

**Republic of the Philippines**  
**Fisheries Resource Management Project <sup>1</sup>**

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Field Survey: November 2008-July 2009

**1. Project Profile and Japan's ODA Loan**



Location of Project Site



Reforestation of mangrove  
in Lingayen Bay

**1.1 Background**

In the Philippines, which has about 7,100 islands and an extensive coast line of about 30,000 km long, fisheries is an important industry ranking 12<sup>th</sup> in the world, providing 4% of the country's gross national product (GNP), and 5% of its employment (about 990,000 people). Fish is the people's principal source of protein and securing fish supply is inevitable from the viewpoint of food security. However, particularly in the near-shore fisheries, destruction of coastal environment and depletion of fisheries resource are recently taking place due to illegal fishing by commercial fisheries (such as fishing in near-shore or municipal waters and illegal fishing by using dynamites), overfishing, and fish habitat degradation. As a result, the local fisherfolk along the coastal lines are suffering from poverty due to decrease of fish catch, and they are forced to do destructive fishing, which, in turn more exacerbates the depletion of fish catch. On the other hand, commercial fishing vessels do the illegal fishing and overfishing in the other coastal waters in the country and in other neighboring countries. This creates a problem.

In order to address the strategic policy for the fisheries sector in the Philippines, JICA (formerly OECF) provide a loan to "Fisheries Sector Program", under which

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<sup>1</sup> The ex-post evaluation for this project was jointly conducted with the Philippines' National Economic and Development Authority..

supports: introduction of the concept for the coastal resource management in 12 bays and ports in the Philippines; implementation of the resource assessment; and organization and promotion of local communities. This project, based on the results of the previous project, was identified/prepared in order to further address the poverty alleviation among municipal fisherfolk and environmental protection along the coastal lines.

### 1.2 Objective

The project objective is to alleviate poverty of fisherfolk, and to promote the environmental protection measures along the coastal lines through reversing the trend of fisheries resource depletion, and securing the people's principal source of protein by strengthening the coastal resource management and the institutional capacity at the central and local government units level in 18 priority bays in the Philippines.

The location of the project site is shown in Figure 1.

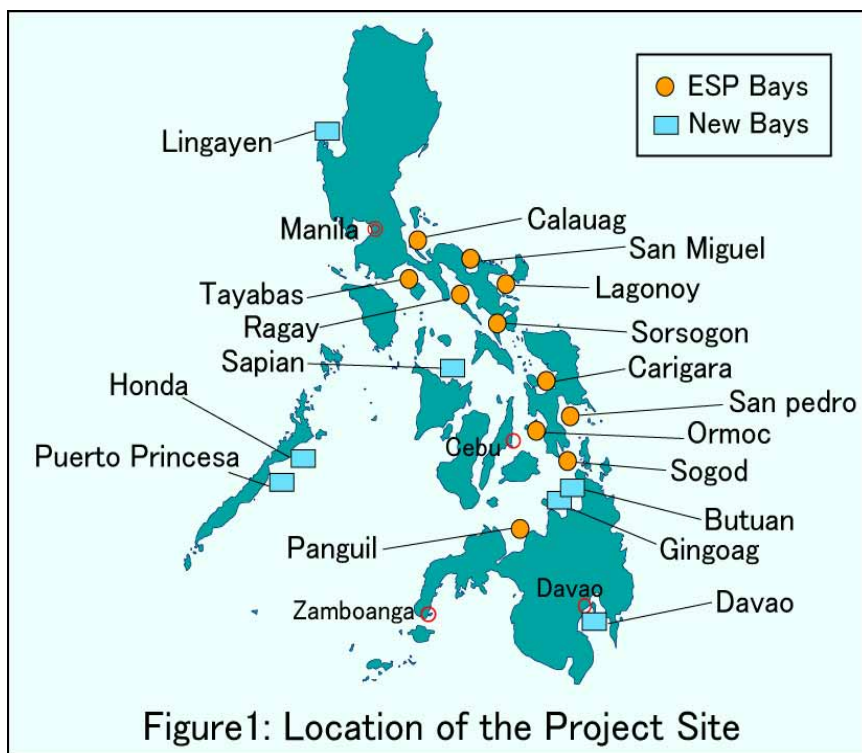


Figure 1 Location of the project site

### 1.3 Borrower/Executing Agency

Government of the Republic of the Philippines/Department of Agriculture/Bureau of Fisheries and Aquatic Resources (DP/BFAR)

