



1. Project Data

Project ID	Project Name		
P111669	ST - Adaptation to Climate Change (LDC)		
Country	Practice Area(Lead)	Additional Financing	
Sao Tome and Principe	Environment & Natural Resources	P158636	
L/C/TF Number(s)	Closing Date (Original)	Total Project Cost (USD)	
TF-96127,TF-99869	31-Dec-2016	4,322,942.64	
Bank Approval Date	Closing Date (Actual)		
31-May-2011	31-Dec-2017		
	IBRD/IDA (USD)	Grants (USD)	
Original Commitment	4,382,500.00	4,382,500.00	
Revised Commitment	4,322,942.64	4,322,942.64	
Actual	4,322,942.64	4,322,942.64	
Prepared by	Reviewed by	ICR Review Coordinator	Group
Houqi Hong	John R. Eriksson	Christopher David Nelson	IEGSD (Unit 4)

2. Project Objectives and Components

a. Objectives

According to the Grant Agreement of the project, dated June 20, 2011, the project's development objectives (PDO) were "to increase the adaptive capacity of vulnerable coastal communities in the Recipient's territory to the adverse impacts of climate variability and change." The Recipient was defined as the DEMOCRATIC REPUBLIC OF SÃO TOMÉ E PRÍNCIPE (STP). The PDO stated in the Project Appraisal Document (PAD), dated May 2, 2011, was "to increase the adaptive capacity of vulnerable coastal communities in São Tomé



and Principle to the adverse impacts of climate variability and change." It is the same as the PDO stated in the Grant agreement. The PDO was not changed during the project implementation process.

b. Were the project objectives/key associated outcome targets revised during implementation?

No

c. Will a split evaluation be undertaken?

No

d. Components

The project included the following three components and five subcomponents (PAD, p4 and p16).

(1) Coastal Early Warning System and Safety at Sea (appraisal cost: US\$1.9 million; actual cost: US\$1.7 million)

(a) Establishing an early weather and climate warning system for coastal communities and near-shore fisheries (appraisal cost: US\$1.4 million; actual cost: US\$1.0 million), including: (i) Creation of national capacity to conduct real-time weather observations through acquisition and installation of relevant equipment, and (ii) Strengthening of interagency coordination and capacity to provide timely forecasts and early warnings on coastal weather. The actual cost of the component was lower than anticipated at appraisal due to a decision to not acquire Doppler radar but instead to buy a marine weather station based on efficiency consideration (ICR, para 20 and para 29).

(b) Improving safety at sea for artisanal fishers (appraisal cost: US\$0.5 million; actual cost: US\$0.7 million), who were the most exposed to the impact of climate change, including: (i) Acquisition and installation of safety at sea and communication equipment, (ii) Provision of training on safety at sea for artisanal fishers, (iii) Improving the availability and utilization of safety at sea equipment (distribution to trained fishers of essential life-saving equipment free of charge and non-essential equipment at discounted prices), (iv) Community outreach and training on disaster preparedness and response for 12 highly vulnerable coastal fishing communities, and (v) Technical assistance to the Department of Fisheries and the Coast Guard for establishing a regulatory and monitoring system for safety at sea. The actual cost was higher than appraisal cost because more artisanal fishers were assisted under this sub-component than planned at appraisal (ICR, para 21).

(2) Coastal Protection for Vulnerable Communities (appraisal cost: US\$1.8 million; actual cost: US\$1.7 million), focusing on addressing coastal erosion and inundation in four pilot vulnerable coastal communities identified under the National Adaptation Action Plan (NAPA) and prioritized during subsequent participatory consultations conducted by the national NAPA team (PAD, p54).



(a) Community preparedness (appraisal cost: US\$0.4 million; actual cost: US\$0.3 million), including (i) technical assistance to the four pilot communities to develop participatory climate resilient plans to promote community growth in low climate risk areas, and (ii) conducting coastal geomorphological analysis and preparing engineering designs of possible flood-reduction activities. The actual cost was lower than appraisal cost because one of the four original pilot communities (Praia Sundry) was replaced by a more vulnerable but denser coastal community (Praia Burra) at the request by the government in 2013, based on a reassessment but also a clarification of the scope of a resort investment which included a support for relevant social economic development in Praia Sundry. The works under this subcomponent for Praia Burra were smaller than that planned for Praia Sundry (ICR, para 22 and para 29).

