among Government authorities and fishing communities in selected districts and communes, including (a) support for local fishing communities to prepare and implement co-management plans (CMPs); (b) strengthening of the MCS systems of MARD and the project provinces; and (c) support in developing selected basic infrastructure for local ethnic minority and/or poor fishing communities to improve their livelihoods. It also supported improvements in hygienic conditions and operational efficiency in selected fishing ports and landing sites, including (a) rehabilitation and/or upgrading of fishing ports and landing sites and (b) training, capacity building, and development of management plans to improve the operational efficiency of the rehabilitated and/or upgraded sites.

20. **Component D: Project Management, Monitoring and Evaluation.** Appraisal Estimates: US$12.3 million [US$10.0 million IDA and US$2.3 million by government); Actual: US$9.4 million [US$6.0 million IDA and US$3.4 million by government]. This component supported the PCU, PPMUs, and other implementing agencies for effective project management, implementation, and supervision. It also supported the establishment and implementation of an effective monitoring and evaluation (M&E) system.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION

Revised PDOs and Outcome Targets

21. The PDO was not revised.

Revised PDO Indicators

22. The PDO indicators were not revised. The target for the second PDO indicator (reduction in shrimp loss from disease) was increased from 20 percent to 30 percent.

Revised Components

23. The components and subcomponents were not revised.

Other Changes

24. A GEF Grant[3] of US$ 6.5 million was approved as Additional Financing to the project in March 2013. The intermediate indicators were not revised at the time of the Additional Financing. The project underwent three Level 2 restructurings:

- **First project restructuring (June 22, 2016):** (a) project performance indicators were removed from the Agreement to avoid further amendments in the future,[4] and (b) certain intermediate indicators were modified to better measure and capture project achievements (see the comments in annex 1 for details). These included: (a) the end-of-project (EOP) target for Indicator 2 of the PDO-level indicators (reduction in disease losses) was increased from 20 percent to 30 percent; (b) a new indicator which was added in Component B to measure increase in aquaculture farmers' incomes to capture an important aspect of the project's benefits; and (c) some results indicators were revised for clarity[5].

- **Second project restructuring (August 5, 2016):** (a) at the request of the Government, the project added a ninth province, Ninh Thuan, to its geographical scope; (b) the Disbursement Letters for both the IDA Credit and GEF Grant were revised to reflect the addition of one pooled Designated Account (DA) for the Ninh Thuan Province and the change in ceiling type for the DA to variable, based on one quarter's forecast; (c) the Project Steering Committees, project provinces, and PPMUs were redefined under the Financing Agreement and Grant Agreement to include Ninh Thuan.

- **Third restructuring (January 25, 2018):** The closing dates of the Financing Agreement and the GEF Grant Agreement were extended by 12 months to January 31, 2019.

[3] The GEF financing used US$3.5 million and US$3.0 million from Biodiversity and International Waters Focal Areas.
[4] The removal of performance indicators from Financing Agreements was part of a batch restructuring for all projects in the Vietnam portfolio and was taken as a measure from the World Bank's Country Management Unit (CMU) to avoid lengthy Government procedures in amending Financing Agreements.
[5] Intermediate Results Indicator B4 (Number of provincial agencies in charge of aquatic animal disease management strengthened in disease diagnostic, surveillance, and early reporting) was revised to "Number of provincial and District agencies in charge of aquatic animal disease management strengthened in disease diagnostic, surveillance, and early reporting"; Intermediate Results Indicator D1 (Number of Project Provinces having satisfactory performance in Project management and monitoring & evaluation) was split into D1 (Project staff trained and performing satisfactorily) and D2 (Number of project provinces managing the project satisfactorily, with good M&E).

Rationale for Changes and Their Implication on the Original Theory of Change

25. The project was originally planned as a fully blended project with IDA and GEF financing. Subsequently, the processing of the GEF financing lagged the IDA operation by a year due to a delay in Government response. Therefore, at project appraisal and approval, IDA funds were used to cover the activities which were initially supposed to be financed by the GEF funding. The GEF funding was later approved as Additional Financing (financing gap) on March 29, 2013, and the Grant Agreement became effective with signing on May 2, 2013. The GEF Grant was added to supplement IDA financing for Components A.1. (ISP) and C.1. (Co-Management), mainly for additional support to (a) sustainable fisheries co-management through establishment of locally managed marine areas (LMMAs) and fisheries improvement plan(s) for nearshore fisheries, (b) MCS systems, and (c) livelihood activities to support local ethnic minorities and/or poor fishing communities in changing their behaviors towards sustainable fishing practices. As stated in the Additional Financing Project Paper, it had been decided to wait for the project mid-term review (MTR) to reflect the increases in the targets of some intermediate indicators as a result of the additional GEF resources, as this had implications for the use of the IDA funds that been freed. These changes were captured in the first project restructuring.

26. Ninh Thuan Province was added at the Government's request for upgrades to fishing ports for an area prone to natural disasters (drought and flooding) in the second project restructuring. The addition increased the project's scope in terms of geographical coverage; however, the activities proposed for the province (including upgrading a hatchery) were consistent with the project design.

27. In the third restructuring, the closing date was extended to allow for the completion of project activities delayed because of constraints placed by the Government on IDA budget allocations in 2016 and 2017.

28. These changes did not alter the long-term objective of the project nor the PDO outcome indicators in the results chain.

II. OUTCOME

A. RELEVANCE OF PDOs

Assessment of Relevance of PDOs and Rating

Rating: High

29. The objective of the project remains relevant to the national concerns regarding the sustainable management of natural resources and the growing depletion of fisheries resources, and their impact on livelihoods. The project was an important step for the World Bank to enter into a longer-term engagement with Vietnam's fisheries sector. After the CRSD closed, the Minister of MARD officially requested the World Bank to continue providing support for a follow-up operation built on the achievements of the CRSD (see below).

30. At approval, the project was consistent with the World Bank's Vietnam CPS for 2011–2015, presented to the Board on December 15, 2011. Specifically, it supported Pillar 2, Sustainability, to achieve the outcome of improved natural resources management. By contributing to improved product quality

and reduced physical losses, it also contributed to the CPS' agenda for competitiveness (Pillar 1). By assisting vulnerable fisher households, the project made a modest contribution to the CPS' agenda on poverty reduction and economic opportunity (Pillar 3). In addition, the project was consistent with the cross-cutting CPS themes of (a) strengthening governance, and (b) supporting gender equity. To date, its objective remains in alignment with the World Bank's May 4, 2017 Country Partnership Framework (CPF) for 2018–2022, Focus Area 3 (Ensure Environmental Sustainability and Resilience), under which the World Bank would support the adoption of models for sustainable natural resource use and management including (a) targeted support for fisheries co-management efforts in coastal communities (Objective 10) and (b) the promotion of productive and sustainable use of land, forests, fisheries, and ecosystem services, and their related livelihood impacts (Objective 11). The project also contributed to the CPF's objective of broadening the economic participation of ethnic minorities, women, and vulnerable groups and, to a growing extent, to future developments to be supported by the CPF's Focus Area 1 (Enable Inclusive Growth and Private Sector Participation), in which the promotion of private sector participation and agribusiness development and enhancement of trade competitiveness are emphasized for the agriculture sector.

31. The project's objective is also consistent with the Government development priorities outlined in the 2011–2020 Socio-Economic Development Strategy (approved on February 16, 2011) and subsequent 2016–2020 Socio-Economic Development Plan (approved on April 12, 2016 - Resolution No. 142/2016/QH13), in which the Government sets the objectives for future development including reforms and growth targets on "a new environmentally sustainable growth model based on improved productivity and competitiveness, and investments in infrastructure development." The Social-Economic Development Plan also emphasizes the development of human capital and resources and the boosting of scientific and technological capacity, underscores a stronger resilience to climate change impacts, better climate change adaptation, improved disaster risk management, tougher environmental protection measures, and enhanced management of natural assets.

32. In light of these strategies, the project's objective is highly relevant to national and global concerns on illegal, unreported and unregulated (IUU) fishing[6]. The fisheries sector is also a major employer, including jobs for women.[7] Aquaculture in Vietnam is expanding into a major export industry[8], and capture fisheries, although contributing less to commercial exports, is vital in providing employment to poor coastal communities. Community-based management groups would fill in an important gap in Government resources for managing coastal resources, particularly if supported by secure fishing rights. In this context, the project is aligned and contributes to the GEF-5 Focal Area objectives for biodiversity and international waters.

B. ACHIEVEMENT OF PDOs (EFFICACY)

Assessment of Achievement of Each Objective/Outcome

33. The project stated one objective "to improve the sustainable management of coastal fisheries in the Project Provinces." The PDO was broadly stated and the outcome indicators defined the outcomes as

[6] The State of World Fisheries and Aquaculture - 2018. Food and Agriculture Organization of the United Nation.
[7] Women are involved mainly in the preparation of materials for fishing trips, gear repair, sorting of fish landed, and fish retailing in local markets. In the Mekong Delta, almost 90 percent of agents/traders are women (Vietnam Fisheries and Aquaculture Study, Ministry of Fisheries and the World Bank, February 16, 2005).
[8] In 2018, Vietnam's fisheries export reached US$9 billion, of which US$5.8 billion were from catfish and shrimp farming.

a result of interventions in aquaculture (Component B) and capture fisheries (Component C) in improved resources management and local beneficiaries' livelihoods and in capacity building and institutional capacity strengthening. Though no specific outcome-level indicator was stated for Component A, it was designed so that Components B and C would be supported by the strengthening of the institutional framework, and by policy reforms and research. As reflected in the intermediate-level indicators for Component A, the project did indeed achieve all targets for outputs and intermediate outcomes related to the institutional capacity strengthening activities. The achievements of the project, as measured by the approved PDO and outcome indicators, are as follows.

Outcome Indicator 1: Increase in the proportion of farms meeting national standards for water effluent following the adoption of Good Aquaculture Practices.

34. **Establishment of GAP zones and groups.** By EOP, 50 shrimp GAP zones were established and 251 GAP groups[9] formed with 9,375 shrimp households participating and covering an area of 12,537 ha. The GAP zones were designed to manage the problems of disease, water pollution, and low productivity which were affecting the shrimp farms before the project. The GAP zones were successfully established under the project to enable a range of public services to be delivered more effectively to individual farmers and farmer groups (for example, upgrading infrastructure for biosecurity,[10] veterinary services, improved seed[11] and broodstock, testing and demonstrations of improved methods and/or technology, improved infrastructure and extension services, information and awareness campaigns, training and farmer schools, marketing assistance, and GAP certification). Farmers adopted the improved GAP methods because of the access to services provided to the GAP groups and zones and because of demonstrated benefits in terms of reduced losses and higher returns. The GAP groups which were established were required to take active roles in early disease reporting, monitoring, and addressing water pollution and disease problems promptly when they occurred. One of the key successes of the project was the promotion of existing GAP principles and methods and expanding these to newly formed groups and zones. Before the project, there was no concept of GAP groups or zones in the project area; GAP was neither applied systematically by small farmers nor by extensive farm systems and farmers worked separately and individually in these areas. With the project, the GAP zone concept was introduced and supported with TA, training, and provision of biosecurity infrastructure to facilitate its adoption. The result is that after the project, GAP is more widely adopted throughout Vietnam.

35. **Diversification zones,** that is, polyculture with other species, were also established as alternatives in areas where shrimp farming was no longer feasible due to the levels of disease and water pollution before the project. By EOP, 32 diversification zones were established with 3,734 aquaculture farming households participating in an area covering 4,413 ha.

36. **Improved environmental management within GAP zones.** One of the key factors in improved shrimp farming was the monitoring of environmental risks caused by poor management of wastewater and solid wastes coming from shrimp farms. Proper waste management, successfully demonstrated in the GAP zones, leads to a change in farmers' behavior toward wastewater treatment, that is, before the

[9] For each group, a group profile was prepared, which included the list of members, number of ponds, types of farming systems, farming practices such as stocking seed, feeding, and so on. Each group had one leader to coordinate collective action of the group.
[10] Water supply canals, discharge canals, and water inlet and discharge culverts to reduce the risk of disease contamination in aquaculture farming.
[11] In the GAP zones, farmers were required to adopt certified seed.

project, most farms exchanged pond water daily without prior treatment of wastewater; after the project, most of the farms treated their pond water and reused it without discharging it back into the outside environment. Farmers supported under the project were more aware of the risks associated with daily water exchange practices and hence, practiced improved methods, using improved technologies to treat and recycle pond water after harvesting shrimp.

37. According to the project's M&E report[12] in October 2018, 86 percent of farms in GAP zones were applying wastewater treatment which meets the national standards[13] for environmental management and 93 percent of the farms practiced proper pond sludge handling after harvest, as compared to 9 percent before the project. The project exceeded the target set for this PDO outcome indicator (original target was 50 percent). This was a significant achievement in terms of behavioral change among local farmers within a relatively short, six-year period. In the GAP zones, most farmers or farmer group members have adopted at least one of the recommended wastewater treatment methods such as separate or group treatment facilities or closed water circulation system technology[14] and avoided discharging the wastewater into the surrounding environment. The closed water circulation systems also were widely used to treat wastewater inside grow-out ponds.

38. Water quality monitoring was carried out in partnership with the provincial DONREs under contract to the project through a Memorandum of Understanding (MOU). Through their involvement in the project, the scope of responsibilities for the agencies increased as they became responsible not only for water monitoring generally but also for regular testing of water quality in the GAP zones and the surrounding areas.

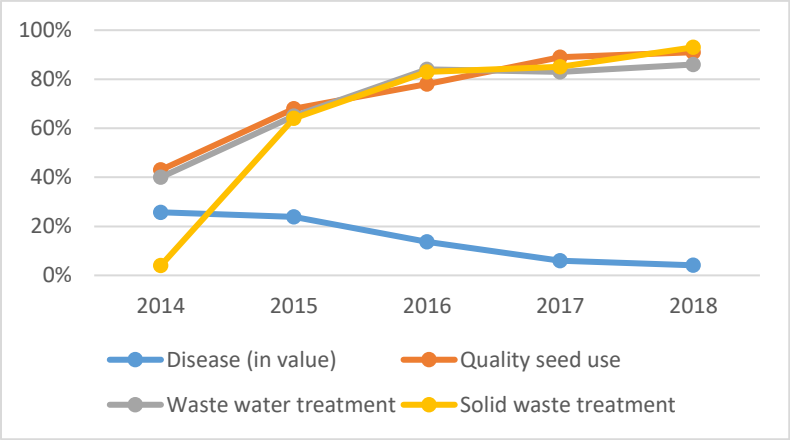
Outcome Indicator 2: Reduction in shrimp disease losses in the production areas applying GAP

39. **Improved disease control.** The project financed activities to build capacity for disease diagnostics, monitoring, control, and outbreak containment at the central and local levels. The capacity of the public veterinary services and extension at the provincial and district levels before the project was generally weak (i.e. they were not able to diagnose and test diseases such as while spot, yellow head, and early mortality syndrome). To strengthen these services, the project funded additional laboratory equipment, upgraded station facilities, and training[15] to better control and reduce disease infection and outbreaks in the project provinces. In addition, the project also supported the establishment of a community-based disease monitoring and early reporting system through provision of training to GAP groups to enable them to carry out early reporting to appropriate Government agents. As a result, the response time from disease reporting to effective disease outbreak containment was reduced from more than 10 days (before) to less than 4 days (after), and disease losses in the production areas applying GAP reduced, for example, in 2018, by 87 percent compared to the baseline rate of 35 percent (original target was 20 percent; it was increased to 30 percent in the first project restructuring in June 2016). These results were better than anticipated, given the widespread shrimp disease problems in coastal aquaculture at project appraisal. This

[12] By the PCU prepared for the 13th Implementation Support Mission of World Bank, October 2018.
[13] The GAP standards follow the Government Decision 3824/QD-BNN-TCTS of September 9, 2014. This decision covers traceability, hygienic conditions, food safety requirements, animal health management, environmental protection, and social aspects (details are available in the project's M&E Manual).
[14] Includes water recirculation systems and biological treatment such as bioflocs, polyculture with tilapia, and so on.
[15] The project upgraded 41 provincial and district veterinary agencies which included improved infrastructure, provision of disease diagnostic equipment, and staff training. In addition, community-based disease surveillance procedures were developed, and disease control and outbreak containment were carried out and maintained in all GAP zones.

achievement made a significant contribution to effective disease control and monitoring in the project provinces in recent years (figure 2).

Figure 2. Reduced Disease Losses in Relation to Improved Wastewater and Solid Waste Treatment and Use of Certified Seed in the Project Provinces

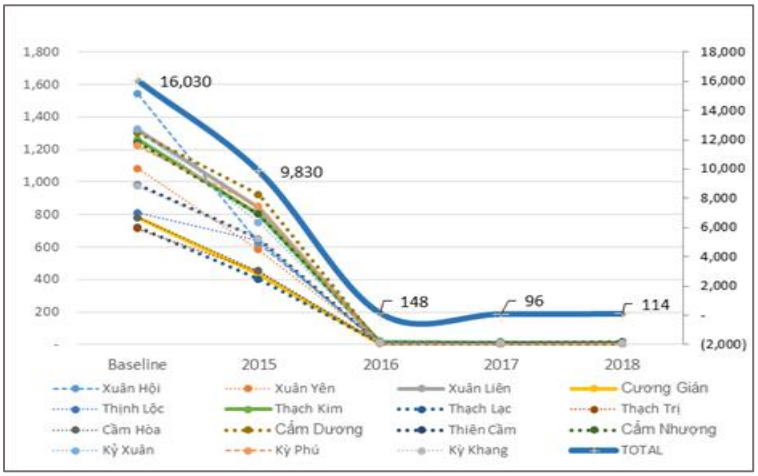


Source: PCU Project progress reports.