## 1.4 Outline of Loan Agreement

Loan Amount/Disbursed Amount	2,428 million yen/1,496 million yen
Exchange of Notes/Loan Agreement	September 1998/September 1998
Terms and Conditions	1.7%/0.75%; Consultant: 0.75%
-Interest Rate	30 years (10 years)/ 40 years (10 years);
-Repayment Period (Grace Period)	Consultant: 40 years (10 years)
-Procurement	General untied/Partially Untied; Partially Untied
Date of (Disbursement) Completion	January 2007
Main Contractors	
Consultant Services	Overseas Agro-Fisheries Consultants Co. Ltd.(Japan)/Pacific Rim Innovation & Management Exponent, Inc. (Philippines)
Feasibility Study	F/S on this project by ADB TA (October 1996) Post Evaluation Report on “Fisheries Sector Program” by ADB TA

## 2. Evaluation Results (Rating: B)

### 2.1 Relevance (Rating: a)

#### 2.1.1 Relevance at the time of appraisal

Under the Medium-term Fisheries Development and Management Program (1993-1998), the following targets were established:

- 1) double aquaculture productivity (from 1.2 m/t/ha/yr to 2.4 m/t/ha/yr )
- 2) double priority bays/gulfs under CRM (12 to 24)
- 3) improve operating efficiency of the commercial fishing fleet (7% - international standards)
- 4) organize fishery law enforcement and provide support facilities (50% of coastal municipalities)
- 5) reduce post-harvest losses (5%) and promote value-added products.

Particularly, from the viewpoint of coastal fisheries, establishment of strategies and implementation of the coastal resource management plan involving fisherfolk, and regulating fish catch are emphasized. The new Fisheries Code was to be enacted by the Congress by December 1997. However, the Code was approved by the Congress in February 1998.

In the project areas targeted under the previous “Fisheries Sector Program”, the implementation of resource management activities involving local government units and fisherfolk has been anticipated. Simultaneously, expansion of the similar projects to the other bays was also expected. In addition, stricter law enforcement of illegal fishing and

review of policies for income diversification for fisherfolk was expected. Due to lack of filing system for fisheries statistical data, it is difficult to analyze the current condition of the fisheries sector correctly and plan the coastal resource management. By law enforcement of illegal fishing, it is necessary to promote small boats removed from the coastal waters go into the commercial fishing in the ocean, and to develop fish culturing business for the domestic markets from the viewpoint of food security. However, no particular future development plans have been made and thus, plans need to be developed urgently.

From the above, this project is consistent with the policies and strategies of the Philippines government.

### 2.1.2 Relevance at the time of evaluation

The basic task of the current Mid-Term Philippines Development Plan (MTPDP, 2004-2010) is to fight poverty, particularly focusing on spurring economic growth and creating jobs. In Chapter 2 (Agri-business), the policy to generate 2 million new jobs is stated, through increasing the current fisheries production intensity and diversification of productivity and expanding fisheries and aquaculture production in idle-offshore and inland waters. In Chapter 3 (Environment and Natural Resources) of the MTPDP, it is stated that MTPDP continues to emphasize protection of the country's coastal and marine ecosystems in cooperation with local government units, including planning, zoning, setting standards, establishing marine sanctuaries, and strengthening marine and coastal law enforcement activities.

The main objectives of the project are: i) enhancement of understanding by the coastal fisherfolk on the effective use of resources; ii) strengthening of law enforcement to the illegal fishing; and iii) stopping and holding the depletion of coastal resources, which is caused by lack of other income sources. The project addresses these outstanding issues through three project components (fisheries resource management, income diversification and capacity building /institutional strengthening). Thus, the project is consistent with the development needs.

The objective of the subject project is consistent with the government development policies at the time of appraisal and at ex-post evaluation and the project is highly relevant to national development needs.

## 2.2 Efficiency (Rating: b)

### 2.2.1 Outputs

The project description and output are shown in Table 1. The project consisted of 4

major components: Fisheries resource management project; Income Diversification (Micro-enterprise Development); Capacity Building and Strengthening of Institutions and Study on Future Development (commercial fisheries and aquaculture) involving 6 items (training/workshop, vehicle/boat, equipment, materials, survey/study and consulting services). Except the training program, the project was completed almost as planned. A main reason for reduction of the number of training programs and participants are that qualified NGO staff/citizens, who were originally expected to assist the project implementation were not available as planned and thus planned training program was not held. From the fact that the project has been continued by local government units by using local funds even after the original project components were completed, the reduction of output originally planned does not seem to affect the achievement of the project so much.