(b) Coastal protection for vulnerable communities (appraisal cost: US\$1.3 million; actual cost: US\$1.4 million), including (i) Participatory implementation of urgent and priority medium-sized soft (non-structural) adaptation measures (such as ecosystem-based adaptation) and hard (structural) adaptation activities-embankments, revetments and improved drainage; and (ii) Implementation of small community-based coastal adaptation measures (less than US\$20,000/each), focusing on ecosystem-based adaptation as possible, to build community capacity and commitment towards adaptation and climate resilience.

(c) Promotion of coastal resilience (appraisal cost: US\$0.1 million; actual cost: US\$0.1 million), through dissemination and exchange of lessons learned and technical assistance and workshops for developing a climate-resilient spatial planning and resource management policy.

(3) Project Management (appraisal cost: US\$0.4 million; actual cost: US\$0.6 million), including procurement, financial management, audits, reporting, communication, monitoring, and evaluation, as well as incremental operating costs for project- and national agencies in their support to the project's implementation. The actual cost was higher than estimate at appraisal due to one-year extension of the completion date, increased need to support for collaboration across agencies, and some preparation work for a second phase of this project (ICR, para 25).

The project components were not changed during implementation. However, several changes were made to the project activities, including the replacement of the originally selected community Praia Sundry with a more vulnerable community Praia Burra in 2013, and the inclusion of an assistance on relocation to safer locations in 2015. Relocation was originally excluded from the project.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

(1) Project cost and financing

The project's total cost was estimated as US\$4.10 million at appraisal. Actual project cost was US\$4.06 million at completion. The project was fully financed by a US\$4.10 million grant from the Least Developed Countries Fund (LDCF), a global adaptation fund established under the United Nations Framework Convention on Climate Change (UNFCCC) and operated by the Global Environment Facility (GEF). The grant was 99% disbursed (ICR, para 7 and Annex 3).



(2) Key dates

The project was approved on May 31, 2011. The original closing date was December 31, 2016. It was extended for a total of 12 months to December 31, 2017, with an actual implementation period of six years and seven months (79 months), one year more than the originally planned implementation period. Mid-term review was undertaken timely on March 13, 2014, after the project entered into implementation for 33 months and reached the midpoint of the originally planned implementation period.

(3) Restructuring

The project undertook the following four level II restructurings (ICR, p2 and Section B).

15-Dec-2011: An amendment to the Grant Agreement was made to reflect the decision to not use highly paid external consultants but to use experienced staff in the Ministry of Public Works and Natural Resources as the director and the coordinator of the project instead. It was agreed that experienced staff in the Ministry would be better positioned to ensure effective coordination with other government agencies and the quality of safeguards oversight, and that use of government staff would help build the long-term capacity of the government in project management. Accordingly, an allocation of US\$180,000 was made to disbursement category two "Operating Costs and Training" from disbursement category one "Goods, Works, and Consultants" in the Grant Agreement.

11-Mar-2015: Some minor changes were made to the project's long-term indicator, two outcome indicators, and an intermediate outcome indicator, to ensure clarity and to be consistent with the project results framework. Especially, (a) the long-term indicator "Number of artisanal fishers officially reported lost at sea due to extreme weather events (annual)" was replaced by "Number of artisanal fishers officially reported as disappeared due to extreme weather events (annual)," to reflect "the new official definition of 'disappeared at sea', that is, when it is considered that the fishermen will no longer return, after a year of being lost at sea." "Lost at sea" could mean temporary disappearance for 48 hours, after which the disappeared fishermen could be found alive (ICR, Table 1); (b) the outcome indicator "'% of artisanal canoes using mandatory safety at sea equipment (70% by end of project)" was changed to "'% of beneficiary artisanal fishermen using mandatory safety at sea equipment (70% by end of project)," to focus on the impact on individual fishermen who benefited from the project; and (c) two intermediate outcome targets were raised on the basis of an updated estimate of the number of beneficiary fishers.