40. **Improved seed quality management.** Previously, few foreign hatcheries (that is, CP and Viet Uc) were able to produce and supply high-quality shrimp seeds. These hatcheries dominated the market for shrimp seed supply in Vietnam and sources of broodstock came from other countries. In an effort to generate domestic sources of seed and broodstock, the National Research Institutes for Aquaculture (RIAs), with funding from the project, conducted successful domestication programs and genetically selective breeding programs for two popular varieties of shrimp—white-leg shrimp (*Litepenaeus vannamei*) and tiger shrimp (*Penaeus monodon*)—to select fast-growth hybrids suitable for developing broodstock in the country. Hatcheries within the RIAs were upgraded to improve biosecurity for the production of disease-free post-larvae and broodstock for local hatcheries. Biosecurity standards for hatcheries which did not exist before the project were developed for MARD by an international hatcheries specialist recruited through the Food and Agriculture Organization (FAO). By EOP, 55 local hatcheries were certified and accredited (original target was 20; it was increased to 50 in the first project restructuring in June 2016). The accreditation of local hatcheries provided farmers with improved access to quality seed and more choices at affordable prices. As a result, the percentage of shrimp farmers using certified, quality seed in the project area rose from 25 percent before the project to 91 percent at EOP. Although there was not a large difference in seed production nor prices before and after hatchery certification, noncertified seeds became more difficult to sell; their survival rates were poor, and poor seed is highly susceptible to diseases and has a short lifespan, dying within a few weeks of stocking. The adoption of quality seed together with improved farming practices and environmental management effectively helped farmers reduce environmental pollution and disease risks and improve farming profitability (Intermediate Results Indicator B2, annex 1 for details), thereby improving aquaculture sustainability.

Outcome Indicator 3: Increase in the proportion of areas in which sustainable near-shore fisheries resource management systems are applied

Figure 3. Number of Fishing Violations in 15 CMGs in Ha Tinh



Source: Social Review Report, March 2019.

41. **Co-management initiatives.**[16] Co-management was piloted under the project as a means to improve the sustainability of nearshore fisheries and enforcing local regulations. With project support, 19 coastal districts in eight project provinces successfully implemented fisheries co-management agreements for 826 km of coastline, involving the participation of 13,751 fishing households through the establishment of 97 CMGs.[17] Local fishers were free to join the CMG at their choice. The project provided small grants (that is, US$50,000 per community or US$100,000 per ethnic minority/poor fishing community) for the preparation and implementation of CMPs for the first two years, including support for alternative livelihood options. In CMPs, fishing regulations were discussed and agreed; boundary demarcation was established; fishing right allocation, participatory surveillance, control, and monitoring, and additional livelihood development were carried out; and fishing violations with the group were closely monitored and reported to the PPMU every six months through meetings.[18] The CMGs and MCS activities worked together under the project through a signed MOU. By EOP, fishing violations within all CMGs were reported to have been reduced by more than 30 percent as compared to before co-management. Overfishing in small boats in nearshore areas was better managed through co-management with improved monitoring and boat registration. However, monitoring offshore violations by fishing

[16] Co-management under the project was not community-based under fisheries management plans but a formal partnership agreement between local CMGs and the Government. The roles and responsibilities of communities and local government are detailed in the Project Operational Manual.

[17] For each group, a group profile was prepared, which included the list of members, number of vessels, types of fishing, and fishing areas. In each group, one management team was elected (that is, leaders, accountants, secretaries, and so on) and several subgroups were formed to specialize in fishing activities, surveillance, environmental protection, alternative livelihood development, and so on.

[18] One CMG may cover one or several communes which share the same fishing ground. Criteria used to assess the success of CMGs included (1) reducing illegal/violating actions within the local fishing community with violations reduced by 30 percent; (2) participation (that is, 90 percent participating members contributed their member fees); and (3) effective collaboration (that is, 70 percent of the reported cases were dealt within one day after receiving reporting from community, the concerned agency will verify the information, inform local government and local community of their actions); and (4) community satisfaction (that is, 70 percent of members are satisfied with co-management arrangements).

vessels was beyond the scope of this project. The Government is trying to address this issue through a combination of measures which will be included as key priorities in the follow-up project.

42. The results from the project demonstrated that fisheries co-management in the local context could be feasible and effective. Under this project, co-management was introduced for the first time in Vietnam for nearshore fisheries, and together with the current legislations for fisheries, this provides a framework for future management arrangements for coastal fisheries resources. Systems for management of nearshore resources were successfully introduced and translated into plans for implementation. While the term "fisheries co-management" was previously an unknown term in the Vietnam's fisheries sector, it has now become a well-known term in the fishing community and is being referred to extensively in the sector. This is contrary to the forestry sector, where co-management has existed for over 20 years after it was introduced in the 1990s when the Government enacted laws which created a general framework for involving local peoples and communities in forest management.[19] This experience provided valuable input into the Fisheries Law amendment of November 21, 2017,[20] which officially recognized fisheries co-management and allocated rights to sustainably use and manage resources channeled to local communities. Incentives and initial support were necessary for the adhesion to a CMG along with allocation of rights, and it was also important to support CMGs in dealing with violations from outsiders through strengthening its provincial and district MCS field stations for improved surveillance together with provision of additional supporting infrastructure (for example, landing sites) to reduce after-catch losses. Key to promoting the bottom-up approach was a strong commitment from the Government, whose initial support (communication, legal regulations, resources allocation) was critical in launching the project, combined with the facilitation provided by local government agencies and the public sector.

43. **Locally managed marine areas.** In contrast to the approach of establishing marine protected areas (MPAs), which normally requires expensive investments from the Government in establishing and sustaining a management board and its associated infrastructure, the project piloted the co-management of high biodiversity water areas by local communities. An LMMA, in fact, was a special type of CMP which included high biodiversity areas where fishing activities were seasonally or partially restricted. Under the project, LMMAs were allocated greater amounts of GEF funds (that is, up to US$400,000 per LMMA) to finance additional activities such as water zoning and zone management including biodiversity protection. MOUs between the CMGs and the local authorities were developed and signed, and the LMMA was to be approved by the Provincial People's Committee (PPC) of the province before implementation. By EOP, three LMMAs were established in Binh Dinh, Phu Yen, and Khanh Hoa and are co-managed by communities.[21] The project also shared knowledge and experience with the Partnership in Environmental

[19] Decree No. 02/CP issued by the Prime Minister, January 15, 1994, on allocation of forest land to organizations, households, and individuals for stable, long-term use in forestry; Decree No. 163/1999/ND-CP issued by the Government, November 16, 1999, on allocation and leasing of forest land to organizations, households, and individuals for long-term and sustainable use in forestry.

[20] Law No. 18/2017/QH14, approved November 21, 2017, is an amendment to the Fisheries Law of 2003. It introduced the concept of co-management in a legal document for the first time; local community groups have legal recognition and can carry out protection of marine resources and the delegation of fishing rights. It addresses climate change; the fight against IUU fishing activity; and strengthening of management of MPAs.

[21] The total area is approximately 90,000 ha: (a) Quy Nhon Bay in Binh Dinh (36,000 ha), (b) Tuy An lagoons in Phu Yen (46,855 ha), and (c) Nha Phu Lagoon in Khanh Hoa (around 7,000 ha). They have been officially established by the provinces and under implementation including fishing regulations established; fishing rights allocation; participatory surveillance, control, and monitoring; and additional livelihood development carried out. Like CMPs, illegal fishing and violations in LMMAs are strictly monitored by the CMGs.

Management for the Seas of East Asia (referred to as 'PEMSEA') which partnered with the World Bank in implementing a medium-scale GEF project on managing knowledge and information on the fisheries sector.

44. As part of the CMPs, alternative livelihood programs were introduced through training and TA to assist fishing households in generating additional sources of income or to demonstrate options for alternative means of employment (for example, in the tourism sector, animal husbandry, crafts, and fish processing). In the LMMA zones, livelihood options, which were popular with the local community, involved training for tourism services (coral reef viewing, boat guide, marine diving assistance, and so on).

45. The sustainability of the CMGs would depend on sustainable sources of funding for operating costs after the project closes. To date, almost all the CMGs members contributed membership fees and sometimes contributed fees from alternative livelihood activities introduced under the project. Demarcation of boundaries for most CMG areas and water surface areas have been completed; this was an important issue for the successful implementation of co-management.

Box 1. Fisheries Co-management in Soc Trang

Soc Trang has 72 km of coastline, which was managed by five CMGs, involving 413 participating fishing households. Under the project, training was provided to interested households to generate new jobs and incomes. A total of 135 households (32.6 percent) were practicing additional income-generation activities, including duck raising, goat breeding, aquaculture, and basket weaving, which raised their additional income to VND 1,000,000–1,500,000 per day (US$ 43-64) compared to VND 300,000– 500,000 (US$13-22) per day earlier. With the additional sources of income, men who used to go fishing every day now spent less time at sea and devoted more time to the new jobs (Social Assessment, March 2019).

46. **Government MCS.** To support co-management activities of the CMGs, the project strengthened the provinces' MCS capacity through the equipping of MCS field stations.[22] The key mandate of the MCS stations was to carry out their routine patrols and support the CMGs in dealing with violations when these were reported through the provincial hotlines.[23] Surveillance missions, as part of the MCS activities which were carried out by provincial MCS forces, were based on approved planning to provide the necessary support to the CMGs. Under the project, this was implemented in cooperation with CMGs on a risk-based approach, mainly in response to the violations reported. MCS also involved improved boat registration. Boats which required registration have been registered and recorded in the VnFishbase. The project's design did not include MCS activities regarding industrial fleets due to legal concerns over disputed territories between neighboring countries. Current regulations prohibit industrial trawling in nearshore areas and under the project, the CMGs closely cooperated with the Government's MCS services to prevent industrial trawling in such areas. The partnership between the MCS and CMGs worked well in all project provinces especially in the areas of timely reporting and dealing with violations.[24] In the last 1.5 years of the project, in line with the Government's priority of using official development assistance (ODA) funds

[22] The project upgraded 28 MCS field stations, including construction of offices, procurement of 16 patrol boats and 14 high-speed boats, recruitment of additional staff, and provision of training on surveillance activities. Operation and maintenance of the boats were financed by the provincial government.
[23] When the CMGs observed violations, they were reported to provincial/district MCS stations through hotlines and cases were usually addressed within one day.
[24] Fines for violations involved small amounts of money; however, illegal fishing gears were confiscated by the local government as a deterrent for violations.

for infrastructure investments, the provinces started using their counterpart funds for financing MCS operations and it worked well. With the new risk-based approach and backed by effective CMG surveillance, provincial MCS proved to be more effective with less operating costs which could be well covered by provincial budgets after project closing.

47. **Upgrading of fishing ports and landing sites.** The project supported the rehabilitation[25] of selected fishing ports and landing sites in the project provinces to reduce after-catch losses, improve quality and safe handling, and improve the monitoring of fish catch. The World Bank cooperated with the FAO to recruit an international fishing port consultant to conduct assessments for each selected port/landing site and review of the proposed upgrades. By EOP, 21 fishing ports and landing sites had completed their upgrades and put into use,[26] exceeding the original target of 16, and postharvest losses had been reportedly reduced from 35 percent to 14.5 percent.[27] Although the post-harvest loss achieved (14.5 percent) was slightly below the set target of 12 percent (a new intermediate indicator which was added during the first project restructuring in June 2016), the loss rate is expected to continue improving after project closing. Furthermore, because the baseline was underestimated, the amount of reduction that was achieved is already greater than reflected in the indicator target. The actual reduction in losses achieved (20.5 percentage points) was greater than the target (13 percentage points). These activities also helped enhance the awareness of port management boards (and their officers), fishers, and traders regarding environmental and food safety compliance. The results from the project are being considered for scaling up in the Government's future development programs which includes the proposed follow-up Sustainable Fishery Development Project (P171352) currently under preparation.

Institutional Capacity Strengthening for Sustainable Fisheries Management

48. Activities under this outcome were designed to support the long-term sustainability of the aquaculture and nearshore capture fisheries through improving the sector's planning and management capacity and policies. These are critically important to reduce risks and secure and leverage private sector investments in the long term.

49. **Inter-sectoral planning initiative.** The project supported target provinces to move from fragmented sectoral planning to an ISP for better management of coastal resources and to reduce conflicts in planning among related sectors. Before the project, the approach to sectoral planning undermined the fisheries sector, often using a top-down approach. Most of the agencies involved in planning operated with insufficient information and knowledge across the sectors, and there was insufficient planning and coordination and participation from the communities, often resulting in conflicts between the sectors. The focus was often on socioeconomic development rather that environmental and ecological impacts which were often overlooked.

50. The project supported the establishment and training for provincial, district, and commune ISP teams which included senior officers from related sectors such as agriculture (that is, agriculture, fisheries,

[25] Upgraded facilities included landing areas, roofing, cleaning and grading areas, net repairing houses, wastewater collection and treatment, and so on. Investment ranged from US$0.5–1.5 million per site.
[26] Including Hoang Phu and Hai Chau (in Thanh Hoa); Lach Van, Lach Lo, and Quynh Phuong (in Nghe An); Xuan Hoi and Thach Kim (in Ha Tinh); Tan Phung, Nhon Ly, De Gi, and Quy Nhon (in Binh Dinh); Dan Phuoc and Dong Tac (in Phu Yen); Vinh Luong and Hon Ro (in Khanh Hoa); Ca Na and Ninh Chu (in Ninh Thuan); Mo o and Tran De (in Soc Trang); and Song Doc and Ho Gui (in Ca Mau).
[27] From PCU's Progress Reports.

forestry, livestock, rural development, and so on), natural resources and environment, transportation, tourism, planning, and finance. ISP was first carried out for pilot districts in the first two years and then rolled out in the following years to all 40 coastal districts of the project provinces (except for Ninh Thuan). The plans were formulated following consultations, and agreements were obtained from stakeholders. The ISPs which were approved by the PPC would provide the data and information for implementing and for revising sectoral plans. They were living documents which would be adapted to changing conditions and provided a guiding framework for dialogue, cooperation, and coordination among sectors and between Government representatives and stakeholders to improve inclusion of local population and governance.

51. The key features of ISP were (a) ecosystem-based (balancing ecological, economic, and social goals and objectives toward sustainable development); (b) integrated (across sectors and agencies and among levels of Government); (c) adaptive (incorporating lessons from implementation experience); (d) strategic and anticipatory (focused on both present and long term); and (e) participatory (stakeholders actively involved in the process). By EOP, all the participating districts had ISP plans prepared and approved by their prospective PPC. The ISP plans were linked to the province's social economic development plans and would feed into future revisions/adjustments of related sectoral plans. The institutions involved have been sensitized to the benefits of ISP, and the basis for the future expansion of the ISP model has been put in place.

52. **Upgrade of the Vnfishbase.** In an effort to improve fisheries governance, the project supported the upgrade of the national fisheries database to improve the monitoring of fishing fleets, catch volumes, and traceability.[28] The upgraded fisheries database was put into use in the eight provinces, allowing for local-level data collection[29] to be inputted and accessible to all provinces. In September 2018, the Directorate of Fisheries (DOF) expanded the VnFishbase to all 28 coastal provinces in the country. The upgraded system was to provide up-to-date information for the DOF and provinces for science-based management. However, since it was only completed in the last year of implementation, data quality and consistency tended to vary across provinces, and in some areas, only preliminary fisheries data are available for analysis. With further support and closer follow-up, it is expected that collected data will become more consistent over time and tailored to the monitoring needs.

53. **Selected technical and policy research.** The project supported the implementation of the Fisheries Master Plan to 2020 through the funding of 13 policy research and technical studies proposed by the DOF and the project provinces (exceeding the original target of 12). The studies covered a range of topics including detailed planning for provincial sustainable coastal and marine aquaculture, fishing fleet development and management, fisheries logistics development strategy, leveraging private sector investment, reviewing existing fisheries policies, and so on (annex 7). Results from these studies were reviewed and endorsed by the DOF and respective provincial agencies.

[28] VnFishbase contains key information on the sector by province, including aquaculture data on farming area and systems, production, major species, losses due to diseases/natural disasters, hatcheries/seed production; and it also contained information on capture fisheries data on the number and size of fishing vessels, types of fishing gear, boat type and registration, fishing licenses, main fish species, catch volume and traceability, fishing ports and landing sites, fishing shelters, accidents at sea, MPAs, and so on.

[29] Data are collected by provincial sub-Departments of Aquaculture and Capture Fisheries and Resources Protection.

Justification of Overall Efficacy Rating

Rating: Substantial

54. In terms of outcomes, the project achieved its objectives of strengthening the institutional framework (ISP, upgrading of the national fisheries database, completing the selective policy research and studies, supporting implementing institutions and community associations) to support the launching of new initiatives and approaches under the project. Co-management for fisher groups and farmer groups, GAP, planning and coordination across sectors through ISP, capturing of relevant data and improvement of data collection, and policy research to support new initiatives were all successfully completed. In aquaculture, disease levels were remarkably decreased; and sustainable technology and methods were developed for sustainably controlling harmful wastewater discharges to the environment through the adoption of GAP. The successes from the project have gone beyond the project provinces, resulting in positive impacts on the whole sector. They have been widely replicated by other provinces throughout the country and are good practices to be shared with other countries. All but one of the EOP results targets at the component level were either met or exceeded.

C. EFFICIENCY

Assessment of Efficiency and Rating

Rating: Substantial

55. The total IDA financing approved for the project was US$100.0 million equivalent. Additional financing from a GEF Grant provided US$6.5 million about a year later, which was added to supplement activities for Components A.1 (ISP) and C.1 (co-management of near-shore fisheries and LMMAs). The project was extended by one year.