Table 1: Project Description and Output (IICA-funded portion)

Planned	Actual	Reason for Changes
<p>I. Fisheries Resource Management Project</p> <p>1. Fisheries Resource Management</p> <p>① Fisheries Information System (PHILFIS) *consulting service: 5M/M (foreign), 60 M/M (local) *equipment: LS (105 units)</p> <p>② CRM Planning and Implementation (procurement of GIS) *consulting service: 24M/M (local) *equipment: 6 items 25 units (GIS)</p> <p>③ Integrated CRM Pilot Program in Puerto Princesa *workshop/training: (8 times, 90 participants) *equipment: 9 items *study (data collection/zoning) *vehicle (4 items, 10 units) *boat (2 items, 7 vessels) *materials (seeding, fish sanctuaries) *consulting service: 36M/M (local)</p> <p>④ Fisheries Legislation and Regulation *training (total 408 times, 24,300 participants) *consulting service: 36M/M (foreign), 60 M/M (local)</p>	<p>I. Fisheries Resource Management Project</p> <p>1. Fisheries Resource Management</p> <p>① Fisheries Information System (PHILFIS) *consulting service: 8.5M/M (foreign), 107.9 M/M (local) *equipment: LS (105 units) : as planned</p> <p>② CRM Planning and Implementation *consulting service: 59.6M/M (local) *equipment: 6 items 25 units (GIS) : as planned</p> <p>③ Integrated CRM Pilot Program in Puerto Princesa *workshop/training: (3 times, 259 participants) *equipment: almost as planned *study (data collection/zoning): as planned *vehicle as planned *boat : 0 (changed to patrol boat) *materials : as planned *consulting service: 66.9 M/M (local)</p> <p>④ Fisheries Legislation and Regulation *training (total 1,966 participants, partly undertaken under other components) *consulting service: 34.6M/M</p>	<p>A main reason for reduction of the number of training programs and participants are that qualified NGO staff/citizens, who were originally expected to assist the project implementation were not available as planned and thus planned training program was not held.</p>

<p>*materials (for 100 municipalities)</p> <p>⑤ Community-based Law Enforcement</p> <p>*boat (2 items, 314 units)</p> <p>*equipment (4 items, 1,718 units)</p> <p>*training/seminar (total 216 times, 7,320 participants)</p> <p>⑥ Regional Coordination and MCS Centers</p> <p>*vehicle (2 items, 314 units)</p> <p>*equipment (10 items, 190 units)</p> <p>*training (25 participants)</p> <p>2. Income Diversification and Micro-enterprise Development</p> <p>① Micro-enterprise Development</p> <p>*training (total 3,000 times, 46,500 participants)</p> <p>3. Capacity Building and Strengthening of Institutions</p> <p>① Strengthening of Implementing Agencies</p> <p>*training</p> <p>i) overseas: total 36 training with 36 trainees (12 for overseas Masters Degrees)</p> <p>ii) domestic: total 910 training with 5,425 trainees</p> <p>*workshop</p> <p>i) 3 workshops with 986 times with 26,160 participants</p> <p>*study tour</p> <p>ii) 6 visits</p> <p>*project impact evaluation</p> <p>II. Study on Future Development Commercial fisheries and aquaculture:</p> <p>*consulting service: 42M/M (foreign), 36 M/M (local)</p>	<p>(foreign), 55.0 M/M (local)</p> <p>*materials : as planned</p> <p>⑤ Community-based Law Enforcement</p> <p>*boat (113 units)</p> <p>*equipment (17 items, 3,049 units)</p> <p>*training/seminar (total 3,360 participants)</p> <p>⑥ Regional Coordination and MCS Centers</p> <p>*vehicle (2 items, 311 units) : as planned</p> <p>*equipment (14 items, 135 units)</p> <p>*training (undertaken under the BFAR's regular programs)</p> <p>2. Income Diversification and Micro-enterprise Development</p> <p>① Micro-enterprise Development</p> <p>*training (total 38,000 participants) 5,000 took other programs.</p> <p>3. Capacity Building and Strengthening of Institutions</p> <p>① Strengthening of Implementing Agencies</p> <p>*training</p> <p>i) overseas: total 13 training with 13 trainees (1 under Australian Masters Degrees, 7 under local Masters degrees )</p> <p>ii) domestic: total 8,467 trainees (Most took other training programs simultaneously)</p> <p>*workshop</p> <p>i) 3 workshops with 10,489 participants</p> <p>*study tour</p> <p>ii) 11 visits</p> <p>*project impact evaluation 3 baseline study</p> <p>*consulting services: Experts in several fields: 224.2M/M</p> <p>II. Study on Future Development</p> <p>The study was not implemented.</p>	<p>In the Minutes of Discussions, it is stated that the final approval of the Study will ultimately depend on the concurrence of the ICC Technical Board.</p>
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## 2.2.2 Project period