31-Jul-2015: A new disbursement category "Cash Compensation" was created in the Grant Agreement and a revision was made in the Project's Resettlement Policy Framework, to allow for cash compensations to holders of agricultural concessions who would make part of their concessions land available for settlement by households threatened by climate disasters and for adaptation works benefiting the large community.

03-Nov-2016: The loan closing date was extended for one year from December 31, 2016 to December 31, 2017, due to the need to assist with the preparation for a second phase of the project and for the completion of some remaining community activities. A reallocation of the grand proceeds was made accordingly to reflect the increased operating costs due to the extension (ICR, para. 30).

3. Relevance of Objectives



Rationale

The project development objectives of increasing the capacity of vulnerable communities in coastal STP to adapt to the impact of climate change and variability were well aligned with the Bank's STP Country Partnership Strategy for 2014-2018 (CPS 2014-2018) at project completion. Increasing adaptive capacity in coastal communities and reducing potential loss of lives and assets from climate change impact were among the key outcomes the CPS 2014-2018 aimed to achieve. Particularly, one of the outcome indicators of the CPS 2014-2018 was "proportion of fishing population benefiting from early warning system and safety at sea," fully consistent with the outcome indicators of the project.

The project objectives were also aligned with the priorities of the government. STP's National Adaptation Programme of Action on Climate Change (NAPA), published in 2006, put a strong emphasis on improving the "life of the most vulnerable populations of the country, endowing the capacity to minimize the disastrous effects of climate change and poverty reduction." Its specific priorities included training and provision of safety equipment for artisanal fishers, establishment of a climate alert system, and relocation of local communities vulnerable to floods and landfalls (ICR, para 7 and para 34). The NAPA, however, has not been updated since 2006, although it was still in effect at project completion, according to a clarification from the project team.

Rating

Substantial

4. Achievement of Objectives (Efficacy)

Objective 1

Objective

To increase the adaptive capacity of vulnerable coastal communities in the Recipient's territory to the adverse impacts of climate variability and change

Rationale

The project aimed to achieve its objective through (a) increasing access of artisanal fishers to improved weather information, (b) providing artisanal fishers with essential safety-at-sea equipment and relevant training, (c) implementing adaptation activities /costal protection works to preserve assets and livelihoods in vulnerable communities, and (d) supporting for development and expansion in areas less exposed to hazardous climate impacts. The project also aimed to achieve its objective by supporting relevant institutional development.



The project's most important outputs and outcomes relevant to the project's objective above can be summarized below, based on evidence presented in Section II.B and Annex 1 of the ICR, except as mentioned otherwise below.

Outputs and intermediate outcomes:

(1) Early warning system and safety at sea

- Early warning system equipment acquired and installed as planned.
- A new maritime meteorological station installed under the project, in parallel with 12 new meteorological stations and 12 hydrometric stations (all land-based) installed under a UNDP-implemented GEF project. At appraisal only one meteorological station and no hydrometric station existed (ICR, para 40).
- Training was provided to the staff of the National Institute of Meteorology, as planned, in analysis of weather data and production of meteorological bulletin (ICR, para 40).
- Strengthened institutional capacity in meteorological and hydrological monitoring and in diffusing reliable and timely weather information to artisanal fishers and communities (ICR, para 59).
- A coastal early warning system to timely inform artisanal fishers prior to fog/storm events was established as planned.
- 2064 basic safety kits were procured and distributed (target was 1750). In addition, 1638 waterproof cell phone cases, 1964 first aid kits, 424 GPS sets and 1900 radar reflectors were procured and distributed. These compared to zero baselines.
- 66% of fishermen received basic safety equipment (radar reflector, raincoat, first aid kit, and life jacket) and training in safety at sea under the project (baseline was zero; target was 70%, which was 94 percent achieved). The small shortfall in meeting the target of 70% was due to the increase in the total number of fishers from about 2000 to about 3000. The distribution of equipment and training covered 23 coastal communities.
- Eighty percent of beneficiary artisanal fishermen was using mandatory safety at sea equipment that was defined in the draft regulation developed under the project (target was 70 percent), although the draft regulation was not yet adopted. Compared to a baseline value of 0.
- Training on disaster preparedness and response was provided and an Emergency Risk Management Committee was established in all 14 identified high risk coastal villages (target was 12).