56. At the component level, the differences between appraisal estimates and actual costs (annex 4) were mainly due to fluctuations in the exchange rate between the SDR and the U.S. dollar which resulted in a lowering of the U.S. dollar amounts.[30] This led to a reprioritizing of activities during implementation to accommodate the shortage in financing. Lower actual costs for Components A and D were due to the late arrival of the TA team and the effective mobilization of provincial technical staff to support project implementation. Expenditures for Component C were above appraisal estimates due to the additional upgrades of two fishing ports for the newly added Province of Ninh Thuan at the request of the Government (in the Second Project Restructuring in August 2016). By project closing, 99.3 percent of the IDA Credit and 99.4 percent of the GEF Grant were disbursed.[31] Total Government counterpart funds and local beneficiary contribution leveraged totaled about US$17.9 million as planned at appraisal (see annex 3).

57. An economic and financial analysis carried out using similar methods to those calculated at appraisal showed an economic internal rate of return (EIRR) of 49 percent and a financial internal rate of return (IRR) of 52 percent, with an anticipated net present value (NPV) of US$1.3 billion. As inferred by

[30] At approval, IDA financing was SDR64.6 million, equivalent to US$100 million. At project closing, it was only equivalent to US$91.8 million.
[31] US$91.13 million out of US$91.78 million available IDA Credit and US$6.46 million out of US$6.5 million GEF Grant were disbursed.

the benefit-cost ratio, the NPV of the project benefits was six times greater than the total cost of the project (that is, investment plus operating cost). The larger output from more efficient technology and higher production yields in Component B contributed significantly to the project returns. For Component C, in addition to the increased revenues, a reduction in operational costs contributed significantly to project benefits. The main contributing factors to the high NPV and IRR differences across provinces include the number of farms joining GAP zones and the number of vessels which became part of the CMGs. For Component B, higher returns were mainly a result of reduced disease rates which increased yields due to longer lifespan for shrimp (more days spent in the pond), which reduced the chances of producing no yield or total loss of the crop, and increased sales value (better quality and larger size shrimp). For Component C, the main factors were the higher sales prices resulting from an increase in the catch rate of higher quality fish, improved catch preservation at catch site, and improved handling environment and facilities at ports.

58. With incremental financing from the GEF, the project supported two complementary groups of activities contributing to global environmental benefits or associated adaptation benefits not available under the baseline scenario: (a) strengthening institutional capacity and empowering coastal fishing communities to sustainably manage coastal resources and (b) supporting initiatives to protect coastal ecosystems which support these resources through the establishment of protected coastal areas. The successful introduction and promotion of ISP and co-management in selected project provinces and the establishment of LMMAs provided the basic foundation for establishing sustainable resource management and locally important biodiversity management in the longer term. They have been endorsed by provincial and local establishments, indicating ownership by the key agencies. Although it is difficult to quantify the incremental returns from activities financed solely through the GEF grant, the project's co-financing leverage was significant through the complimentary IDA and Government/beneficiaries contributions which together generated notable returns (see details in annex 4).

59. **Implementation efficiency**. In the first two years, due to the late arrival of the TA team and turnover of key staff at the PCU and some PPMUs, the project faced a slow start-up. In addition, at the request from the Government, a new province was added at a late stage in the last two years. As a result, the project was extended by one year to complete all planned activities and disburse most of the IDA and GEF funds. Rates of returns on investments were above expectations. Success from the project and enhanced capacity of technical departments, for example, veterinary services, combined with the integrated approach to planning and coordination, resulted in a spillover of benefits to other areas not under the project and provided a cost-effective way of sharing the project's benefits.

60. Through effective mobilization of government's technical agencies to support the PCU and PPMUs in technical implementation, the project was able to meet its objectives and all results targets, within the funding limits and scope planned. Moreover, that also improved implementation efficiency and reduced project supervision and management costs. At times, procurement activities were delayed due to the late budget allocation by the Government; however, there were no overall cost overruns.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

Rating: Satisfactory

61. The Overall Outcome rating is based on the project's high relevance, substantial efficacy, and substantial efficiency. The project succeeded in introducing and promoting the co-management approaches in the targeted coastal areas through well-targeted interventions, as evidenced by the adoption of the CMG and GAP groups by project beneficiaries and by the Government of Vietnam as models for scaling up the pilots to all 28 coastal provinces.

E. OTHER OUTCOMES AND IMPACTS

Gender

62. In Vietnam, women play an important role in both aquaculture and capture fisheries. In fisheries value chains, men and women have distinct roles. Fishing is male dominated, while women are implicated in skilled and time-consuming onshore tasks (making and mending fishing nets, processing and marketing fish catches, and providing services to fishing boats). In aquaculture, women assume the responsibilities for shrimp feeding, harvesting, processing, and marketing, and at home, women take up the responsibility of managing the family's income and ensuring nutrition. In general, women enjoy fewer opportunities and receive a smaller income than men and are less visible in social and economic activities.

63. The Social Assessment conducted during project preparation showed that in the project sites such as Soc Trang men went fishing at sea while women stayed home for housework.[32] A time-use exercise and a subsequent survey[33] conducted with local women and men in Mo O village indicated that a local woman who had children at the kindergarten age typically spent 5.3 hours per day on childcare before they could send their children to the new classroom satellite. Meanwhile, the time that local men spent on childcare remained at 0.4 hours before and after their children had been sent to the new classrooms. The reasons for the considerable share of women's time on childcare included conventional care responsibilities assigned to women and the lack of adequate childcare facilities.

64. Efforts to address gender gaps under the project included (a) providing equal opportunities for technical training for women in aquaculture; (b) designing and providing suitable training for women for additional alternative livelihood (that is, arts and crafts, fish processing, food processing/transformation, backyard chicken, pigs, goats raising, basket weaving, and so on) to generate additional jobs and improve their incomes; (c) ensuring adequate consultations with women groups when designing extension programs and alternative livelihood development programs for women; (d) reducing women's time on childcare to create equal opportunities for income-generating activities; and (e) monitoring and reporting gender-segregated data as part of the project M&E.

65. By EOP, women's participation in aquaculture training averaged 20 percent, and it increased to 47 percent in additional livelihood development training. More than 150,000 women in the project areas directly benefited from the project's support;[34] of these, over 16,000 women adopted improved

[32] Social Assessment conducted during the preparation of the project in 2013.
[33] The mini-survey was conducted in October 2018, with 45 respondents who are caregivers of children attending the new childcare facility in Mo O village.
[34] Based estimated number of direct project local beneficiaries under all components from the project's M&E, October 2018.

technologies promoted by the project. As a result, sources of incomes for women in the project areas were increased and became more diversified (through the project's livelihood development programs); and women and children's access to better diet/nutrition was also improved (through greater diversification of the families' farming systems).

66. In an effort to reduce the amount of time that women spent on childcare, the project successfully completed a gender results chain initiative for a CMG at Mo O village, Trung Binh commune of Soc Trang Province, where a new two-classroom satellite of the local kindergarten was constructed to accommodate up to 70 kindergarten-age children. As a result, time spent on unpaid care work was reduced to 3.5 hours per day for more than 50 village women, including Khmer ones, who had children ages 48–72 months attending the kindergarten. Women in the group had more time to take part in income-generating activities such as basket weaving, small trading, and seafood classification and processing. In addition, improved safety, security, hygiene, and learning resources were also improved for 55 children who attended the new childcare facility (see annex 9 for details). The district government pays for teacher costs as they are mapped to the provincial school system. A similar initiative was carried out in Nghe An Province. These initiatives were good models of the project's effort to contribute to corporate commitments to gender equality, as reflected in the World Bank's Equality Gender Strategy for 2016–2023.

Ethnic Minority Development

67. Soc Trang is the only province in the project which has a high population of the Khmer ethnic group. The project supported the province in preparing and implementing four Ethnic Minority Development Plans (EMDPs), based on the social assessment and consultations with local Khmer people. Under the EMDPs, the project provided training on farming technologies, farm management, and gender and basic life skills and procured environmentally friendly fishing gear to reduce unsustainable fishing practices for CMG members. The project also financed the construction of family latrines to improve sanitation, which contributed to improving health for Khmer women. At the community level, the project financed the upgrading of access roads, communal houses, a kindergarten, and other facilities as well as study tours to help improve livelihoods, generate additional sources of income, and reduce dependency on fisheries. The project supported five vocational courses for members of households from five CMGs, most of them being women, on producing plastic baskets to sell to local companies through contractual arrangements. In total, about 219,890 Khmer people received benefits from the project through the EMDPs (107,651 were women); of these, 82,716 people were directly supported by the project[35]. Activities supported by the project helped reduce social and knowledge gaps between local Khmer and Kinh groups and build trust among Khmer communities as they join the CMGs. There was high consensus and strong support from local Khmer communities for the project both during preparation and implementation, which should improve prospects for ownership and sustainability but with further support.

Institutional Strengthening

68. **Enhanced governance.** Throughout project preparation and implementation, local stakeholders were consulted to ensure their engagement, cooperation, and participation. Target beneficiaries were provided with adequate project information to help them provide useful feedback during the process of

[35] From the PCU's Progress Reports.

activity planning, implementation, and monitoring. To promote collective action, local beneficiaries were required to be active participants in developing regulations, forming agreements, and addressing contributions and agree on benefit sharing. The PPMUs and local government played a facilitating and supporting role, providing guidance on technical aspects while ownership and decision making were vested in local beneficiaries. In aquaculture, the PPMUs engaged technical departments and local governments to help address the concerns from local farmers. In fisheries co-management, ownership and rights for sustainable management of resource areas were allocated to CMGs and protected by the Government in case of conflict with outsiders. Fishing household members elected their own representatives to take part in the management team. Together, the group developed a code of conduct based on the existing regulations and laws. Training was provided to CMGs to assist them in developing and implementing CMPs. Empowerment of local stakeholders and community beneficiaries helped to improve fisheries governance through a bottom-up approach, building cohesion and trust among local communities and beneficiaries.

69. **Capacity building and institutional strengthening** were a crucial aspect of project design for the successful implementation of component activities. The primary focus was to build the capacity of implementing agencies (PCU and PPMUs) not only in project management, coordination, M&E, fiduciary aspects and safeguards but also in new concepts (that is, ISP, GAP and biosecurity, fisheries co-management) and new approaches. During project preparation and implementation, the project drew on extensive technical support from the FAO through its cooperation program with the World Bank (FAO through its Cooperation Program) and the World Bank team also drew on international experience applicable to Vietnam to assist the project.

70. The project provided TA, training, and additional equipment to the central and provincial technical departments (Department of Agriculture and Rural Development [DARD], DONRE, sub-Departments of Aquaculture, Animal Health, and Capture Fisheries and Resources Protection) to strengthen their technical capacities to work with the PPMUs in implementing/monitoring activities related to their mandates. The project also strengthened the capacity of local communities through awareness-raising campaigns and training to enable them to plan, implement, and monitor their community plans. Access to information, sustainable technologies, improved infrastructure and associated support services, and opportunities were given to local communities to enable them to assume collective rights and responsibilities in resources management which would sustain their long-term livelihoods. The project supported the Government in putting in place a basic foundation for sustainable management of coastal resources through the policy research and technical studies, the strengthening of institutions, environmental monitoring, and interagency cooperation.

71. Under each project component, there were important impacts on institutional strengthening.

- **Component A**
    - (a) The ISP financed by the GEF Grant created a platform for dialogue and coordination and strengthened capacity of provincial, district, and commune officers in different sectors to work together for integrated coastal spatial planning. This model is being replicated by other provinces and the Ministry of Natural Resources and Environment (MONRE) in coastal zone planning.

- (b) In September 2018, VnFishbase was adopted by all 28 coastal provinces for fisheries management, and it is contributing to address the Yellow Card of the European Union (EU), which was issued in October 2017.

- **Component B**

  - (a) The project introduced the GAP zone concept and approach. With the new approach, farmers voluntarily changed behavior working together to adopt GAP and monitor environmental and disease risks. This is being replicated countrywide.

  - (b) Capacity in disease diagnostics, monitoring, control, and outbreak containment at the central and local levels was strengthened (time from reporting to disease outbreak containment was reduced from over 10 days to less than 4 days).

  - (c) Capacity of local hatcheries was strengthened in producing high-quality seeds meeting accreditation standards.

  - (d) DONRE capacity was strengthened and mobilized in monitoring of aquaculture wastes, which is more independent and accurate in environmental assessments than DARD.

- **Component C**

  - (a) Experiences in implementing fisheries co-management (financed by the GEF Grant) from the project contributed to the amendment of the Fisheries Law which was passed by the National Assembly in November 2017. In this, fisheries co-management is formally introduced and recognized. This has sector-wide impact. It provides a legal basis to involve and mobilize local communities to take part in resources management for 'open-access' areas along coastlines countrywide.

  - (b) Port upgrading under the project provides a good model for replication in other provinces and it will be included in the follow-up Sustainable Fishery Development Project to be financed by the World Bank.

Mobilizing Private Sector Financing

72. The project did not involve mobilizing World Bank guarantees. In support for establishment of the GAP zones and groups, together with technical demonstration the project financed 54 biosecurity infrastructure schemes to improve management of disease and water pollution risks. This leveraged investment from farmers to improve biosecurity in their own farms (around US$6.2 million) as part of GAP adoption. For improved seed quality management, the project financed training for local hatcheries in certification standards. This leveraged additional investment by local hatcheries to upgrade their own their facilities to meet the certification requirements (by EOP, 55 hatcheries were certified). In addition, the project also financed basic infrastructure for the new hatchery area (around 60 hectares) in Ninh Van of Nha Trang with total investment costs of around US$4 million. Four private companies already

registered to invest in new shrimp hatcheries with total registered investment around VND663 billion (equivalent to US$28.5 million).[36]

73. To support the CMGs, the project financed the upgrades of 21 fishing ports and landing sites (US$0.5-1.5 million each) to help reduce post-harvest losses and improve product quality with higher food safety standards. This leveraged private investors to invest in logistic supplies and support services including petrol stations, cold storages, ice plants, ship repairing services, and so on (around VND10 billion per each port).[37]

Poverty Reduction and Shared Prosperity

74. The project contributed to poverty reduction for the coastal poor who were involved in aquaculture and nearshore capture fisheries in the project areas. In aquaculture, increased productivity and profits enabled many of the poor families participating in the project to pay off debts and improve their living conditions. In nearshore fisheries, poor fishers benefited from improved governance, greater inclusion, and equal voice and opportunity, which allowed them to participate in the planning, implementation, and monitoring of the use of resources on which they depend for their livelihoods. The rehabilitation/construction of facilities (ports, landings, water systems, hygiene facilities) contributed to the efficiency and improved hygiene for handling fish catch, fish quality, and reduced after-catch losses. Fish processing also benefited as a result, an area which employs mostly women. In the longer term, income from fishing activities is expected to improve and become more stable as fisheries resources gradually recover as a result of reduced destructive fishing practices and better resources management. Some alternative livelihood models provided by the project were well received by local fishing communities; however, supporting data and analysis were not sufficient at EOP to enable a thorough analysis and more time would be needed to quantify the impact of these models.

Box 2. Shrimp Collaborative Group (Phuoc Thang commune, Binh Dinh Province)

Mr. Lê Thanh Tâm and Mrs. Nguyễn Thị Hân owned 9,000 m^2. They ran their farm for 15 years. Of this period, they failed for almost 11 years until recently in 2017 when their life completely turned around as their shrimp production increased owing to the support of the project. The couple said with happiness on their face that thanks to the infrastructure and technology supported by the project, their shrimp farming enjoyed a marvelous improvement. With more than VND 500 million earned in 2017 as net profit, the couple has repaid part of the debt and used VND 300 million for repairing their degraded house, so it is no long prone to annual flooding. With some money surplus, they bought home appliances, improved their kitchen, and bought a new motorcycle. With two consecutive years of success, they could afford their son's tertiary education in Ho Chi Minh City. Mrs. Hân said she is now more confident in the continued success because the project has addressed the bottleneck which they could not solve on their own over the past 15 years.

(Source: Social Assessment, March 2019*)*

Other Unintended Outcomes and Impacts

75. In the context of increased saline intrusion and sea level rise due to climate change, development of coastal aquaculture appeared to be an effective way of adapting to climate change, especially in the

[36] From Khanh Hoa PPMU's report.
[37] PPMUs' estimates.

Mekong Delta region of Vietnam. The aquaculture technologies and approaches introduced by the project (GAP and biosecurity zones) offered a good model for mitigating disease and environmental risks associated with aquaculture development, especially in shrimp farming. The high returns from the project may help leverage the private sector's investments in sustainable aquaculture. This would be done by working with farmers to reorient their production systems to be more sustainable and, at the same time, strengthen aquaculture value chains.

76. Co-management financed by the GEF Grant has been established and included in the Law on Fisheries (Law No. 18/2017/QH14), which became effective on January 1, 2019. It is expected to be supported by laws such as decrees, circulars, and decisions at the central level. As regulations at the provincial level follow and lessons from experience are accumulated, the CRSD would provide guidelines for future models if it is to be replicated countrywide.

77. In October 2017, the EU issued a Yellow Card to Vietnam for IUU fishing, which resulted in a sharp decrease in Vietnam's seafood export to the EU market. The Central Government is working with all coastal provinces to address the recommendations from the EU and the results and lessons from the project are providing useful inputs in this regard for designing the proposed follow-up operation, the Sustainable Fisheries Operation Project. The upgraded fisheries database, fishing ports, and landing sites would help provinces better monitor fishing fleet operations as well as catch origins. Fisheries co-management, if rolled out countrywide, would help reduce fishing violations and improve fisheries governance.