The planned project period (for JICA portion) at time of appraisal was from September 1998 (L/A signed month) to December 2003 (programs completion date) with a total period of five years and four months. The actual period was from September 1998 to December February 2006 (programs completion date) with a total period of eight years

and four months, resulting in about a three-year delay; at 156% compared with the planned period. The main reasons for delay are as follows:

- 1) Originally expected qualified NGOs did not participate in the project implementation.
- 2) It took more time than expected to secure approval on procurement of consultants and equipment from the relevant central agencies and executing agencies.
- 3) Lack of technical staff of BFAR
- 4) It took more time to prepare the training program for staff of local government agencies.

Regarding procurement, after a procurement implementation schedule was prepared, budgeting needs to be made for every fiscal year. However, actually when the budget was allocated, budget cannot be used as planned due to substantial delay of the procurement process. Thus, again budgeting must be redone. This situation has been repeated. As a result, the procurement process can not be completed, and the delivery has been always delayed.

### 2.2.3 Project cost

The estimated total project cost at appraisal was 10,435 million yen, among which the JBIC loan amount was 2,428 million yen, the ADB loan 3,813 million yen and the local funded amount was 4,194 million yen. . The actual total project cost was 6,214 million yen and the JBIC loan disbursed was 1,496 million with the ADB loan of 2,232 million yen and the locally funded amount of 2,486 million yen. The total project cost was reduced by 40% and the JBIC loan disbursed was lower than planned by 38%. The main reason for the lowered cost (by 40%) is due to devaluation of the Philippine peso. The exchange rate at appraisal in September 1997 was US\$1.00 =28.5 peso, while at completion it was US\$1.00 =51.31 peso. The estimated total project cost in peso at appraisal by ADB was 2.416 billion and the actual cost at completion was 2.680 billion. The total project cost was increased by 11% in terms of local currency (peso). Comparing the planned with actual costs by item, substantial decrease was recorded with respect to the fisheries resource management and micro-enterprise development components.

Table 2 Project Cost by Item (Planned and Actual)

Unit: million yen

Item	Planned			Actual		
	Foreign	Local	Total	Foreign	Local	Total
Training/Workshop	0	882	882	0	223	223
Vehicles/Boat	385	0	385	315	0	315

Equipment	422	0	422	540	0	540
Materials	0	74	74	0	31	31
Survey/Study	0	28	28	0	0	0
Price contingencies	25	56	81	-	-	-
Physical contingencies	81	98	179	-	-	-
Consulting services	377	0	377	387		387
(Fisheries Resource Management business)	(192)	0	(192)	(387)	0	(387)
(Future development)	(185)	0	(185)	-	-	-
Total	1,290	1,138	2,428	1,242	254	1,496

Source 1: Planned costs from the Project Memorandum

2: Actual costs from the data submitted by BFAR referring to PCR Attachment 9 Annex 1, 2, 3.

Reasons for increase/decrease are as follows:

Item	Reasons
Training/Workshop	Delay of the project implementation. Integration of several training module. Lack of trainees. Partly charged to the ADB loan.
Vehicles/Boat	Due to delay of the project implementation, procurement was incomplete.
Equipment	Delay of the project implementation. Repeat system was additionally purchased to connect between stations under the communications facilities.
Materials	Overestimation at appraisal.
Survey/Study	Coastal resource management planning at Puerto Princesa was charged to training component, and designs of discharge management system to consulting services.
Consulting services	Delay of contract awarding. Recruited more consultants to supplement the lack of local government staff's capability.