(2) Coastal protection for vulnerable communities

- Geomorphological analysis of the main risks in the four pilot communities and development of detailed engineering designs for possible flood-reduction measures completed.
- All four pilot villages elaborated participatory vulnerability plans as planned. These plans were recorded and available at the National Council for the Preparation and Response to Disasters (CONPREC) and local risk committees.
- 3934 meters of river protection works, such as drainage canals and dikes along rivers, were completed (target was 2000 meters; baseline was zero).
- 611 meters of protected coastal area completed (target was 350 meters; baseline was 300 meters).
- Participatory implementation of urgent and priority adaptation works (such as embankments, drainage, and ecosystem-based adaptation) completed. No information about target.



- 16 community-based adaptation activities completed (target was 10), including maintenance of risk reduction system, plantation of trees to reduce erosions, construction of gabions for river protections, and reconstruction of damaged wall.
- Four participatory climate-resilient development plans developed, as planned, to encourage community growth to lower-risk areas in four pilot communities
- Four study tours and workshops carried out to promote cross-community and island-wide exchange and dissemination of lessons learned.

Outcomes:

- At project closing, reliable weather forecasts were being produced daily by the National Institute of Meteorology (INM), and twice a day during the fog/storm season, compared to non-reliable weather forecast at project start. These daily reports were sent by radio to the communities (local risk communities and beach supervisors equipped with radio) (ICR, para 40).
- Eighty five percent of fishers had access to 12-hour weather forecasts during the fog/storm season, based on surveys with fishers and beach supervisors conducted during the ICR mission. The weather forecasts were received by local beach supervisors and coastal guards (mostly through radio), who transmitted the forecasts to fishers via word of mouth (local fishers mostly relied on word of mouth to obtain latest weather forecast). A system of short message service (SMS) was established by the CONPREC with 1478 fishers having registered their phone and cellphone numbers (representing 50 percent of fishers), although cellphone numbers tend to change often and not all fishers have a cell phone (ICR, para 41). In addition, a toll-free weather service telephone number was set up through which fishers had access to real time weather information at any time.
- Average number of fishers officially reported to have died at sea was 4.8 at the baseline year of 2010. By comparison, from 2013 to the project completion, no fishers were officially reported as disappeared (two deaths were reported in 2015 but investigations found they were due to heart attacks occurred near the shore rather than weather events related). This exceeded the project target of an average of two deaths a year over two years at project closing (ICR, para 43 and a written clarification from the project team).
- A substantial reduction (from 26% to 38%) in number of houses regularly flooded in all four pilot communities, based on a survey of 66 fishermen representative of all the communities (Written clarification from the project team and ICR, para 47). The numbers of flooded days increased in comparison to their baselines in two of the four piloted communities and fell far short of targets in all four pilot communities (ICR, Annex 1, p41). However, the data accuracy might have been affected by the increased reporting of flooding due to increased awareness, and the level of damages might have been reduced as a result of the project.
- A change in construction practices and protection was achieved, such as moving assets to safer locations and using improved design to mitigate risks in a more systemic way (ICR, para 48).
- Changes in behavior on safety at sea achieved, such as in getting timely weather information and in using safety at sea equipment. Regulation on safety at sea had not yet been adopted at completion, although a draft regulation was prepared.
- Local geomorphological analyses and initial consultations conducted, resulting in increased awareness on climate risks and adaptation measures. A climate resilient coastal planning policy was not



finalized/adopted as planned. However, steps needed to improve capacity to further develop coastal planning were proposed.

Overall, there is evidence that the adaptive capacity of vulnerable coastal communities to the adverse impacts of climate change was increased substantially due to the project's contribution.

Rating
Substantial

Rationale

The only objective is rated Substantial.

Overall Efficacy Rating

Substantial

5. Efficiency

An ex post economic analysis was conducted for Component 1 and Component 2 at project completion. These two components accounted for 85 percent of the project's actual total cost. Ex ante economic analysis at appraisal was carried out for component 2 only, due to difficulties in valuing human life value expected to be achieved under Component 1. During the preparation of the second phase of the project, a methodology on assessing human life value was developed. At completion of this project, this new methodology was used for assessing the efficiency for component 1.