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

78. **Integrated approach.** The sector context at appraisal was complex. The fisheries sector was facing serious risks in sustainable planning and sustainable development of both aquaculture and capture fisheries. These problems were not new but required an integrated approach to address them. As these issues were interrelated, they needed to be addressed together in one integrated project. To achieve countrywide impact, the Government wanted to implement the project in all three key production regions of the country (north, central, and south). To accommodate the Government's request and choice, project design became complex, covering all three important areas of the sector, integrated planning, sustainable coastal aquaculture, and sustainable nearshore capture fisheries and covering the three important regions including north central coast, south central coast, and the Mekong Delta region.

79. **New concepts and approaches.** The project aimed at promoting changes in mindset and behavior: (a) for local authorities to move from sectoral planning to integrated inter-sector planning, (b) small farmers and fishers to move from individual to collective action in planning and sharing of responsibility for environmental compliance and protection of natural resources, and (c) value chain actors to cooperate in better food handling to meet hygiene standards. Such projects normally would require a longer period of preparation and implementation to build capacity for implementing agencies and local communities. At appraisal, most agricultural projects financed by the World Bank have an implementation period of five years and the lending instrument used would be a Specific Investment Loan (SIL).[38] As such, the CRSD was also a SIL, though it was evident that it would require a longer-term, multiple-project or programmatic

[38] The term used today is Investment Project Financing (IPF).

approach to reach the level of sustainability desired in this type of complex operation. This was because the project was a first in the fisheries sector in Vietnam, and its approaches were untried in the sector; neither the Government nor the World Bank were willing to commit to a long-term first investment phase, as that would have restricted the flexibility to learn and adapt. The decision to use a SIL as a lending instrument was recommended by the region's CMU following the Decision Meeting before project appraisal in 2011.

80. **Implementation capacity of implementation agencies.** Because the CRSD is the first World-Bank-financed project in the fisheries sector in the country, the PCU, PPMUs, and technical department were newly established and unfamiliar with the World Bank procedures as well as the new approaches introduced by the project. Furthermore, the project was spread over a large geographical area covering nine provinces in three different geographical clusters (north, central, and south), making coordination and monitoring a challenge. In anticipation of these difficulties, the Government and the World Bank team prepared an appropriate implementation support plan to mitigate the anticipated risks. Further support was to be ensured by the World Bank's project team, most of whom were stationed in-country and were able to provide timely preparation and implementation support to implementing agencies as required.

B. KEY FACTORS DURING IMPLEMENTATION

81. Overall, the positive project results can be attributed to a combination of factors: appropriate project design targeted to local conditions; demonstrated benefits to stakeholders and farmers leading to adoption of the methods introduced or promoted; support provided by the Government through funding, laws, and regulations which were put in place; and endorsements, for example, its collaboration in awareness-raising which contributed to behavioral changes in project agencies and management, and the facilitation and technical support provided by local government agencies. However, there were also challenges during project implementation which slowed down project implementation and disbursement.

82. **Late arrival of TA team.** The recruitment of the main TA experienced long delays due to a lack of proposals from short-listed firms which met the minimum score. By June 2014, the PCU cancelled the TA package and the World Bank agreed to the PCU's proposal to recruit the Chief Technical Advisor (CTA) and some key positions through the Individual Consultant Selection method. The CTA and key technical consultants were recruited in November 2014, more than two years after the project's start.

83. **Staffing of PCU and PPMUs and quality of TA.** The project also suffered from other staffing issues, including a turnover of PCU directors, some PPMU directors, and key technical consultants in the first two years due to several reasons: some were promoted and moved on to take other jobs and some resigned due to health issues. Coordination among the TA team and the PCU was weak. After the MTR in July 2015, the roles and responsibilities were clarified, coordination issues resolved, and the pace of implementation improved, and in 2016 to mid-2017, the project regained the pace projected at appraisal.

84. **Budget and funding constraints.** Beginning in 2015, the Government became increasingly concerned over the rising levels of external debt. In 2016, the IDA budget allocation for the project fell short of budgeted amounts and caused implementation to slow down toward the end of the year. In the first half of 2017, field activities were largely suspended in all project provinces due to a late budget allocation but then resumed in the second half of 2017 when funds were released. The GEF funds, however, were not allocated to the project in 2017. To compensate for the time lost due to the lack of sufficient funds to the project in 2016 and 2017, the Government requested a one-year extension of the

closing date from January 31, 2018, to January 31, 2019. From May 2018 onward, the MOF restricted the use of ODA funds for technical and recurrent expenditures which made it challenging to maintain adequate TA and operating costs for the remainder of the project period. To deal with this shortage, the provinces provided their own counterpart funds to maintain key TA positions and a minimum level of operating costs. During this period, few works contracts remained to be completed. Most of the technical activities had already been completed by that time; hence, the project results and outcomes were not adversely affected.

85. **Addition of Ninh Thuan Province.** In 2016, Ninh Thuan, a coastal province located in the south of Khanh Hoa and which suffered from severe droughts, was added at the Government's request to the project's scope through a Level 2 project restructuring. The project funded the upgrades of two fishing ports and a Provincial Seed Quality Inspection Center (total cost estimated at US$4.3 million equivalent). About 4.7 percent of the IDA funds were reallocated to these new activities from project savings. These additional activities were consistent with the PDO and provided a means for using the undisbursed IDA funds for the remaining implementation period.

IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

86. The M&E system was designed in line with the Aligned Monitoring Tool system established by the Ministry of Planning and Investment (MPI). The results indicators were selected to capture outputs from component activities and to track progress, assess impact, and feed into systems used by the MPI, MARD, and MONRE for oversight and planning purposes. The results indicators were aligned with the PDO with appropriate and realistic targets. The link from the intermediate results indicators to the PDO outcomes was measurable. Because project implementation was demand driven, which followed beneficiaries' interest and registration, the baselines were to be collected during project implementation at the interested communities accordingly.

87. The M&E staffing was considered adequate with an M&E specialist at the central level in the PCU who would coordinate and consolidate reporting and an M&E staff at each of the PPMUs who would collect and report the data and information at regular intervals to the PCU. The arrangements were presented succinctly in the Results Framework, as were sources of data, methods, and responsibilities. Project progress reports were to be submitted on a quarterly basis by the PCU and reviewed by MARD, jointly with the World Bank, either biannually or annually.

M&E Implementation

88. The quality of reporting from the PPMUs during early part of implementation varied but improved over time, especially in the second half of the project period. The PCU was responsible for M&E oversight, monitoring, and reporting, as well as for assisting the PPMUs with M&E training and reporting. The quarterly reports (financial reports and progress reports) were of good quality and were submitted on time. During the first restructuring in June 2016, two new intermediate results indicators (B2 and C5) were added and some targets were revised upward to reflect the GEF Additional Financing (annex 1).

89. Initially, M&E data collection was inadequate due to the lack of TA support and training for PPMUs but slowly improved after the MTR, particularly for capturing the use of high-quality seed, wastewater treatment by farmers under Component B, and fishing violations under Component C. M&E reporting also improved in terms of data collection, timeliness, and quality as greater efforts were made by the PCU and PPMUs in data collection, analysis, and reporting. In the final year, the project M&E measuring project indicators was performing fully satisfactorily in terms of quality of data collection and timeliness in accordance to the Results Framework, and project results indicators were being monitored in close cooperation with the DONREs and the Sub-Departments of Animal Health, with inputs from local community groups.

M&E Utilization

90. The M&E data collected by the PPMUs and the PCU were used for preparing the project progress reports to be submitted to the line ministries and to the World Bank as required by the legal agreements. The progress reports provided important inputs for the World Bank's implementation support missions (ISM) where the ministry's representatives also took part. For project management, M&E data were used for monitoring implementation progress, tracing results indicators, and tracking impact and for the economic and financial analysis update.

91. Indicators were vigorously monitored together with the delivery of outputs and activities for each component or subcomponent. The indicators were also used by the ministry and project provinces for project management, particularly in assessing the performance of each of the provinces as well as capturing the project's overall performance. The M&E data provided timely information for the PCU, PPMUs, and the World Bank to identify the constraints to be addressed, areas for improvement, and priority actions for the next implementation period. Especially after the MTR, in all World Bank's ISMs efforts were made to assist the PCU and PPMUs in scaling up the ISP in the remaining districts and accelerating upgrade of the Vnfishbase under Component A; accelerating accreditation for shrimp hatcheries and farmer adoption of wastewater treatment under Component B; and monitoring and improving performance of CMGs to reduce fishing violations and accelerating upgrade of fishing ports/landing sites under Component C. As a result, by EOP, all project results indicators were met or exceeded. At a higher level, experiences and lessons from the project were used as input for the Fisheries Law amendment in November 2017 and addressing the recommendations from the EU with regard to the Yellow Card for IUU fishing, issued in October 2017.

Justification of Overall Rating of Quality of M&E

Rating: Substantial

92. The M&E system was adequately designed and satisfactorily implemented, although with an initial slow start-up. The utilization of M&E data was effective in tracking progress and adequate for the purposes of project monitoring and coordination. The M&E's system and design provided a suitable tool for supporting the project's activities and recording the results against the PDO.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

Environmental

93. The project was classified as an Environmental Category B – partial assessment, with an anticipated positive impact on the environment through contributions to nearshore biodiversity conservation and natural habitats restoration in project provinces. The negative impacts anticipated were mainly related to civil works and were considered limited, localized, manageable, and reversible; these impacts would be minimized through proper design and application of mitigation measures. The project triggered two environmental safeguard policies including Environmental Assessment (OP 4.01) and Natural Habitats (OP 4.04). During project preparation, MARD prepared an Environmental and Social Management Framework (ESMF) as part of the feasibility study in accordance with the country's environmental regulations and the World Bank OP/BP 4.01 to guide the project in screening, assessing and mitigating project environmental and social impacts. The final ESMF was disclosed through the World Bank's InfoShop on December 28, 2011, and in the country through the project provinces' offices and Vietnam Development Information Center on January 4, 2012 for public access.

94. All infrastructure subprojects proposed by local beneficiaries were subject to an environmental and social screening, followed by an Environmental Protection Commitment (EPC) report which was prepared for each subproject according to World Bank procedures to mitigate construction- and operation-related impacts. The EPC reports were consistent with the national laws and with the World Bank environmental safeguards requirements. During the construction of some infrastructure subprojects, some minor issues did arise regarding safety at workplaces, slow construction of wastewater treatment facilities for the upgraded ports and landing sites, and limited environmental monitoring and inspection by local government (provincial DONRE). However, these were adequately addressed by the PPMUs following recommendations made by the World Bank during missions. For the upgraded fishing ports, the PPC provided discharge permits to wastewater treatment facilities, after testing, to ensure that the quality of discharge water met the Government's required standards. By EOP, no incidents or complaints on environmental risks and impacts were reported. Overall, the project was in full compliance with the World Bank's environmental safeguard policies and with the Government's environmental regulations.

Social

95. The project triggered two Social Safeguards Policies: OP 4.12 (Involuntary Resettlement) and OP 4.10 (Indigenous Peoples). During project preparation, MARD prepared the Resettlement Policy Framework and Ethnic Minority Development Framework in accordance with the Bank safeguard requirements. These documents were also disclosed through the World Bank's InfoShop on December 28, 2011, and in the country through the project provinces' offices and Vietnam Development Information Center on January 4, 2012 for public access.

96. Overall compliance with the social safeguards was satisfactory. There was no physical displacement/relocation of households caused by the project. There were 441 households and two organizations which lost part of their lands. With the exception of those (both husband and wife) who voluntarily donated the lands for developing public goods, the remaining persons were satisfactorily compensated in accordance to the project's compensation plans, which were reviewed by the World Bank before implementation. Land acquisition and compensation were monitored regularly by an independent

consulting firm recruited by the PCU. With regard to voluntary land donations, no negative impact on livelihoods or living conditions were observed or reported. Compliance and concerns with ethnic minority development safeguards included four EMDPs which were prepared and successfully implemented in Soc Trang; Khmer peoples had opportunities to express their difficulties, needs, and expectations at the CMG meetings which served as a useful consultation channel; and the Soc Trang PPMU was able to overcome the language barrier to maintain effective communication with Khmer communities. Cumulatively, about 74,000 local Khmer households received benefits from the project through the EMDPs. There was widespread consensus and strong support from the local Khmer people for the project during preparation and implementation.

Procurement

97. Some delays occurred at project start-up, caused by lack of familiarity with procurement procedures and during the periods of budget constraints imposed by the Government. Overall, performance by the PCU and the PPMUs on compliance was satisfactory. Delays affected mainly some works contracts for ports and landings, which were all completed in the project's extended period.

Financial Management

98. The financial management (FM) reviews in regular supervision missions identified that an adequate FM system was in place that could provide, with reasonable assurance, accurate and timely information that the World Bank loan proceeds were being used for the intended purposes. The project FM rating was consistently rated as Moderately Satisfactory since 2013. The reviews also recognized adequacy of FM staffing, accounting, and internal control systems, maintenance of supporting documents in the project and implementation of auditor recommendations for annual audit. Quarterly financial reports with acceptable quality were submitted on time. Annual audited financial reports were submitted to the World Bank with unqualified (clean) audit opinions, with only one late submission in the first project audit in FY2013. The project accounting systems were observed to be in order and payments were well controlled. The independent performance audit was a good practice which provided another layer of control in addition to the checks on outputs performed by the project and the supervising consultants. In addition, the CRSD is one of few projects which built internal audit capacity at both central and local levels. Nevertheless, the internal audit activities were not timely carried out as expected.

C. BANK PERFORMANCE

Quality at Entry

99. The World Bank's performance at entry was Satisfactory. The project was designed with a sound concept, providing appropriate expertise and new initiatives to address complex problems in the fisheries sector (that is, integrated spatial planning, sustainable aquaculture, and sustainable nearshore capture fisheries). Measures to assure quality at entry[39] were adequate and possible risks correctly identified. The project was also prepared with a high level of interest and commitment from the Government. Ownership

[39] Quality at entry included sound project concept, objectives, and approach; adequate technical, financial, and economic analysis; adequate consideration of environmental and social safeguards, fiduciary assessments, relevance to policy and institutional context, implementation arrangements, and risk assessments.

was also strongly indicated in the preparation plans presented by the PPMUs to the World Bank during the preparation phase and the Government's participation in the preparation missions.[40]

100. The World Bank was prompt in addressing concerns stated in the World Bank's internal review processes. The task team addressed design complexity by reducing the number of activities and scope of the project early in preparation. In addition, the project design was also built on the Government's existing systems and structures with appropriate plans to mobilize and strengthen these for project implementation. Adequate budget and TA were allocated for capacity building of implementing agencies and local communities, and an appropriate implementation support plan was developed to provide timely support to these agencies during project implementation.

Quality of Supervision

101. The World Bank's performance during supervision was satisfactory. Missions were regularly carried out twice a year with adequate skills mix[41] and sufficient field time. Interim missions were also carried out wherever needed to provide additional training to the PCU and the PPMUs and help them unblock implementation constraints. There was close supervision and follow-up during the early, challenging stages of implementation and throughout the project. A Quality Enhancement Review was also held to guide the MTR. Supervision reporting closely tracked targets to ensure links with impact. Problems were reported and addressed promptly by the World Bank Task Team Leaders (TTLs) and the safeguards and fiduciary specialists stationed in-country, and assistance was provided with onsite visits and appropriate, national or international expertise was mobilized when required. Close coordination with the Government implementation teams was effective in moving the project forward.

102. For technical support, the World Bank coordinated with the FAO through its Cooperation Program to bring in international specialists to assist the project in technical matters such as biosecurity standards in aquaculture and hatcheries, standards and operational procedures for fishing ports and landing sites, and fisheries co-management, among others. The team also collaborated with the International Union for Conservation of Nature and the NOAA in providing ISP training for the PCU and PPMUs. With regard to M&E, the World Bank, with the PCU, held several training workshops for the PPMUs until data quality and reporting improved. The World Bank team was responsive and proactive in project restructuring to make the necessary changes on time to unblock implementation constraints.

Justification of Overall Rating of Bank Performance

103. **Satisfactory.** Project preparation and supervision processing was timely and effective, with strong skills mix and good collaboration with the Government teams. Close follow-up in supervision assisted Government teams in reaching and exceeding targets toward the end of the project.

[40] Missions were led with the Vice Director of International Cooperation Department, MARD, and key members of the preparation team from the DOF, Agriculture Projects Management Board, Aquaculture Department.
[41] Missions' skill mix included financial, procurement, social and environmental safeguards, and technical expertise (aquaculture, capture fisheries, community development, ports and landings specialist, M&E, global practice programs, impact evaluation, rural development).

D. RISK TO DEVELOPMENT OUTCOME

104. The PDO as presented in the PAD was "to improve the sustainable management of coastal fisheries in the Project Provinces." This achievement is likely to be sustained because the capacity and skills developed with the project support will remain in the provinces among the implementing agencies, technical agencies, farmers, fishers, and their organizations. The CRSD can be considered the first phase of a longer-term program. Its impact was on a small scale within the targeted areas and focused mainly on shrimp in coastal aquaculture and nearshore areas in capture fisheries. There is a need to scale up the good practices throughout the country for different types of farming systems and to offshore capture fisheries. The proposed follow-up Sustainable Fisheries Development Project is expected to build on the CRSD foundations and substantially scale up the adoption of ISP, sustainable aquaculture and nearshore capture fisheries practices, and collective action modality to create greater impact on the whole country's fisheries sector.

105. Substantial risks remain in inappropriate planning, outbreak of diseases, and environmental pollution in the fisheries sector if provinces and local communities revert to old practices. ISP, aquaculture biosecurity, and fisheries co-management have been institutionalized into Government laws and regulations; therefore, the policy risks are low. However, the risks are higher in implementation and enforcement, especially in terms of resources allocation in the context of high levels of public debt. There is also a risk of inadequate budget for maintaining the upgraded infrastructure (that is, biosecurity structures, fishing ports, landing sites, and so on) after the project closes. The provinces should work with private sector and local beneficiary groups to develop cost-recovery mechanisms to ensure they can fully cover both operation and maintenance needs.