Actual loan amount disbursed to each component (JBIC portion) is as follows:

Table 3 Project Cost by Component (Planned and Actual)

Component	Unit: million yen	
	Planned	Actual
I. Fisheries Resource Management	1,428	949
1. Fisheries Information System (PHILFIS)	84	137
2. CRM Planning and Implementation	54	10
3. Integrated CRM Pilot Program in Puerto Princesa	168	22
4. Fisheries Legislation and Regulation	305	63
5. Community-based Law Enforcement	483	603
6. Regional Coordination and MCS Centers	334	114
II. Income Diversification and Micro-enterprise Development	514	40
1. Micro-enterprise Development	514	40
III. Capacity Building and Strengthening of Institutions	462	507
1 Strengthening of Implementing Agencies	462	507



Sub-total	2,405	1,496
Study on Ocean Fishing and Culturing Business	185	0
Total	2,590	1,496

Source 1: Planned costs from attached documents to M/D. The total amount by item and by component is different.

2: Data provided by BFAR

The project cost was within the estimated cost, but the project period substantially exceeded the planned period. Thus, the efficiency is considered to be moderate.

### 2.3 Effectiveness (Rating: a)

#### 2.3.1 Reversing the trend of fisheries resource depletion

According to the data of Bureau of Agricultural Statistics (BAS),

- 1) The country's municipal marine production was increased by 6.8% per annum during the project implementation period (1999-2005). It increased further by 8.7% from 2005 to 2006 (after project completion).
- 2) Effects at the targeted bays were reported: Sogot Bay: 73% reported an increase in fish catch of 2-3 kg in San Francisco, 75% indicated an increase of 2 kg in Liloan, 47% reported an increase of 1-2 kg in Malitbog.
- 3) At Sapián bay: 75% noted an increase of 3kg in Sapián, 30% reported an increase of 1.5 kg in Batán, 43% noted an increase of 10 kg in Ivisan.)
- 4) At Honda Bay in Puerto Princesa, the fish catch of 5kg/day/person before the project (1996) increased to 8kg/day/person after the project.

#### 2.3.2 Alleviation of poverty of fisherfolk

According to the studies by BFAR and the ADB's PCR mission,

- 1) The economic status in project areas has improved as evident from: improved incomes from fishing, additional income from alternative livelihood projects, and increased income from wage employment in mariculture business.
- 2) Increase of up to 25% in household income reported in Puerto Princesa, household income more than doubled in two municipalities in Lagonoy Bay, household income in 2 barangays in Calauag increased by more than 20% and all other barangays in Quezon showed positive changes in household fishing incomes.

#### 2.3.3 Internal rate of return

##### (1) FIRR

Information on the financial internal rate of return (FIRR) at appraisal is not provided in the JBIC appraisal document. According to the ADB's PCR, the average FIRR of four microenterprise projects (involving seaweed culture, mud crab culture, milkfish cage culture and swine fattening) was about 20%. According to the ADB's PCR, the average FIRR (at post evaluation) of 6 microenterprises established by community groups was about 52%.

Table 4 FIRR (%)

Microenterprises Project	FIRR % (at appraisal)	FIRR % (at completion)
seaweed culture	21	55
milkfish deboning	—	44
mud crab culture	22	44
grouper cage culture	—	53
milkfish cage culture	23	44
swine fattening	15	72
Average	20	52

Source : ADB PCR (P76 )

## (2) EIRR

The economic internal rate of return (EIRR) at the appraisal stage was estimated using the total project cost and maintenance and operation costs as cost, and saved amount of fish catch due to prohibition of destructive and saved amount of fish catch due to prohibition of overfishing as benefits. EIRR upon completion was recalculated based on the same assumptions with respect to the cost, but establishment of fish sanctuaries and reserves, deduced destructive and illegal fishing, increase in fish catch, and mangrove reforestation as benefits.

EIRRs at appraisal and at post evaluation are shown in Table 5.

Table 5: Internal Rate of Return

	EIRR (%)
At appraisal	21
At post evaluation	30.72

The fisheries production in the project areas is increasing and the economic status of fisherfolk households has improved. Thus, it is considered that the investment was appropriate and the project satisfactorily achieved its original development objectives.