The ex post economic analysis at the project completion shows the economic internal rate of return (EIRR) of Component 1 was 25 percent, and that of the adaptation investments in the four pilot communities under Component 2 was 10 percent. Both of the ex post EIRRs were significantly greater than the discount rate of 5 percent, although the EIRR for Component 2 was lower than the ex ante EIRR of 15 percent at appraisal. During the implementation, one community (Praia Sundy) was replaced with a new one (Praia Burra), but these two communities are comparable in terms of their EIRRs as the costs of the planned constructions and levels of damages experienced were quite similar (ICR, para 54). The ex post EIRR and the net present value for the two components as a whole was 16 percent and US\$4.7 million, respectively.

The benefit streams included avoided losses resulting from fishermen's deaths and avoided losses of goods due to flooding, as well as benefits from unintended outcomes comprising years of schooling saved



due to protection of a damaged school in a neighboring community, time saved due to home proximity to a school constructed as a result of the project's preparation of a safety expansion zone, and time saved owing to proximity to clean water as a result of the adaptation works. The benefits due to unintended outcomes were more than twice the benefits from avoided losses of goods due to flooding (ICR, Section E and Annex 4).

There were some shortcomings in the assumptions for the cost benefit analysis. For example, the maintenance cost was assumed to be 2 percent of the construction cost, which was low as compared to 10 percent assumed at appraisal. The ex post EIRR and NPV were very robust to 10 percent changes of the benefit or the cost and to 2 percentage points change in the discount rate, according to a sensitivity analysis in the ICR (Annex 4, Table 4.2).

Project implementation experienced a year delay and there were some moderate procurement and financial management shortcomings. Actual project management cost was 50 percent higher than the appraisal estimate but was, however, a relatively low 15 percent of total project cost (ICR, Annex 1).

Efficiency Rating

Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	15.00	44.00 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	10.00	44.00 <input type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

The project's objective of increasing the adaptive capacity of vulnerable coastal communities to mitigate the adverse impacts of climate variability and change was relevant to World Bank and the government strategies and priorities and is rated *Substantial*. And the project was implemented with substantial efficiency. There was no sufficient evidence in the ICR for assessing the level of achievement of the project objective. Through the process of interviewing with the project team, however, this Review obtained clarifications and additional evidences necessary for showing that the project substantially achieved its objective. The project's efficacy is thus rated *Substantial*. The project's overall outcome is therefore rated *Satisfactory*.



a. Outcome Rating
Satisfactory

7. Risk to Development Outcome

There were several significant risks to the development outcome of the project (ICR, Section D). First, the government capacity to maintain the functioning of the early warning system was a concern. The government fiscal capacity is limited and unreliable. Although a Disaster Contingency Fund was newly established, funding was provided only on the basis of specific requests and specific events. Ninety percent of the government budget came from international aid, which was subject to the changes of aid flows.

Second, there was a lack of maintenance on the adaptation works completed under the project. For example, some parts of river works were damaged due to river current or erosion caused by pedestrian traffic, and were not repaired. Some drainage canals were obstructed by the accumulation of trash due to lack of maintenance, preventing water from flowing out and leading to flooding in the event of heavy rains. Overall, incentives for conducting needed maintenance proved not to be sufficient.

Third, the capacity of some agencies to maintain the equipment they received and were trained to use was limited, threatening their ability to generate timely weather reports over time, although the coordination among relevant agencies and with international donors was good.

Lastly, inadequate implementation of sound fishery management practices, such as lack of clear fisheries exclusive zones and well-defined protected areas, would damage the fishery resources near the coast, forcing fishermen to take high risks to venture offshore.