106. Natural disasters such as typhoons, flooding, and droughts are constant threats to the development of coastal areas causing destruction of the landscape and increasing the vulnerability of the local population. Effects from climate change could also include a higher rise in sea levels worsening coastal erosion. Overdevelopment of the coastal areas, for example, from a growing tourism industry or other development programs, could attract a greater migration to the coastal areas which would add pressure on the natural resources and reduce the gains achieved by the project. These new risks should be further examined and included for mitigation in the follow-up project.

V. LESSONS AND RECOMMENDATIONS

107. **Intersectoral planning.** Coastal zone management has been a major problem in Vietnam, mainly due to the overlap in ministerial responsibilities, unclear divisions of responsibilities between central and provincial/local government entities, competition among provinces (over resources and inward investment), and the lack of involvement of local communities. ISP introduced under the project has proven to be an effective tool for improving planning for coastal areas through inclusion, consultation and participation, and information-sharing between related sectors. More important has been the decentralization of roles and responsibilities especially from the central to the provincial level. And, for ISP to be effective, it is necessary to establish an ISP team with representation from all levels (that is, province, district, and commune) chaired by a government leader from a relevant department, and with active participation from representatives of related sectors. It is also important to provide training and capacity building for ISP members, ensure proper consultation with and strong participation from local stakeholders, and allocate adequate time and resources for all stages of consultation and negotiation processes.

108. **Adoption of GAP for sustainable aquaculture.** The concept of GAP is not new, but its wide adoption has been a challenge in Vietnam for many decades. There are many reasons for this: (a) difficult to apply to small farms, (b) unclear benefits and associated costs to farmers, and (c) ineffective provision of technical advice. To address these constraints, the project introduced the GAP zone concept where small farmers cooperated with each other to undertake collective action in improving biosecurity infrastructure, environmental monitoring, disease risk management, and outbreak containment. Most important, the introduced technologies (that is, bioflocs, closed polyculture system with tilapia for wastewater treatment) were tailored to be applicable to small farms' conditions and demonstrated clear benefits in reducing shrimp disease risks and improving survival rates and increasing yields and farm profitability. Lessons from the field showed that farmers were interested in adopting new/improved technologies only if they were convinced by the results of successful demonstrations carried out on sites applicable to their farm conditions. They were also willing to pay higher investment costs if the improved technology demonstrated better results and higher returns than previous methods used, especially in the areas of disease control and productivity improvement. The success of the project was derived from a combination of targeted interventions, including effective TA, training, awareness-raising, stakeholder consultation and engagement, and strategic public support from the Government in seed quality management and environmental monitoring at the farm level, improved biosecurity at farm and GAP zone levels, formation of a participatory community-based disease monitoring system, and the strengthening of the aquaculture veterinary system at all levels. These initiatives and approaches could be useful and replicable in other countries and regions where there are similar conditions.

109. **Co-management for improving sustainable fisheries management.** Co-management had been widely used in forestry but was relatively new to fisheries. In Vietnam, there have been pilots in small closed areas such as lagoons and lakes, but co-management had never been used in "open access" areas along the coastlines. This is because fish do not stay in one place and it is also a main reason for fishers to tend to compete in fishing rather than cooperate to protect and manage resources in a sustainable manner. To reverse the increasing trend of illegal fishing and unsustainable fishing practices, the project introduced fisheries co-management, starting with all nearshore areas along provincial coastlines backed by a mass information and awareness campaign; inclusion, consultation, and participation and training; and strategic public support in preparing and implementing CMPs, infrastructure upgrading (that is, ports and landing sites), MCS strengthening, and alternative livelihoods development. The results from the project demonstrated that fisheries co-management was feasible for open access areas along the coastlines. Local fishing communities were eager to participate if they were given an opportunity to share in management resources and provided with a legal long-term ownership. With their active participation, violations within the communities were significantly reduced (by over 30 percent) and destructive fishing (that is, using dynamite) almost ceased to occur. However, sustainable fisheries management is a long-term and continuous process. To ensure that co-management is maintained and scaled up successfully, the legislative framework at the national and local levels needs to keep pace with its development to ensure that the CMGs or fishers' associations can exercise their newly transferred rights and share responsibilities with the Government in managing their resources. Also, the degree of success in co-management will depend on a combination of factors: the capacity of the CMGs, the type of assistance and cooperation received from the government's MCS, and incentives provided to the CMGs. There should be a series of projects/programs to follow up and build on the initial results. In addition, further studies would be needed to identify appropriate incentives for the participating communities, including environmental service fees, which would help improve the long-term sustainability of such initiatives.

110. **Alternative livelihood initiatives.** In principle, shifting fishers to alternative forms of employment can reduce fishing pressure. Experience from the project showed that it is hard to achieve concrete results in this area within the relatively short time frame of an investment operation. A longer time horizon (and set of programs) may be needed to achieve results, at scale, in reorienting fishers to alternative, remunerative jobs and business opportunities. Inclusion of alternative livelihood activities within the project added to the complexity of project design, implementation, and evaluation. To increase effectiveness and long-term sustainability, it is advisable that alternative livelihood initiatives are better integrated into the local government socioeconomic development plans and supported through separate programs.

ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: The PDO is to improve the sustainable management of coastal fisheries in Project Provinces

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Indicator One: Increase in the proportion of production areas applying Good Aquaculture Practices and in which water effluent meets national standards	Percentage	9.00 12-Apr-2012	50.00 31-Jan-2018		86.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (172 percent of original target). At baseline, only 9 percent of farms in the project's targeted areas had wastewater treated before being released into the surrounding environment. After the project established GAP zones and groups and introduced its interventions, most farmers in the targeted areas adopted wastewater/ solid waste treatment technologies introduced by the project (i.e. bioflocs, bio-treatment and recycling, polyculture with tilapia, etc.). According to PCU's Progress Report by October 2018 the ratio of farms having wastewater meeting the national standards was up to 86 percent, while the remaining were partially compliant. This high achievement was mainly because: (i) the introduced technologies were applicable to small farms' conditions; and (ii) farmers believed in the benefits in reducing shrimp disease risks and improving survival rates, increasing yields and farm profitability. Observations during field missions showed that farmers were interested in adopting new/improved technologies only if they were convinced by the results applicable to their farm conditions. They were willing to pay additional investment costs if the improved technology demonstrated better results and higher returns

than previous methods used, especially in the areas of disease control and productivity improvement. These technologies are being adopted by other provinces throughout the country.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Indicator Two: Reduction in shrimp disease losses in the production areas applying Good Aquaculture Practices.	Percentage	0.00 12-Apr-2012	20.00 31-Jan-2018	30.00 31-Jan-2018	87.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (290 percent of revised target). The original target was only 20 percent. It was revised upwards from 20 percent to 30 percent in the first Project Restructuring on June 22, 2016. At baseline, 35 percent of ponds in the project's targeted areas were severely infected by diseases (these affected ponds were completely lost). Thanks to the project's interventions by establishing GAP zones, adopting high quality seed, appropriate wastewater treatment to improve pond water quality, and early and timely disease control and outbreak containment, disease incidences in the targeted areas were reduced sharply. According to PCU's Progress Report by October 2018 the ratio of pond areas infected by diseases in the GAP zones was only 6.5 percent (81 percentage reduction). The yield loss due to diseases was reduced from 31 percent at the baseline to 4 percent (87 percentage reduction). This achievement made local farmers confident in the project and in adopting GAP to improve profitability and sustainability.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion

Indicator Three: Increase in the proportion of areas in which sustainable Near-Shore fisheries resource management systems are applied.	Percentage	0.00 12-Apr-2012	50.00 31-Jan-2018		65.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (130 percent of original target). These activities were financed by the GEF Grant. Criteria used to assess the success of CMGs included: (1) reducing illegal/violating within the local fishing community, violations reduced by 30 percent; (2) participation (i.e. 90 percent participating members contributed their member fees); and (3) effective collaboration (i.e. 70 percent of the reported cases were dealt within one day after receiving reporting from community, the concerned agency will verify the information, inform local government and local community of their actions); and (4) community satisfaction (i.e. 70 percent of members are satisfied with co-management arrangements). Data were collected by the PPMU twice year through direct meetings with each CMG. At baseline, near-shore fisheries co-management did not exist in the project provinces. The use of illegal and unsustainable fishing practices such as dynamites, electric, chemicals, etc. were widespread. After project interventions through support for the establishment and implementation of near-shore fisheries co-management over 800 km of all coastal districts, by EOP 65 percent of provincial coastlines were under effective implementation of co-management with active participation from local fishers. In these co-management areas, fishing regulations were established, fishing right allocation, participatory surveillance, control, and monitoring, and additional livelihood development carried out, and fishing violations were reduced by more than 30 percent compared to before co-management (Sources: PCU's Progress Report). This achievement provided useful lessons and contributed to the amendment of the Fisheries Law which was passed by the National Assembly in November 2017 (i.e. introducing fisheries co-management and rights allocation to local communities countrywide).

A.2 Intermediate Results Indicators

Component: Component A: Institutional capacity strengthening for sustainable fisheries management

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
A1. Percent of Project Provinces and their Districts and Communes receiving training in intersectoral planning	Percentage	0.00 12-Apr-2012	100.00 31-Jan-2018		100.00 31-Jan-2019

Comments (achievements against targets):

Target achieved (100 percent of original target). These activities were financed by the GEF Grant. ISP training was provided to all ISP teams in 257 project communes of 40 project coastal districts in 8 project provinces (except the newly added province of Ninh Thuan which did not participate in this component). A total of 1,502 ISP members have been trained, of which 133 at provincial level, 444 at district level, 925 at the commune level (Source: PCU's Progress Reports). After training, these ISP teams worked well and prepared ISPs for all 40 coastal districts, which were subsequently approved by PPCs. These ISPs were linked to the province's SEDP and would feed into future revisions/adjustments of related sectoral plans. ISP also created a platform for dialogue and coordination, and strengthened capacity of provincial, district and commune officers in different sectors to work together for integrated coastal spatial planning. This would be fisheries sector be more sustainable in the long term. The key features of ISP were: (i) ecosystem-based (balancing ecological, economic, and social goals and objectives toward sustainable development); (ii) integrated (across sectors and agencies, and among levels of government); (iii) adaptive (incorporating lessons from implementation experience); (iv) strategic and anticipatory (focused on both present and long term); and (v) participatory (stakeholders actively involved in the process).

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
A2. Number of Project	Number	0.00	8.00		8.00

Provinces having provincial inter-sectoral planning teams established		12-Apr-2012	31-Jan-2018		31-Jan-2019

Comments (achievements against targets):

Target Achieved (100 percent of original target). These activities were financed by the GEF Grant. All 8 project provinces (except the newly added province of Ninh Thuan) had ISP team established and fully operational (Source: PCU's Progress Reports). The project supported the establishment and training for provincial, district, and commune ISP teams. These included senior officers from related sectors such as agriculture (i.e. agriculture, fisheries, forestry, livestock, rural development, etc.), natural resources and environment, transportation, tourism, planning and finance. ISP was first carried out for pilot districts in the first two years, then rolled out in the following years to all 40 coastal districts of the project provinces. These ISP teams are valuable resources in sharing experience with other provinces when ISP is scaled up in the future.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
A3. Number of studies carried out for the new Fisheries Master Plan	Number	0.00 12-Apr-2012	12.00 31-Jan-2018		13.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (108 percent of original target). These 13 studies were shortlisted by DOF and project provinces to support the implementation of their Fisheries Master Plan. All of them have been successfully delivered, reviewed and accepted by MARD and respective PPCs (Source: PCU's Progress Reports). The studies covered a range of topics including detailed planning for provincial sustainable coastal and marine aquaculture, fishing fleet development and management, fisheries logistics development strategy, leveraging private sector

investment, reviewing existing fisheries policies. They are being used by the ministry and provinces to guide and improve development of their fisheries sector (including aquaculture).

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
A4. Number of Project Provinces having the fisheries database system upgraded and fully operational	Number	0.00 12-Apr-2012	8.00 31-Jan-2018		8.00 31-Jan-2019

Comments (achievements against targets):

Target Achieved (100 percent of original target). The upgrade of the VnFishbase system was completed including both hardware and software and has been fully operational. *VnFishbase* contains key information on the sector by province, including: (i) aquaculture data on farming area and systems, production, major species, losses due to diseases/natural disasters, hatcheries/seed production; and (ii) capture fisheries data on the number and size of fishing vessels, types of fishing gear, boat type and registration, fishing licenses, a limited number of fish species, catch volume and traceability, fishing ports and landing sites, fishing shelters, accidents at sea, marine protected areas, etc. In September of 2018, the DOF expanded *VnFishbase* to all 28 coastal provinces in the country (Source: PCU's Progress Reports). The upgraded system is providing up-to-date information for the DOF and provinces for fisheries management and it is contributing to address the EU's Yellow Card, which was issued in October 2017.

Component: Component B: Good practices for sustainable aquaculture

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
B1. Number of farmers receiving training in Good Aquaculture Practices	Number	0.00 12-Apr-2012	20000.00 31-Jan-2018		32858.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (164 percent of original target). The project supported the establishment of 50 shrimp GAP zones with 251 GAP groups and 9,375 shrimp households (HHs) participating and covering an area of 12,537 ha. GAP zones were designed to manage the problems of disease, water pollution, and low productivity which were affecting the shrimp farms prior to the Project. GAP standards follow the Government Decision 3824/QD-BNN-TCTS of September 9, 2014, which cover traceability, hygienic conditions, food safety requirements, animal health management, environmental protection, and social aspects. GAP zones and groups proved to be effective means to delivere technical assistance more effectively to individual farmers and farmer groups e.g., upgrading infrastructure for biosecurity, veterinary services, improved seed and broodstock, testing and demonstrations of improved methods and/or technology, improved infrastructure and extension services, information and awareness campaigns, training and farmer schools, marketing assistance, and GAP certification. In the last year, the project expended its technical training to farmers surrounding GAP zones who were interested. According to the Project's Progress Report by October 2018, ratios of farmer adoption after training in the GAP zones and nearby areas were 94 percent and 76 percent, respectively. These adoption rates reflected the introduced technologies were good and suitable to farmers' conditions, and farmers believed in the benefits so they were serious in adopting them. In the context of country's public debt rising and Government's priority of using IDA funds for infrastructure, in the last year (2018) GAP training was continued by provincial counterpart funds and this also help enhance sustainability after project closure.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion

B2. Increase in incomes of aquaculture farmers adopting GAP	Percentage	0.00 22-Jun-2016	10.00 31-Jan-2018		76.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (760 percent of revised target). This indicator was added during the first Project Restructuring on June 22, 2016. Data on production costs, yields, gross margins, and net profits were collected and compared between farmers adopting GAP in the project areas and those outside project area who have not yet adopted GAP. Data were compared for the same crops in 2018. Farming profit of shrimp farmers adopting GAP was VND354 million per ha (or US$15,340 per ha) compared to VND201 million per ha (or US$8717 per ha) of non-GAP farmers (76 percent increase). The main reasons for high income increase of farmers adopting GAP in GAP zones included low disease losses and higher yields (Source: PCU's Progress Reports). At appraisal, the yield loss due to diseases in the project areas was very high (35 percent). After GAP adoption, it was reduced to 4 percent (87 percentage reduction in disease losses).

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
B3. Number of hatcheries operating at bio-security standards	Number	0.00 12-Apr-2012	20.00 31-Jan-2018	50.00 31-Jan-2018	55.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (110 percent of revised target). The appraisal target was only 20. It was revised upwards to 50 in the first Project Restructuring on June 22, 2016. By EOP, fifty-five (55) local shrimp hatcheries have been certified which meet biosecurity standards (18 in Ninh Thuan, 16 in Phu Yen, 15 in Ca Mau, and 6 in Khanh Hoa; Source: PCU's Progress Reports). Bio-security standards for hatcheries did not exist before the project. The project recruited an international shrimp hatchery specialist through FAO to help review and develop bio-security criteria for shrimp hatcheries in Vietnam based on international experience. These criteria were reviewed and adopted by DOF for the project

and first piloted in the project provinces. Regarding certification, DARDs established a team of experts to visit every hatchery which was interested in receiving certification. Detail technical assessments were carried out including recommendations for improvement. Repeated assessments were carried out until the hatchery met all the criteria. Then the expert team made its recommendation to DARD to provide certification for the qualified hatcheries.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
B4. Proportion of farmers in targeted areas using certified/quality seed	Percentage	25.00 12-Apr-2012	50.00 31-Jan-2018		91.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (182 percent of original target). By joining the GAP group and zone, farmers were required to commit to stocking only high quality seed. The GAP management team was responsible for monitoring and reporting the sources of seed used by their members (i.e. based on farm books and seed certificates), then reported to the PPMU technical staff in charge of the component after every farming season. Most farmers preferred high quality seed because of low free-disease risks and low mortality (in the first 30 days of stocking). At appraisal, a few foreign hatcheries such as CP and Viet Uc were able to produce high quality shrimp seeds and they were dominating in the shrimp seed supply market in Vietnam. Accreditation of local hatcheries by the project provided farmers more choice of good seed at more competitive prices. According to the project's Progress Report by October 2018, the use of certified seed in the GAP zones reached 91 percent.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion

B5. Number of provincial and district agencies in charge of aquatic animal disease management strengthened in disease diagnostic, surveillance, and early reporting	Number	0.00 12-Apr-2012	8.00 31-Jan-2018	30.00 31-Jan-2018	41.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (136 percent of revised target). At appraisal target was only 8 provincial agencies. In the first Project Restructuring on June 22, 2016, this indicator was revised to include both provincial and district veterinary agencies, and the revised target was 30). By EOP, the project upgraded 41 provincial and district veterinary units which included improved infrastructure, provision of disease diagnostic equipment, and staff training. In addition, disease diagnostic capacity was also strengthened; community-based disease surveillance procedures were developed; and disease control and outbreak containment were carried out and maintained in all GAP zones. As a result, response time from disease reporting to effective containment was reduced from more than 10 days (before) to less than 4 days (after), and losses from disease reduced, e.g., in 2018 by 81 percent compared to the baseline rate of 35 percent (Source: PCU's Progress Reports). The improvements in disease control contributed to increased profits for GAP farmers because of reduced losses from disease. These institutional development achievements are important which can be replicated in other provinces.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
B6. Proportion of farmers in targeted areas accessing/using appropriate water/waste management systems	Percentage	9.00 12-Apr-2012	50.00 31-Jan-2018	80.00 31-Jan-2018	86.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (108 percent of revised target). The appraisal target was only 50 percent. It was revised upwards to 80 percent in the first Project Restructuring on June 22, 2016. This indicator was basically similar to PDO indicator 1, except it also included solid wastes (i.e. pond sludge) treatment. According to the Project's Progress Report by October 2018, 86 percent of farms in GAP zones were applying wastewater treatment which meets the national standards for environmental management, and 93 percent of the farms practiced proper pond sludge handling after harvest (86 percent was reported for farms in GAP zones having appropriate management systems for both wastewater and pond sludge).