### 2.3.4 Qualitative impact

Depending on regions, destructive/illegal fishing was reduced by 80% by strict law enforcement. Through interview surveys at Honda Bay in Palawan Island, the following

became clear. Since the fish sanctuaries have been established and its areas are being expanded, many fishermen stopped fishing activities and changed to the ecotourism business (sight-seeing of coral reef by boat and feeding to tropical fish at beach). Currently, they are enlightening the importance of ecosystem to the local people and tourists. Their income is now stable and the quality of life has been improved. On the other hand, the fish catch of fishermen, who are still engaged in fishing was increased from 5kg/day before the project (1996) to 8kg/day after the project (2005), and their quality of life has been also improved. (Faces of the Sea, Region IVB, “Healing Nature with ICRM”) The concept of the integrated coastal resource management (ICRM) project implemented as a pilot project in Puerto Princesa is shown in Figure 2.



Figure 2. Concept of ICRM in Puerto Princesa      Mangrove Nursery in Honda Bay

Under the Integrated Coastal Resource Management program in Puerto Princesa, conservation of fisheries resources and enhancement of the quality of life fisherfolk along the coastal lines have been promoted by implementing the following environmental protection: i) reforestation in the upland areas (seeding and planting); ii) riverbank rehabilitation (erosion control), iii) reforestation along the coastal line (mangrove and nipa), iv) establishing coral reef/fish sanctuaries; and v) enhancement of trochus shell stock. Materials for riverbank rehabilitation were provided by the project, but work was implemented by local volunteers. Reforestation work in the upland and along coastal lines have been also implemented by local volunteers (more than 20,000 participants and the work has become a sort of festival, which has been regularly implemented every year.

## 2.4 Impact

### 2.4.1 Benefits to the people in the project affected area

Under the ex-post evaluation, the beneficiary surveys were undertaken by interviews in 5 bays (involving 8 local government units). Five bays include Carigara,

Davao, Lingayen, Honda and Sapien bays. The number of respondents at each bay is 60 with a total of 300 respondents. According to the classification of respondents by sex, 33% were female and 67% male. The results of interview survey are summarized as follows:

- 1) Increase of fish catch: 65% indicate that it was increased and about 50% of them indicate that the increase was more than 4kg/day.
- 2) Decreased incidence of illegal fishing activities: 74% of respondents indicate that the incident has decreased.
- 3) Women's participation in community activities: 74% of respondents indicated that they have participated.
- 4) Promotion of economic activities: 69% of respondents perceive that the activities have promoted.
- 5) Expansion of business chances: 60% of respondents perceive that the chances have expanded.
- 6) Impact on family income: 70% of respondents answer that the family income has increased.
- 7) Increase of live coral cover: 75% of respondents perceive that the live coral cover has increased.
- 8) High-valued fish reappearance: 83% of respondents perceive that the high-valued fish species had already reappeared.



Patrol boat at Lingayen Bay



Micro-enterprise (Co-op)  
development in Batan, Sapien

## 2.4.2 Environmental and social impact

Impact to the environment was generally satisfactory (reduction of illegal fishing, expansion of coral leaf coverage in artificial coral leaf and fish sanctuary, increase of fish catch ratio, reappearance of commercially high-value fish). Comparison of “before the Project” and “toward the end of Project” for Agoho Fish Sanctuary, and comparison of coral fish families before the project (2000) and after the project (2005) in Puerto Princesa Bay are shown in Table 7 and 8, respectively.

Table 7 Comparison of “before the Project” and “toward the end of Project” for Agoho Fish Sanctuary

Parameter	1994 ( REA)	2004 ( RSA)
Live Coral Cover ( %)	22.4 (poor)	36.6 (fair)
Number of Fish Families	15	22
Diversity (Number of fish species/1,000 m <sup>2</sup> )	141 ( very high)	103 ( very high)
Fish Biomass (ton/m <sup>2</sup> )	2.69 (very low)	13.72 (low)

Source : ADB PCR ( P89 )

REA : Resource and Ecological Assessment

RSA : Resources Social Assessment

Table 8 Comparison of coral fish families before the project (2000) and after the project (2005) in Puerto Princesa Bay

Parameter	2000 (ICLARM)	2004 (WPU)
Number of Fish Families	96	167
Diversity (Number of fish species/1,000 m <sup>2</sup> )	770 ( very high)	1,172 ( very high)
Fish Biomass (kg/ha)	101 (very low)	47 (very low)

Source : Report of Prof. Gonzales (2005 )

ICLARM : International Center for Living Aquatic Resource Management

WPU : Western Philippines University

The results indicate that the number of fish families has increased after completion of the project, but that the fish biomass has decreased.

Therefore, this project has largely achieved its objectives, and effectiveness is highly satisfactory.