8. Assessment of Bank Performance

a. Quality-at-Entry

The project design was based on a development objective that was relevant for addressing the challenges of climate impact Sao Tome and Principe (STP) was facing, as well as its limited technical and institutional capacity, along with its relevance to the Bank's country assistance strategies. The project activities were logically linked to the project objective, and rightly combined institutional building, technology improvement, and infrastructure construction components. The project's specific activities were not all predetermined, to allow for flexibility to adapt to the actual community needs to be identified during the project implementation process (ICR, Section III.A). The specific activities were designed on the basis of climate impact analyses conducted by international experts financed by



the Project Preparation Grant and based on community participatory processes. Beneficiaries and pilot communities were selected based on the country's priorities specified in the National Adaption Program of Action (NAPA).

However, there were several shortcomings in the project design. The project's operation and maintenance arrangements were not adequately incorporated in the design, resulting in negative impacts on some adaptation works completed under the project, as discussed in Section 7 of this Review above, although actions will be taken to address this issue under a following-up project. The M&E indicators designed at appraisal, such as "number of fishers reported as lost at sea" and "reduced number of flooding events", could not accurately measure the project outcomes, as discussed in Section 9 of this Review below. The right set of core safety at sea equipment was not identified at appraisal. Some basic safety at sea equipment identified in the PAD was procured and distributed to fishers during implementation but turned out not well suited to fishers' needs and was less useful (PAD, p17 and ICR, para 43 and para 85).

Quality-at-Entry Rating

Moderately Satisfactory

b. Quality of supervision

According to the ICR, the project team conducted regular and comprehensive supervisions, identified key implementation issues, and provided solutions on a timely basis. It responded to project agency and government's request for assistance on addressing implementation issues. In particular, supervision efforts were instrumental in identifying gaps affecting implementation and achievement of the development outcome, such as M&E inadequacies. The ICR mission confirmed that the project team was proactive and successful in engaging stakeholders and coordinating with other donors during the implementation process. Due to budget constraints, however, only one and a half missions rather than two were conducted a year, and no mid-term review was carried out. And the measures taken to address M&E shortcomings were insufficient. For example, no effective measure was taken to address the inadequacy of a key outcome indicator measuring the outcome of the adaption works.

Quality of Supervision Rating

Moderately Satisfactory

Overall Bank Performance Rating

Moderately Satisfactory

9. M&E Design, Implementation, & Utilization



a. M&E Design

The main PDO level indicators were clear and measurable. The intermediate outcome indicators were causally linked to the PDO indicators and reflected the outputs of the project substantially. Baseline data were adequate and data collection methods were clear. The monitoring indicators were updated and improved during the project restructuring in 2015 to make use of a new, better indicator and reflect the change of the project's targeted beneficiaries.

However, the main PDO indicators, including both the original ones and the revised ones, did not measure the achievement of the PDO very well. Especially, the improved access to timely weather forecasts indicator did not measure the accuracy/quality of the weather forecasts. The safety at sea indicator, either the original one or the new one set up to replace the original one during a restructuring, did not allow for capturing both the number of fishers temporarily disappeared and the number of fishers permanently disappeared at the sea. And the indicator on reduced number of flooding events, designed at appraisal and unchanged during implementation, was misleading as the number of flooding events could have increased purely because of increased attention to the phenomena, which was quite possible considering the project effects on raised awareness (ICR, p21).

b. M&E Implementation

In general, key M&E data were collected, and allowed for a tracking of the project's progress in achieving its development objectives. These data were documented in each of the Bank's Implementation Status and Results Report (ISR). However, the ICR Mission found that the Project Implementation Unit (PIU) didn't always follow a plan to collect data on a quarterly basis. Staff in the PIU were sometimes unaware of or not completing their data collection work (ICR, para 83). The Bank team documented this issue in its supervision mission Aide Memoires and made efforts to help the PIU to accurately collect the data. The Bank team also did some surveys to collect additional data. However, the survey methods were not well documented in the ICR. In addition, the monitoring of the distribution of safety at sea equipment and related trainings could have been more timely and more accurate.

c. M&E Utilization

The M&E process helped identify gaps affecting implementation and achievement of the development outcome, such as the issue related to use of external consultants as the project director and coordinator and the need to add voluntary relocation as an additional adaptive solution. This informed the restructuring of the project to address these issues. According to the ICR, the Bank team also used the M&E information, especially the intermediate outcome indicators, to identify priority actions (ICR, para 85).