Component: Component C: Sustainable management of near-shore capture fisheries

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
C1. Co-management for Near-Shore capture fisheries successfully carried out and adopted in the pilot Districts	Number	0.00 12-Apr-2012	16.00 31-Jan-2018		19.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (119 percent of original target). These activities were financed by the GEF Grant. At baseline, fisheries co-management for open access areas did not exist in the project provinces. With project support, 19 coastal districts in eight project provinces successfully implemented fisheries co-management agreements for 826 km of coastlines, involving the participation of 13,751 fishing households through the establishment of 97 co-management groups (Source: PCU's Progress Reports). In each CMG, a group profile was prepared, which included the list of members, number of vessels, types of fishing, fishing areas, etc.; a management team was elected (i.e. leaders, accountants, and secretaries, etc.) and several subgroups were formed to specialize in fishing activities, surveillance, alternative livelihood development, etc. With the matching grants provided by the project ($50,000 per CMG), fishing regulations were discussed and agreed, boundary demarcation

established, fishing right allocation, participatory surveillance, control, and monitoring, and additional livelihood development were carried out, and fishing violations were monitored and reported to the PPMU every six months through direct meetings. CMGs and MCS activities worked together under the Project through a signed MOU. By EOP, fishing violations within all CMGs were reported to have been reduced by more than 30 percent as compared to before co-management (Sources: PCU's Progress Reports). These achievements demonstrated the feasibility of fisheries co-management in the local context. They provided lessons and inputs to the amendments of the Fisheries Law which was passed by the National Assembly in November 2017 (i.e. introducing fisheries co-management and rights allocation to local communities).

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
C2. Successful co-management of high biodiversity areas and important natural habitats	Number	0.00 12-Apr-2012	30000.00 31-Jan-2018	50000.00 31-Jan-2018	89855.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (180 percent of revised target). Unit of measurement is hectare. These activities were financed by the GEF Grant. The appraisal target was only 30,000 ha. It was revised upwards to 50,000 ha in the first Project Restructuring on June 22, 2016. An LMMA was a special type of CMP which included high biodiversity areas where fishing activities were seasonally or partially restricted. Under the Project, LMMAs were allocated greater amounts of GEF funds (i.e. up to $400,000 per LMMA) to finance additional activities such as water zoning, and zone management including biodiversity protection. A Memorandum of Understanding (MOU) between the CMGs and the local authorities were developed and signed and the LMMA was to be approved by the PPC of the province before implementation. By EOP, three LMMAs: (i) Quy Nhon Bay in Binh Dinh (36,000 ha), (ii) Tuy An lagoons in Phu Yen (46,855 ha), and (iii) Nha Phu Lagoon in Khanh Hoa (around 7,000 ha) have been officially established and under effective management of CMGs (Source: PCU's Progress Reports).

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
C3. Number of District monitoring, control and surveillance field stations established, adequately staffed, and fully operational	Number	0.00 12-Apr-2012	16.00 31-Jan-2018	30.00 31-Jan-2018	28.00 31-Jan-2019

Comments (achievements against targets):

Target nearly met (93 percent of revised target). The appraisal target was only 30. It was revised upwards to 30 in the first Project Restructuring on June 22, 2016. The actual need for project support was only 28 field MCS stations. All of them have been upgraded, including construction of buildings, recruitment of additional staff, and provision of training to carry out surveillance activities in a partnership with co-management groups (CMGs). Sixteen (16) patrol boats and 14 speed boats have been procured for the MCS stations. Hotlines have been established in all provinces for reporting fishing violations. The key mandate of the MCS stations was to carry out their routine patrols and support the CMGs in dealing with violations when these were reported through the provincial hotlines. This risk-based approach proved was more cost-effective and it also created trust among CMGs. About 70 percent of the reported cases were dealt by government's MCS forces within one day. This was not the case before the project (Source: PCU's Progress Reports).

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
C4. Number of fishing ports and landing sites operating with improved hygiene conditions and handling	Number	0.00 12-Apr-2012	16.00 31-Jan-2018		21.00 31-Jan-2019

practices					

Comments (achievements against targets):

Target exceeded (131 percent of original target). The Bank cooperated with the FAO to recruit an international fishing port consultant to conduct assessments for each selected port/landing site and review of the proposed upgrades. Upgraded facilities included landing areas, roofing, cleaning and grading areas, net repairing houses, wastewater collection and treatment, etc. Investment ranged from US$1-2 million per site. By EOP, upgrades of 21 fishing ports and landing sites were completed and put into use, including Hoang Phu and Hai Chau in Thanh Hoa; Lach Van, Lach Lo, and Quynh Phuong in Nghe An; Xuan Hoi and Thach Kim in Ha Tinh; Tan Phung, Nhon Ly, De Gi, and Quy Nhon in Binh Dinh; Dan Phuoc and Dong Tac in Phu Yen; Vinh Luong and Hon Ro in Khanh Hoa; Ca Na and Ninh Chu in Ninh Thuan; Mo o and Tran De in Soc Trang; and Song Doc and Ho Gui in Ca Mau. Wastewater after treatment from the upgraded ports/landing sites met the national standards (Source: PCU's Progress Reports). The government is planning to replicate this activity in other provinces in the follow up Sustainable Fishery Development Project.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
C5. Proportion of after-catch physical losses at ports/landing sites	Percentage	25.00 22-Jun-2016	12.00 31-Jan-2018		14.50 31-Jan-2019

Comments (achievements against targets):

Target largely met (81 percent of target). This new indicator was added in the first Project Restructuring on June 22, 2016. At baseline, the loss rate was estimated at 25 percent. However, according to the survey conducted by PPMUs from September to November 2018 (Source: PCU's Progress Reports), the estimated loss at the beginning of the project was closer to 35 percent. Therefore, the actual reduction in losses

achieved (20.5 percentage points) was greater than the planned target (13 percentage point). In addition, although the current rate of 14.5 percent is slightly short of the target, the loss rate is expected to continue improving after project closing.

Component: Component D: Project management, Monitoring and Evaluation (M&E)

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
D1. Project staff trained and performing satisfactorily	Percentage	0.00 12-Apr-2012	0.00 31-Jan-2018	90.00 31-Jan-2018	99.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (110 percent of revised target). In the first Project Restructuring on June 22, 2016, Component D indicator was split into 2 sub-indicators (D1) Project staff trained and performing satisfactorily, and (D2) Number of project provinces managing the project satisfactorily, with good M&E. Staff assessment was based on the work signed to them and the achievement under each component/subcomponent (Source: PCU's Progress Reports).

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
D2. Number of project provinces managing the project satisfactorily, with good M&E	Number	0.00 12-Apr-2012	0.00 31-Jan-2018	6.00 31-Jan-2018	9.00 31-Jan-2019

Comments (achievements against targets):

Target exceeded (150 percent of revised target). The performance of PCU and 9 PPMUs was satisfactory reflected by a number of achievements, such as good disbursement and technical physical progress in all components and excellent follow-ups with the government and concerned ministries. Regarding M&E, PPMUs have updated the project's M&E quarterly. The quality of M&E reports was satisfactory (Source: PCU's Progress Reports).

B. KEY OUTPUTS BY COMPONENT

Objective/Outcome 1: Increase in the proportion of farms meeting national standards for water effluent following the adoption of Good Aquaculture Practices	
Outcome Indicator 1	1. **Increase in the proportion of farms meeting national standards for water effluent following the adoption of Good Aquaculture Practices: 86 percent** (original target: 50 percent)
Intermediate Results Indicators	1. Percent of Project Provinces and their Districts and Communes receiving training in intersectoral planning (Component A) 2. Number of Project Provinces having provincial inter-sectoral planning teams established (Component A) 3. Number of studies carried out for the new Fisheries Master Plan (Component A) 4. Number of Project Provinces having the fisheries database system upgraded and fully operational (Component A) 5. Number of farmers receiving training in Good Aquaculture Practices (Component B) 6. Proportion of farmers in targeted areas accessing/using appropriate water/waste management systems (Component B) 7. Project staff trained and performing satisfactorily (Component D) 8. Number of project provinces managing the project satisfactorily, with good M&E (Component D)
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	1. Percent of Project Provinces and their Districts and Communes receiving training in intersectoral planning (Component A): 100 percent (original target: 100 percent) 2. Number of Project Provinces having provincial inter-sectoral planning teams established (Component A): 8 (original target: 8) 3. Number of studies carried out for the new Fisheries Master Plan (Component A): 13 (original target: 12) 4. Number of Project Provinces having the fisheries database system upgraded and fully operational (Component A): 8 (original target: 8) 5. Farmers receiving training in GAP (Component B): 32,858; 50 shrimp GAP zones and 251 GAP groups, and 32 aquaculture diversification zones established 6. Proportion of farmers in targeted areas accessing/using appropriate water/waste management systems (Component B): 86 percent (original target: 50 percent)

	7. Project staff trained and performing satisfactorily (Component D): 99 percent (revised target: 90 percent) 8. Number of project provinces managing the project satisfactorily, with good M&E (Component D): 8 (revised target: 6)
Objective/Outcome 2: Reduction in shrimp disease losses in the production areas applying Good Aquaculture Practices	
Outcome Indicator 2	1. **Reduction in shrimp disease losses in the production areas applying Good Aquaculture Practices: 87 percent** (revised target 30 percent)
Intermediate Results Indicators	1. Number of farmers receiving training in Good Aquaculture Practices (Component B) 2. Number of hatcheries operating at bio-security standards (Component B) 3. Proportion of farmers in targeted areas using certified/quality seed (Component B) 4. Number of provincial and district agencies in charge of aquatic animal disease management strengthened in disease diagnostic, surveillance, and early reporting (Component B) 5. Increase in incomes of aquaculture farmers adopting GAP (Component B)
Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	1. Farmers receiving training in GAP (Component B): 32,858; 50 shrimp GAP zones and 251 GAP groups, and 32 aquaculture diversification zones established 2. Number of hatcheries operating at bio-security standards (Component B): 55 (original target: 20, revised target: 50) 3. Proportion of farmers in targeted areas using certified/quality seed (Component B): 91 percent (original target: 50 percent) 4. Number of provincial and district agencies in charge of aquatic animal disease management strengthened in disease diagnostic, surveillance, and early reporting (Component B): 41 (original target: 8, revised target: 30) 5. Increase in incomes of aquaculture farmers adopting GAP (Component B): 76 percent (revised target 10 percent)
Objective/Outcome 3: Increase in the proportion areas on which sustainable near-shore fisheries resource management systems are applied	
Outcome Indicator 3	1. **Increase in the proportion areas on which sustainable near-shore fisheries resource management systems are applied: 65 percent (original target 50 percent)**

Intermediate Results Indicators	1. Percent of Project Provinces and their Districts and Communes receiving training in intersectoral planning (Component A) 2. Number of Project Provinces having provincial inter-sectoral planning teams established (Component A) 3. Number of studies carried out for the new Fisheries Master Plan (Component A) 4. Number of Project Provinces having the fisheries database system upgraded and fully operational (Component A) 5. Co-management for Near-Shore capture fisheries successfully carried out and adopted in the pilot Districts (Component C) 6. Successful co-management of high biodiversity areas and important natural habitats (Component C) 7. Number of District monitoring, control and surveillance field stations established, adequately staffed, and fully operational (Component C) 8. Number of fishing ports and landing sites operating with improved hygiene conditions and handling practices (Component C) 9. Proportion of after-catch physical losses at ports/landing sites (Component C) 10. Project staff trained and performing satisfactorily (Component D) 11. Number of project provinces managing the project satisfactorily, with good M&E (Component D)
Key Outputs by Component (linked to the achievement of the Objective/Outcome 3)	1. Percent of Project Provinces and their Districts and Communes receiving training in intersectoral planning (Component A): 100 percent (original target: 100 percent) 2. Number of Project Provinces having provincial inter-sectoral planning teams established (Component A): 8 (original target: 8) 3. Number of studies carried out for the new Fisheries Master Plan (Component A): 13 (original target: 12) 4. Number of Project Provinces having the fisheries database system upgraded and fully operational (Component A): 8 (original target: 8) 5. Fisheries co-management successfully implemented in the pilot Districts (Component C): 19 (involving participation of 13,751 local fishing households in 97 CMGs, over 826 km of coastlines (original target: 16) 6. Successful co-management of high biodiversity areas and important natural habitats (Component C): 89,855 ha of LMMAs (Quy Nhon Bay in Binh Dinh: 36,000 ha; Tuy An lagoons in Phu Yen:

	46,855 ha; Nha Phu Lagoon in Khanh Hoa: 7,000 ha) (original target: 30,000 ha; revised target 50,000 ha) 7. Number of District monitoring, control and surveillance field stations established, adequately staffed, and fully operational (Component C): 28 (original target: 16; revised target 30) 8. Number of fishing ports and landing sites operating with improved hygiene conditions and handling practices (Component C): 21 (original target: 16) 9. Proportion of after-catch physical losses at ports/landing sites (Component C): 14.5 percent (original target: 12) 10. Project staff trained and performing satisfactorily (Component D): 99 percent (revised target: 90 percent) 11. Number of project provinces managing the project satisfactorily, with good M&E (Component D): 8 (revised target: 6)

ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Binh Thang Cao	Senior Operations Officer, TTL
Christophe Crepin	Lead Specialist and Program Manager, Co-TTL
Hisham A. Abdo Kahin	Senior Counsel
Douglas Graham	Senior Environmental Specialist/Sector Coordinator
Son Van Nguyen	Environmental Specialist
Pilar Larreamendy	Social Safeguards Specialist
Tuan An Le	Social Development Specialist
Hoai Van Nguyen	Procurement Specialist
Ha Thuy Tran	Financial Management Specialist
Steve Jaffee	Senior Rural Development Spec., Sector Coordinator
Sharidan Faiez	Senior Social Development Specialist
Oleg Martens	Marine Resources Specialist
Lan Thi Thu Nguyen	Rural Development Specialist
Josefo Tuyor	Environmental Specialist
Thu Thi Le Nguyen	Programs Analyst
Flavio Corsin	Internal Aquaculture Specialist, Consultant
Vincenzo Di Maro	Internal Aquaculture Specialist, Consultant
Joseph Sciotino	Environmental Specialist, Consultant
Sylvie Tiller	Economist, Consultant
Hai Ngoc Tran	National Aquaculture Specialist, Consultant
Diep Tan Lieu Cao	Team Assistant
Linh Thi Khanh Le	Program Assistant
Supervision/ICR	
Binh Thang Cao, Lan Thi Thu Nguyen	Task Team Leader(s)
Aristeidis I. Panou	Counsel
Hoai Van Nguyen	Procurement Specialist(s)

Ha Thuy Tran	Financial Management Specialist
Quyen Thi My Nguyen	Financial Management Specialist
Thu Thi Le Nguyen	Senior Environmental Specialist
Giang Tam Nguyen	Social Specialist
Hoa Thi Phuong Kieu	Monitoring & Evaluation
Christopher P. Jackson	Rural Sector Cluster Leader
Peter Kristensen	Lead Environmental Specialist
Thomas Muenzel	Senior M&E Specialist
Joseph Sciortino	Fisheries Infrastructure Specialist, Consultant
Hagiwara Takayuki	Monitoring and Information System Specialist
Nyan Taw	Shrimp Hatchery Specialist, Consultant
Patrick White	Aquaculture Specialist, Consultant
Carlos Ludena	EFA, Consultant
Ha Song Nguyen	Fisheries Co-Management, Consultant
Lam Thanh Do	M&E Specialist, Consultant
Giap Huy Dao	EFA, Consultant
Quyen Thuy Dinh	Program Assistant
Linh Khanh Pham	Impact Evaluation, Consultant
Ha Thuy Tran	Senior Financial Management Specialist
Huong Giang L. Tran	ICR Consultant

B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US$ (including travel and consultant costs)
Preparation		
FY10	4.785	42,226.82
FY11	58.147	222,316.79
FY12	32.572	100,777.07

FY13	0	0.00
Total	**95.50**	**365,320.68**
Supervision/ICR		
FY12	0	964.35
FY13	21.775	59,997.77
FY14	21.313	81,900.07
FY15	18.428	65,803.45
FY16	19.150	71,887.64
FY17	12.025	70,690.99
FY18	22.675	123,889.21
FY19	28.596	203,431.31
FY20	0	7,031.44
Total	**143.96**	**685,596.23**

ANNEX 3. PROJECT COST BY COMPONENT

Component	Amount at Approval (US$, million)	Revised with GEF Additional Financing (US$, million)	Actual at Project Closing (US$, million)	Percentage of Approval (US$, million)
Component A: Institutional capacity strengthening for sustainable fisheries management	5.3	6.8	2.9	55
Component B: Good practices for sustainable aquaculture	48.1	48.1	46.0	96
Component C: Sustainable management of near-shore capture fisheries	52.2	57.2	57.9	111
Component D: Project management, Monitoring and Evaluation (M&E)	12.3	12.3	9.4	76
Total	**117.9**	**124.4**	**116.2**	**99**

Notes: 1/ The final U.S. dollar equivalent of the IDA financing was US$91.8 million rather than US$100 million because of fluctuations in the SDR exchange rate. The project has documented and disbursed US$91.1 million of IDA and US$6.4 million of GEF. Actual amounts at closing reflect component costs reported by the implementing agency and include undisbursed amounts that are still subject to documentation. Final documentation of expenditures is still underway; any undocumented portion of the remaining US$0.7 million of IDA credit and US$0.1 million of GEF grant will be returned to the Bank. If all undisbursed IDA amounts are returned, 99.3 percent of the IDA credit will have been disbursed as measured in the currency of commitment (SDRs).
2/ The amount at approval in this table is the original project cost and does not include the US$6.5 million in additional GEF funding that was approved after the original project approval. In the financing table on page 2 of the ICR Data Sheet, the "original" amount of the US$6.5 million in GEF funding refers to the original approved grant amount itself.

Component	At Appraisal			
	IDA (US$, millions)	GEF (US$, millions)	Government/Beneficiaries' contributions (US$, millions)	Total (US$, millions)
Component A	5.3	0	0	5.3
Component B	39.9	0	8.2	48.1
Component C	44.8	0	7.4	52.2
Component D	10	0	2.3	12.3
Total	**100**	**0**	**17.9**	**117.9**

Component	Revised with GEF Additional Financing			
	IDA (US$, millions)	GEF (US$, millions)	Government/Beneficiaries' contributions (US$, millions)	Total (US$, millions)
Component A	5.3	1.5	0	6.8
Component B	39.9	0	8.2	48.1
Component C	44.8	5.0	7.4	57.2
Component D	10	0	2.3	12.3
Total	**100**	**6.5**	**17.9**	**124.4**

Component	Actual at Project Closing			
	IDA (US$, millions)	GEF (US$, millions)	Government/Beneficiaries' contributions (US$, millions)	Total (US$, millions)
Component A	1.8	1.1	0	2.9
Component B	36.5	0	9.5	46.0
Component C	47.5	5.4	5.0	57.9
Component D	6.0	0	3.4	9.4
Total	**91.8**	**6.5**	**17.9**	**116.2**

ANNEX 4. EFFICIENCY ANALYSIS

Economic and Financial Analysis (EFA)

1. The Economic and Financial Analysis has been carried out within the broad framework of social cost-benefit analysis considering an analysis period of 25 years. The analysis has been done with the maximization of economic returns on total investment and relies on the estimation of the costs and benefits of the economic activities adopted in Components B and C. The PPMU surveys estimated participation rates as well as representative revenues and costs in the eight project provinces: Cau Mau, Binh Dinh, Ha Tinh, Thanh Hoa, Khanh Hoa, Soc Trang, Nghe An, and Phu Yen. These estimates were then used to calculate project returns based on a comparison of costs and benefits under two scenarios 'without project' and 'with project'. The difference between cost and benefits of 'with' and 'without project' is calculated by comparing the baseline case or control farmer (that is, one that has not benefited from the project intervention) with the cost and revenue of the farmer (shrimp or fishing vessel) that has adopted the techniques proposed by the project's GAP techniques. All costs and benefits are valued in monetary terms and expressed in economic prices, using a conversion factor of 0.88 to account for these economic costs and add opportunity costs of capital and family labor.

2. The project period considered is from 2012 to 2018 with a project lifespan to 2028. The out-of-project period (2019 to 2028) revenues and costs represent the median value during the life of the project. It is assumed that the median values account for the potential future inefficiencies in the adopted activities, such as the Government not having the same level of resources to support project participants in the out- of-project period. It is assumed also that program participants will not invest in new equipment at same rate once the project concludes. The IRR is estimated based on the annual undiscounted net differences of the economic elements considered in the analysis. In this case, the analysis relies upon the more robust version of this metric, the modified internal rate of return which assumes that positive cash flows are reinvested at the project's cost of capital, and the initial outlays are financed at the firm's financing cost. The discount rate used is 10 percent.

3. **Benefits.** The ex post analysis is based on the project's M&E data, which includes reported rates of adoption of project interventions. The analysis considers major benefits from two components: Component B - Sustainable Aquaculture practices, and Component C - Sustainable management of nearshore capture fisheries. Households (vessels) that were within the project investment areas and those outside them were considered in the analysis. The households outside the project implementation area received technical training to undertake one or more of the technical activities of the project but received no further support.

4. Under Component B, by the end of 2018, a total of 15,096 households, representing some 17,000 ha, adopted a sustainable aquaculture practice (SAP) activity. On average, 85 percent of the total area under sustainable aquaculture, which includes the area within and outside the project investment area, came from households in the project implementation area. By 2018, almost 4,000 households, representing 5,300 ha, diversified away from just shrimp production under the Species Diversification Zones (DIV) activities of Component B, almost double in the number of households that applied a DIV strategy in 2014. The project results show that there is greater output from more efficient technology and higher production yields in Component B.

5. Under Component C, the co-management of nearshore capture fisheries (CMGs) had two main activities: (a) fishing and (b) diversification of livelihoods. By 2018, some 25,224 vessels that participated in one of CMG interventions had an increase of 16 percent from 2014 when field operations began. Some 58 percent of these vessels belonged to a CMG. However, most of the increase in the number of vessels using the upgraded fishing ports and landing sites and adopting new techniques have come from outside the CMGs. Meanwhile, the adoption of livelihood activities was modest. During the life of the project 1,620 households undertook some particular livelihood activity. The province with the highest number of households that adopted a livelihood activity was Phu Yen, followed by Cau Mau and Binh Dinh. Together, these three provinces accounted for 70 percent of livelihood activity adoptions during 2012–2018. The project results show that, for Component C, there was an increase in revenues along with a reduction in operating costs.[42]

6. **Costs.** During the life of the project, from 2012 to 2018, close to US$116.0 million were invested from IDA, Government funds and local beneficiaries' contribution. Component B accounted for some 54 percent of total investments and Component C for 46 percent. This share includes the funds from Components A and D that were distributed proportionally to the two components. In addition, the EFA accounts for US$52.0 million of operating costs of the production activities under Components B and C.

7. **Results.** The sum of these discounted values gives the economic NPV of the project which is generated and presented, together with the associated EIRR. The approximately US$100.0 million invested in the project and the annual operating costs are expected to generate an economic value of US$860.5 million in 2012 for 2012–2028, with an EIRR of 49 percent. The financial analysis yields a return on the investment of 52 percent, with an anticipated NPV of US$1.3 billion.

8. At the component level, Component B is expected to generate US$405.0 million in economic value for 2012 to 2028 and a return of 48 percent. At the province level, Soc Trang generated the highest economic value for the project, with an NPV of US$212.0 million and an IRR of 59 percent (table 4.1). Soc Trang had the highest level of adoption of diversification and SAP strategies within the project investment area, representing 27 percent of all households and more than a third of the area by 2018. Ha Tinh, Cau Mau, and Khan Hoa Provinces also had a high investment value and returns for Component B. Most of the returns and benefits for these provinces came from adoption outside the project area.

9. Component C is expected to generate an economic value in NPV terms of US$459.0 million from 2012 to 2028, a return of about 51 percent. Most of this value was generated by fishing activities as the revenues from livelihood activities were comparatively small. The province that contributed the most to the value generated by Component C was Phu Yen, with an NPV of almost US$252.2 million and a return of 61 percent. The high return mainly reflects a significant reduction in operational costs of the vessels landings that applied one of the activities promoted in this component. The other two provinces that significantly contributed to the returns of Component C were Binh Dinh and Khanh Hoa, which generated NPVs of US$90.0 million and US$75.0 million respectively.

[42] The main contributing factors to increased economic gain and reduction in operating costs were technical training for fishers including changing to environmentally friendly fishing gear, training on improved preservation techniques on fishing vessels following a catch, upgraded landing sites and ports providing more space for faster landing, availability of clean water and ice, grading areas, and roofing which reduced the need to handle fish under direct sun.

Table 4.1. NPV and IRR by Province of Components B and C

Province	Component B		Component C	
	NPV (US$, millions)	IRR (%)	NPV (US$, millions)	IRR (%)
Ca Mau	47.5	46.3	41.9	53.8
Binh Dinh	15.1	30.4	89.9	42.0
Ha Tinh	82.6	51.9	58.5	63.0
Thanh Hoa	4.3	17.4	11.8	22.1
Khanh Hoa	32.2	47.1	75.5	56.9
Soc Trang	212.2	58.8	6.9	25.4
Nghe An	11.3	33.5	51.2	42.8
Phu Yen	4.6	29.5	252.2	60.6
Total	405.0	47.8	459.0	50.5

Source: Calculations using data from the PPMU surveys.
Note: Exchange rate VND 21,697.6 per US$1. The 2015 (mid-year of the project) exchange rate was used to account for the effects of the 7 percent exchange rate depreciation during the 2012-2017 period. Since the costs and benefits were estimated for each of the years of project implementation, the used exchange rate balances out the depreciation occurred during the project implementation period.

Table 4.2. Number of Households Adopting a Livelihood Activity by Province, 2012–2018

Province	Activities	Number of Households
Thanh Hoa	Upgrading to environmentally friendly fishing gear	21
Nghe An	Fish sauce production	59
Ha Tinh	Poultry farming	46
Binh Dinh	Offshore fishing employment	275
Phu Yen	Clothes manufacturing	330
	Tourism	234
Khanh Hoa	Poultry farming	143
Soc Trang	Handcraft manufacturing	144
	Duck farming	83
Ca Mau	Upgrading to environmentally friendly fishing gear	285
Total		**1,620**

Source: Data obtained from the PPMU field surveys.

10. **Ex-Post GEF incremental reasoning analysis.** In line with the ex post economic and financial analysis, the project contributed to the GEF-5 focal areas for biodiversity and international waters through supporting supplemental activities for Components A.1 (ISP) and C.1. (co-management of near-shore fisheries and LMMAs). With financing from the GEF, the project supported two complementary groups of activities contributing to global environmental benefits or associated adaptation benefits not available under the baseline scenario: (a) strengthening institutional capacity and empowering coastal fishing communities to sustainably manage coastal resources and (b) supporting initiatives to protect coastal ecosystems which support these resources through the establishment of protected coastal areas. The successful introduction and promotion of ISP and co-management in project provinces and the establishment of LMMAs provided the basic foundation for establishing sustainable resource management and locally important biodiversity management in the longer term. Furthermore, they have

been endorsed by provincial and local establishments, indicating ownership by the key agencies. The LMMAs provide a means for improved understanding and management of biodiversity conservation not only for the communities managing such resources but for a wider audience (in-country and through tourism involvement). Although it is difficult to quantify the incremental returns from activities financed solely through the GEF grant, the project's co-financing leverage was significant through the complimentary IDA and Government/beneficiaries contributions which together generated notable returns as discussed above. The evidenced results achieved through the GEF Grant included:

(a) Training in ISP achieved its target of 100 percent targeting ISP teams in 257 communes of 40 project coastal districts in eight provinces and included ISP members at the provincial, district, and commune levels.

(b) The ISP teams were established in eight project provinces (all except Ninh Thuan) and are functional and all provinces completed intersectoral plans for coastal districts, with resulting reports endorsed by the respective PPCs.

(c) Co-management targets for nearshore capture fisheries, which were successfully carried out and adopted in pilot districts, and exceeded planned targets (19 coastal districts over the 16 originally targeted); 65 percent of provincial coastlines are under co-management with the active participation of local fisher communities, with fishing regulations established, fishing right allocations attributed, participatory surveillance, additional livelihood activities introduced, and fishing violations within CMGs reduced by less than 30 percent compared to the before-project scenario.

(d) Three LMMAs (nearly 90,000 ha with high marine biodiversity) were established and are under effective co-management.

ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

1. **Comments from the International Cooperation Department (ICD), MARD (Mr. Chu Van Chuong, Deputy Director General)**

"I have no further comment on the key performance ratings and other related information."

2. **Comments from the Agricultural Projects Management Board (APMB), MARD (Mr. Le Van Hien, Director General)**

"Thank you very much for sharing with us the draft of ICR Report. We highly appreciate the contents of this report, which provide valuable insight assessments, findings and recommendations for sustainable development of the fisheries and aquaculture sector in Vietnam.

We are glad that the overall judgement of the project results is good. In our opinion, this project is one of the most effective projects in our agriculture and rural development. Achieving this success is thanks to the great coordination and support from the World Bank team, especially the task team leaders.

From the results and lessons learnt from this project, we look forward to cooperating with the World Bank in the next proposed Sustainable Fishery Development Project, which is being prepared with the World Bank's assistance to scale up successful models for further support for the fisheries sector."

ANNEX 6. SUPPORTING DOCUMENTS

1. CRSD project documentation (PAD, ISRs, Aides Memoires, Legal Documents), available from World Bank database.

2. CRSD: Quarterly Report of the National Consultant for Infrastructure: Quarter 3, 2015, Ministry of Agriculture and Rural Development, Agricultural Projects Management Board (updated in May 2015).

3. CRSD: Fourth Quarter M&E Report, January 2016, Ministry of Agriculture and Rural Development, Agricultural Projects Management Board.

4. CRSD: Progress Quarterly Progress Reports: First Quarter 2016, Ministry of Agriculture and Rural Development, Agricultural Projects Management Board, (updated in May 2016).

5. CRSD: Progress Report (for 9th Implementation Support Mission, 28/11-9/12/2016), Ministry of Agriculture and Rural Development, Agricultural Projects Management Board, November 2016.

6. CRSD: Progress Report (for 10th Implementation Support Mission, 15-23/5/2017), Ministry of Agriculture and Rural Development, Agricultural Projects Management Board, May 2017.

7. CRSD: Progress Report for 12th ISM, Ministry of Agriculture and Rural Development, Agricultural Projects Management Board, May 2018.

8. CRSD: Feasibility Study, Ministry of Agriculture and Rural Development.

9. CRSD: Project Operational Manual, Ministry of Agriculture and Rural Development, Hanoi, April 2012.

10. CRSD: Gender Assessment Report. World Bank Group, May 2019.

11. CSRD: Social Assessment. World Bank Group, March 15, 2019.

12. CRSD Project Results Brief: prepared for the Spring Meetings in 2019.

13. Project information on the Government's website (in Vietnamese): http://apmb.gov.vn/du-an/thong-tin/2014/11/du-an-nguon-loi-ven-bien-vi-su-phat-trien-ben-vung-crsd

14. Project information on the Government's website (in English): http://apmb.gov.vn/project/information/2014/11/coastal-resources-for-sustainable-development-project-crsd-cr-5113-vn

15. Video clip prepared for the 7th GEF Assembly Meeting 2017 in Da Nang - Vietnam: Taking Care of Vietnam's Coast: More Resilience, Better Livelihoods: https://www.worldbank.org/en/news/video/2019/02/06/taking-care-of-vietnams-coast-more-resilience-better-livelihoods.

ANNEX 7. LIST OF STUDIES

Completed Studies for Fisheries Planning		
No.	**Name**	**Project Implementation Agency**
1	Developing a detailed plan of coastal resource exploitation and protection in Binh Dinh	Binh Dinh
2	Developing a plan for brackish water and marine aquaculture in coastal land of Binh Dinh	Binh Dinh
3	Developing a plan for brackish water and marine aquaculture in coastal land of Phu Yen	Phu Yen
4	Developing a plan for fisheries and logistics in coastal area of Phu Yen	Phu Yen
5	2030 Strategy for fishing boats development and management for sustainable fisheries in Nghe An	Nghe An
6	Reviewing current plan, developing a detailed plan for sustainable development of blackish water aquaculture in Soc Trang to 2020 and vision to 2030	Soc Trang
7	Developing the Fishery Logistic Strategy to 2020	PCU
8	Research for improving square mesh code-end of bottom trawl used in nearshore area for protection and development of coastal resources	PCU
9	Policy research for attracting investment into infrastructure of intensive aquaculture areas	PCU
10	Research on legal and science basis and feasibility for revising policies on planning and management of fishery sector	PCU
11	Policy research on demarcation to CMGs for sustainable development	PCU
12	Research for solution to degradation of Tam Quan River Mouth	Binh Dinh
13	Research for supporting Provincial Fisheries Master Plan to 2020 and vision to 2030	Ca Mau

ANNEX 8. SUMMARY OF SOCIAL ASSESSMENT

1. **Purpose of the social assessment.** The purpose of this assessment was to consolidate social lessons learned and serve as an input to the World Bank's Implementation Completion and Results Report (ICR). As an input to the ICR, the report aimed to (a) confirm the achievement of objectives and positive social impact for (i) good practices for sustainable aquaculture, and (ii) sustainable management of nearshore capture through fisheries co-management; (b) analyze and document the mechanisms that result in good practices; and (c) draw lessons learned and make recommendations in GAP and fisheries co-managements to promote project sustainability and replication in future projects. A Policy Brief was also prepared to make recommendations for effective replication of fisheries co-management models to the remaining (20) coastal provinces in Vietnam.