M&E Quality Rating

Modest

10. Other Issues

a. Safeguards

The project triggered the Bank's safeguard policies of OP/BP 4.01 on Environmental Assessment and OP/BP 4.12 on Involuntary Resettlement, and complied with these safeguard policies satisfactorily (ICR, para 88 and para 89). The project provided extensive trainings on safeguards to the PIU and the Directorate General of Environment. A Grievance Redress Mechanism (GRM) was established at the community level, so that each affected person could submit complaints to the designated authority in each community, although no complaint was formally filed. The project's environmental impacts were mainly temporary side effects resulting from construction works, and was classified as Category B. The project's Environmental and Social Management Framework (ESMF), including its Environmental Management Plan and Resettlement Policy Framework, were disclosed before construction works started. And the project preparation and implementation followed an extensive public consultation process.

b. Fiduciary Compliance

The project's financial management was found by the ICR to be in compliance with Bank procedures (ICR, para 100). Quarterly financial statements were most often submitted on time, although some delays were experienced at the beginning of the project. The project's statement for annual budget, which included information on sources and uses of funds of the project, was audited by independent auditor and was unqualified, although the statement was repeatedly found by the independent auditor to lack identification of expenses by project category and component.

Project procurement was carried out in accordance with Bank guidelines. Given the Project Implementation Unit's limited capacity, procurement and accountant specialists were hired as part of the PIU, and a detailed Operational Manual was prepared to clarify responsibilities and guide each step of the procedures. There were no major issues during the procurement process. However, the Bank team during the supervision process identified some procurement delays, mainly due to the small market size of the country. In addition, the procurement for the TV studio showed some shortcomings, as reflected by lack of adequate training and repairs following the delivery of the equipment.

c. Unintended impacts (Positive or Negative)



The project produced some significant positive unintended impacts, including the protection of a damaged school on a beach within an adjacent community, construction of a new school as a result of the project's preparation of a safety expansion zone, and improved access to clean water as a result of the adaptation works. The benefit due to these unintended outcomes were estimated to be more than twice the benefit from avoided losses of goods due to flooding (ICR, Section E and Annex 4).

d. Other

11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	---
Bank Performance	Satisfactory	Moderately Satisfactory	Shortcomings in O&M and M&E designs.
Quality of M&E	Modest	Modest	---
Quality of ICR		Substantial	---

12. Lessons

The ICR presented six lessons, based on which this Review highlights the following, which is well supported by the project experience and has more potential for being useful beyond this project:

1. Flexibility in the scope of coastal adaptation projects should be balanced against relevant risk mitigation. In this project, the scope of the project components was kept flexible to allow for adjustment based on the needs of local coastal communities and fishermen in the implementation process. This took into consideration the complexity of the challenges faced by these communities and the multiple dimensions of solutions available for addressing them. This design facilitated a more tailored support needed for a complex project like this one. A caveat is that there are risks that as a result of too much flexibility, some important activities, such as identification of basic safety at sea equipment and the O&M arrangements in this project, may end up not being carried out timely or even not included in the project design at all. Appropriate measures should be adopted to ensure that such risks are addressed.

This Review also notes the following additional lesson.

2. Coastal adaptation projects can produce significant other development outcomes. The adaptation works in pilot communities under the project were designed to reduce flooding. After completion, these works were found to have contributed to improved access to clean water by local residents. In addition, the preparation of a safety expansion zone as part of the adaption works resulted in construction of a new school



and was expected to improve local access to electricity (ICR, para 66). According to the efficiency analysis in the ICR, the benefits from these induced non-project development outcomes were about twice the benefits from reduced flooding.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR was thoughtful and made a lot of efforts to assess the outcome of the project. Its analysis of results was outcome-driven. The ICR presented a substantial body of evidence on the project's achievements, including a solid analysis on efficiency. The section on the project's strategic context was well written. That said, credible evidence on some of the core project outcomes was limited. For example, the ICR would have benefited from a discussion of attribution regarding the project's impact on the early warning system and a discussion on the methods of surveys that generated some key outcome data. Finally, some of the lessons learned as presented in the ICR were not backed adequately by project experience.

a. Quality of ICR Rating Substantial