2. **Methodology.** This review employed the case study method, which is commonly used for projects involving management of common pool resources, including coastal resources. Qualitative data were collected through focus group discussions, key informant interviews, and field observations with the participation of 138 persons representing various stakeholders in three sample provinces, including members of fisheries CMGs, commune peoples' committees, district/commune technical and management staff, commune coastguards, and the PPMU management and technical staff. A qualitative analysis was used to understand the causal mechanism for the intended project outcomes, including behavior change among the project's target groups. Quantitative data were analyzed using secondary data from household and financial analysis surveys which covered sustainable aquaculture and fisheries co-management activities. This review, in particular, aimed to understand how the project's intended results—achieved through the chain of activities, output, outcome, and impact—were achieved in relation to two key important social aspects related to stakeholder engagement and capacity building. Based on this understanding, recommendations were made for sustaining project operations after project completion and for future projects.

3. **Key findings.** The key findings obtained from this social assessment are summarized in two parts. Part 1 presents the key social factors that account for the successful social changes (including behavior) toward achieving the project's intended outcome in sustainable aquaculture and nearshore fisheries co-management activities. Part 2 summarizes the key outcomes that have been achieved as the main purpose of the project—sustainable aquaculture and nearshore fisheries co-management.

Part 1. Key social factors accounting for successful behavioral change toward project's intended outcome

4. This review confirmed that stakeholder engagement and capacity building were the two key factors which explained the extent to which the intended outcomes were achieved. Under the project, these two factors were interdependent—working together to help achieve the project's goal and purpose.

5. **Stakeholder engagement.** Both aquaculture and nearshore fisheries co-management activities under the project required effective problem analysis as well as efficient participation of both beneficiaries (farmers and fishermen) and technical agency plus local government to jointly identify bottlenecks and develop ways to address them. The findings showed that the project achieved its intended results because its stakeholders successfully participated in addressing the key challenges that aquaculture farmers and nearshore fishermen in Vietnam had been facing for decades. From the beginning of the project, by properly engaging right stakeholders and enabling and fostering their full and

devoted participation through the project, particularly the aquaculture farmers and nearshore fishermen who were resource-poor and facing limited training opportunities, there has been a remarkable improvement in terms of awareness and knowledge among the farmers and fishermen. With project financial support and trials, both farmers and fishermen, made steady steps toward improving their attitude (toward long-term investment) and behaviors (toward sustainable practices). This accounted for socioeconomic returns within the project lifetime and beyond.

6. The following factors contributed to the effectiveness of the stakeholder engagement process under the project: effective consultation, consistent participation of beneficiaries, commitment to gender mainstreaming, and targeted capacity building. Under the project, stakeholders were given opportunities to participate in planning the activities that aim to benefit them. As such, they would be able to make their voices heard during activity planning and implementation and subsequently, take ownership when the activities unfolded. These beneficiaries were empowered and connected with their peers and local technical agencies and the Government when the project activities were carried out. Trust was built over time, which was vital to the project's success and sustainability.

7. As part of the stakeholder engagement, throughout project preparation and implementation, farmers and fishermen were involved in series of consultations which helped them understand the project's purpose and allowed them to provide meaningful feedback on which and how activities would benefit them. For instance, when aquaculture farmers understood the project's purpose and activities, they worked closely with the technical staff in the design of water canals; learned about improved water treatment techniques (bioflocs) and agreed to collaborate closely with their neighbors in maintaining the shared water system, managing disease risks, and sharing knowledge to improve crop yields. Within households, their spouses also joined them in training, which brought about improved family income. As a result, women more actively joined their husbands in aquaculture and livelihood activities while having more time for family care (nutrition, housing, children education, and so on) during off-farm seasons.

8. **Capacity building** was a cross-cutting activity which was not only important to ensuring achievement of the planned outcomes but also contributed to project sustainability. Under the project, stakeholders participated in project activities through concerted effort led by the PCU (oversight, guidance, monitoring) and the PPMUs (implementation and monitoring). This consistently boosted the impressive results of aquaculture farming activities as well as the establishment and operation of fisheries CMGs although challenges in lack of knowledge at the beginning and uneven capacity of beneficiaries at the local levels.

9. When stakeholders were involved in the process of planning and implementation, their capacity was improved as a result of a learning process. Capacity development tools were in place for two main groups of stakeholders—technical and management (central/provincial/district/commune) and target beneficiary group (aquaculture farmers and fishermen). At the community level, capacity of planning and establishment of collaborating farmers groups as well as fisheries CMGs were built for core team members who managed day-to-day operations of the groups. Capacity was also developed for commune- and district-level governments which were responsible for overseeing the operation of the working groups.

10. With the synergy of all stakeholders, the projects' intended results were fully achieved. In some areas, the project even exceeded the original set targets in terms of socioeconomic benefits and the number of collaborating farmers groups and fisheries CMGs.

Part 2. Key outcomes achieved under sustainable aquaculture and management of nearshore fisheries

11. In aquaculture, with the effective stakeholder engagement and capacity building, more than 9,000 shrimp farming households who used to farm individually now worked collectively under collaborating groups for adopting GAP. At the household level, farmers learned intake and discharge water treatments, selection of quality seeds and improve farm management. At the group level, aquaculture farmers had better access to improved biosecurity infrastructure which helped improve disease management and yields. As the project closed, these farmers had plans in place to ensure effective routine maintenance of the water system as well as continued effective collaboration in a way that is financially viable. Commune governmental agencies as well as technical agencies at the provincial and district levels also had plans for overseeing farmers' aquaculture production activities as well as providing regular technical support. These arrangements would ensure sustainability for the operation of collaborating farmers groups, which contributes to stabilizing farmers' aquaculture-based income for their livelihood development.

12. This outcome reflected the effectiveness of stakeholder engagement and capacity building, which is not only with the direct beneficiaries (farmers) but also with PPMUs (management and technical teams) and local government (district and commune peoples' committees) who jointly analyzed and solved the technical bottlenecks with the farmers—toward a sustainable direction. With a 100 percent success rate across all 21 aquaculture models in all eight project provinces, as financial analysis indicated, farmers were satisfied with the project support.

13. In fisheries co-management, effectiveness of the stakeholder engagement and capacity building process accounted for the successful establishment and operation of fisheries CMGs within the project life. It is noted that the establishment of 97 fisheries CMGs faced challenges in participation and consensus building during the initial stage of project implementation. This was because nearshore fishing activities were in open access areas where there used to be a high competition for the limited resources from local fishers (most were poor) and those coming from other provinces with big vessels which may conduct illegal fishing (that is, trawling) to maximize their catch. Therefore, by nature, fisheries co-management involved a wide range of stakeholders, including local fishermen, local government, department of fisheries, and coastguards, who are expected to collaborate closely to prevent overfishing by local fishermen and those coming from outside.

14. Activities conducted under the project to support co-management, including awareness raising, training, consultation, consensus building, and so on helped promote changes in behavior and action of local fishing households—from short-term, individualistic, and maximized catch to long-term, ecology-based, and more sustainable fishing practices. Feedback from local communities indicate that the long-term, sustainable approach to fishing is gradually being accepted and adopted by them. Fishermen who used to conduct illegal fishing now agreed to join the group as group members. Most of them stopped destructive fishing practices including the use small-mesh nets, explosives, and poisonous chemicals. They also agreed, as part of the group's action plan, to stop fishing in agreed areas for certain months in a year during breeding seasons of certain aquatic species (shrimps, oysters, and even corals). Interestingly, in some provinces, collective actions agreed by group members were based on the traditional code of conduct (for fishing) which made the group regulations for fisheries co-management as an extended part of the fishing tradition. This is expected to be more feasible and more sustainable in the long term.

15. New income-generation activities were also piloted based on the need of local fishing households to help them diversify their income sources and become less dependent on fishing and more precarious

in nearshore areas. In Soc Trang Province—the only province having high population of Khmer people in the project area—fishing households and those involved in aquaculture activities from Khmer ethnic minority group received benefits from a range of project investments, such as improved access to latrine, kindergarten, training, communal houses, and fishing equipment, which contributed to help them reduce poverty and participate in project activities. There was a widespread consensus and support from the local Khmer people for the project during preparation and implementation. Consultations with local people, including project beneficiaries and Khmer people, showed that the beneficiary households participating in fisheries co-management and income-generation activities were satisfied with co-management activities.

Lessons Learned

For sustainable aquaculture production

- The integrated approach that the project adopted on the basis of local problem analysis has effectively addressed the year-long challenges for aquaculture production in Vietnam.
- The ISP for aquaculture and subsequent investments for each aquaculture production area were vital to aquaculture success and sustainability.
- Participatory operations and maintenance of the improved infrastructure and aquaculture production are essential to farmers' long-term success. Their full ownership is of great importance.
- Behavioral change in farmers' daily farming practices are driven by the potential of increased benefits and the opportunities for continuous learning.
- At the provincial level, the project has served as an effective integrated investment model for aquaculture. The provincial governments should consider replicating this approach to other part of the provinces—as part of their socioeconomic and aquaculture development plans.

For sustainable fisheries co-management

- Fisheries co-management is a time-consuming process, requiring collective and concerted effort by all stakeholders, particularly at the early stage of project implementation.
- The project adopted important criteria which are consistent with international good practices in fisheries co-management. This enhanced the level of success of fisheries co-management.
- Alternative livelihoods for members of fisheries CMGs are critical as exit options that potentially contribute to reducing fishing pressure on depleting fisheries resources. This initiative should be closely linked to local development programs.

Policy Recommendation

For sustainable aquaculture

- It is important to sustain the operation of collaborative groups established and sustainable use of the infrastructure upgraded by the project through follow-up projects.

- Effective organization of aquaculture production at the group level and at the regional level is essential to enhance the quality of the aquatic products at the regional level and strengthen the aquaculture value chain.

For sustainable fisheries co-management

- Achievements in fisheries co-management as well as lessons learned on project implementation offer invaluable evidence, which could be mainstreamed into sub-law documents of the Law on Fisheries 2017.

- Alternative livelihoods are an important component that should be further explored and developed by project provinces and other provinces together with adopting fisheries co-management. This component should be implemented as a development program which is integrated into the socioeconomic development plan of the local government.

ANNEX 9. A GENDER RESULT CHAIN COMPLETED IN SOC TRANG PROVINCE

1. **Summary.** A gender results chain had been effectively established and completed during the implementation stage in Mo O village, Trung Binh commune, Tran De District, Soc Trang Province. This is part of the project's effort to contribute to corporate commitments to gender equality, as reflected in the World Bank's Gender Strategy for 2016–2023. In particular, deeper gender analysis and participatory consultations were conducted to identify the gaps in employment opportunities between local men and women, including those from the Khmer community. Consequently, an intervention was designed to narrow the gap between local men and women in their respective times spent on childcare to facilitate equal opportunities for them to access income-generating activities. A new two-classroom satellite of the local kindergarten has been constructed to accommodate up to 70 kindergarten-aged children. As a result, the time spent on unpaid care work has been reduced to 3.5 hours per day for more than 50 village women, including Khmer ones, who have children ages 48–72 months attending the kindergarten. These women can now be involved in income-generating activities, such as basket weaving, small trading, and seafood classification and processing. In addition, safety, security, hygiene, and learning resources have been improved for 55 children who attend the new childcare facility.

2. The following section provides more details of the local context and the gender result chain that was established.

Local Context

3. **Gender roles in the community.** Mo O is a poor village that has 136 nearshore fishing households with boats of small capacities (less than 20 CV) and simple fishing gear, and hence, unselective catch. This is a settlement village under the Government's Program 167. Each household was allocated with one one-storeyed, 40 m^2 large house and no productive land—thus their livelihoods depend entirely on fishing. Every day, men went fishing while women stayed at home and did housework. As a result, changing livelihoods for the households in this commune was difficult. During the project preparation, many women expressed their wish for income-generating work to reduce the economic burden on their husbands and sons' shoulders and to lessen the catch pressure. However, they did not know what to do as they did not have land or skills.[43]

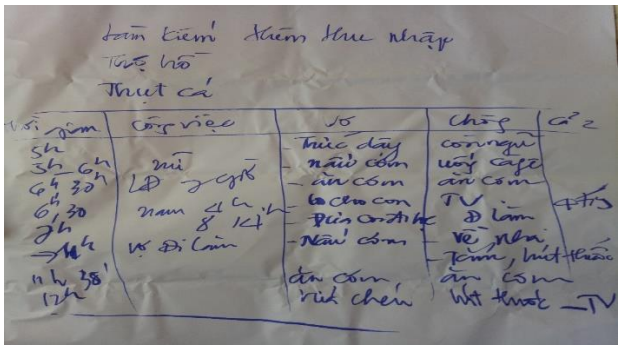
4. **Social exclusion and poverty among Khmer households.** A small community of 17 Khmer households was socially excluded. Before the project, they lived outside the sea dyke, with no electricity, no domestic water, no productive land, and no fishing boats and junks. Their livelihoods depended entirely on manual nearshore fishing. They wanted to have stable and sustainable livelihoods to get rid of poverty.

5. **Childcare in the time-use pattern of local women and men.** A time-use exercise and a subsequent survey[44] conducted with local women and men in Mo O village indicated that local women who have children at the kindergarten age typically spent 5.3 hours per day on childcare before they could send their children to the new satellite. Meanwhile, the time that local men spend on childcare remains at 0.4 hours before and after their children have been sent to the new classrooms. Respondents described the consequences of a lack of adequate childcare facilities on mothers. One-third of the respondents believed that mothers cannot take up any income-generating activities due to a lack of adequate childcare facilities

[43] This information comes from the Social Assessment, conducted during the preparation of the project in 2013.
[44] The mini-survey was conducted in October 2018, with 45 respondents who are caregivers of children attending the new childcare facility in Mo O village.

in the local community. Nearly half of the respondents (44 percent) believed this resulted in their lack of focus on work and added to their existing household workload. The reasons for women's considerable share of time on childcare include conventional care responsibilities assigned to women, lack of local childcare facilities, and concern about the quality of the existing care facilities. There was only one dilapidated and unsafe classroom which was based in the ungated primary school next to the river. Parents did not want to send their children to this class for fear of lack of safety, insecurity, and poor learning resources.

Figure 9.1. A Time-Use Exercise to Understand the Gap between Local Women and Men



Source: Gender Assessment Report, May 2019

Project Intervention to Contribute to Closing the Gender Gap Identified

6. To facilitate equal opportunities for local women and men to access income-generating activities, the project had collaborated with the local authorities, who provided a piece of public land to build two classrooms as a kindergarten satellite, which can accommodate up to 60 children ages 48–72 months. The satellite was opened in August 2018, with more than 50 children, including those from the Khmer households. The project has also collaborated with the commune's peoples' committee to improve the road leading to the satellite to provide better access, especially in the rainy season, for beneficiary children and their caregivers. In addition, the management of the kindergarten mobilized contributions from beneficiary parents to buy learning resources for children.

7. Beneficiary parents provided very positive feedback about the practical benefits that the satellite has brought to both local women and men in the community, in particular, the following:

- **Reduced time gaps spent in childcare between women and men.** The survey shows that the provision of the two classrooms has reduced the time spent on unpaid care work to 3.5 hours per day for more than 50 local women, including the Khmer ones, who have children ages 48–72 months attending the kindergarten.

- **Improved quality of care for local children.** Focus group discussions with local women and men showed their perceived considerable improvements in the quality of care provided by the new satellite as compared with the old one. These are related to safety, security, hygienic conditions, better access, and learning resources, which have been improved for 55 children who attend the new childcare facility.

- **Involving more local women in income-generating activities.** With free time released from home care, including childcare, women, including those from the Khmer community, have had more opportunities to benefit from short vocational training courses and able to be involved in a diversity of income-generating work such as basket weaving, small trading, and seafood classification and processing. It is believed that access to and involvement in income-generating activities had contributed to raising the voice and strengthening the agency of local women in the household and the community.

- **Social inclusion.** Khmer women and men and their children who used to be subject to social exclusion have better been integrated. They can now send their children to the same childcare facility as the Kinh, and women can be involved in income-generating activities generated by the project such as basket weaving.

Figure 9.2. Old facilities before and after project investment
(Source: Gender Assessment Report, May 2019)


The old facility was unsafe (facing road and ungated) while the new one is better protected.


The old facility was dilapidated while the new one is better equipped with learning resources.


The old facility had an isolated toilet facing the river (unsafe) while the new one has built-in toilets.


The earth road and the new asphalted road leading to the sattelite kindergarten.

Lessons Learned

- **A clear results chain designed during the implementation stage to promote gender equality through the project interventions.** The experience can serve as a model on how a good results chain can be established on the basis of a certain gap between local women and men, which has been identified during implementation rather than at preparation. The project team has demonstrated its flexibility in designing new interventions to meet emerging needs in the project sites and follow the corporate commitment on gender equality.

- **Effective partnership between the PCU and the local authorities.** The CPU has effectively collaborated with the local authorities to acquire land for the satellite and then to raise funds to build the road to the kindergarten satellite to provide better access for both parents and children, especially during the monsoon season. This demonstrates a successful and effective partnership to achieve the PDOs of promoting gender equality, as shared by the World Bank (as the donor), the CPU (as the client), and the local authorities (as the beneficiary institution).

- **Effective engagement of local beneficiaries in project activities.** Realizing the potential impacts of the satellite on learning conditions of children and practical benefits for both women and men, local citizens were willing to contribute their own resources, including labor for construction of the satellite and cash to purchase learning materials and toys for children.

- **Sustainability.** The engagement and uptake of the local authorities and people ensured the sustainable outcomes and impacts of the project interventions in promoting the gender equality objectives.

8. The full result chain is summarized in figure 9.3.

Figure 9.3. Gender Result Chain in Soc Trang

Source: Gender Assessment Report, May 2019