Ecotourism business in Honda Bay

## 2.5 Sustainability (Rating: b)

### 2.5.1 Executing agency (Department of Agriculture: DA)

DA through Bureau of Fisheries and Aquatic Resources (BFAR) was the executing agency. However, local government units (LGUs) in the project areas participated in the project. The operation and maintenance of the project is undertaken by BFAR, the BFAR Regional offices and LGU's Agriculture offices. Responsibilities of each office are shown in Table 9.

Table 9 Institutional Arrangements for Operation and Maintenance

Relevant agencies	Main functions
BFAR Headquarter	Responsible for the maintenance and operation of hardware and software to ensure that PHILFIS as a system is functioning well. Provides technical assistance, back-up support and training to PHILFIS at the BFAR Regional Offices and LGUs.
BFAR Regional Offices	Responsible for the maintenance and operation of hardware and software to ensure that PHILFIS at the BFAR Regional Offices is functioning well. Responsible for the maintenance and operation of the telecommunications system at the regional level.
Municipal Agriculture Office	Responsible for the maintenance and operation of the telecommunications system at the LGU level. Supervise the maintenance and operation of patrol boats.

Source: PCR

The following agencies are operating and maintaining the equipment except the fisheries information system under this project.

Table 10 Agencies responsible for operation and maintenance equipment other than the fisheries information system

Responsible agencies	Item
Municipal Agriculture Office	Equipment for illegal fishing watch
Municipal Agriculture Office	Vehicles and motorbike
Mayors office	Tecommunication system
Municipal AgricultureOffice	Workstation installed at LGUs
Regional Fisheries Information Management Center	Workstation and communication system at BFAR regional offices
Regional Fisheries Information Management Center	Information and communication system at BFAR Headquarter

Source: PCR

#### 2.5.1.1 Operation and maintenance system

The number of staff in charge of operation and maintenance at each unit is shown in Table 11.

Table 11 Number of staff in charge of operation and maintenance

Item	Number of staff
Fisheries Information System	BFAR Headquarter : 12 BFAR Regional Offices : 6 regions, 20 staff LGUs : about 18 municipalities, 34 staff
Law Enforcement Equipment	LGUs : 18 municipalities, 277 staff
Telecommunications Equipment	BFAR Regional Offices : 6 regions, 45 staff LGUs : about 30 municipalities, 633 staff

Note : as of July 2007

Source: PCR

BFAR consistently allocates a substantial annual budget for FIMC operations. Partner LGUs have integrated into their regular work plans the maintenance of project equipment and facilities and the monitoring of FRMP-initiated projects. In Quezon province for instance, the 11 municipalities have allocated a total of at least Peso 8 million to sustain project initiatives. Many of the Information Education Campaign materials produced by the project (FLET manuals, audio-visual productions) are being used by BFSAR and LGUs under their regular programs. Under their regular CRM programs, the BFAR Regional Offices have continued efficiently using the various systems developed and promoted by FRMP.

#### 2.5.1.2 Technical capacity

At Honda, Sapián, Carigara and Lingayen bays where field inspections were conducted, the coastal resource management program has been enacted as an ordinance and thus the budget is allocated to the program. Technical training for the staff working at LGUs, fisherfolk and NGO staff has been continuously provided.

#### 2.5.1.3 Financial status

The annual budget (2007) for operation and maintenance is shown in Table 12.

Table 12 Annual budget for operation and maintenance (2007)

Item	Annual budget (peso)
Fisheries Information System (under BFAR)	4,024,800
Workstation (25 municipalities)	27,875 (average)
Telecommunications (24 municipalities)	39,737 (average)
FLET support (17 municipalites)	55,763 (average)
Transportation and other equipment (22 municipalities)	28,681 (average)

Note : Allocations under municipalities do not include salaries and

In LGUs where the project has been continued such as Puerto Princesa, the government units purchase materials (such as seeds) and pays labor costs for growing. But, actual tree planting is undertaken under the special program by citizens, fisherfolk volunteers. At Batan, Sapián bay, every year about 50,000 peso is allocated to the program. The budget is spent for maintenance cost for fish sanctuaries, fuel for boat, planting of mangrove trees, and assistance for community activities. At the Lingayen Bay area, about 600,000 peso has been spent for the coastal resource management program every year.

#### 2.5.1.4 Operation and Maintenance status

Regarding the Fisheries Information System, the maintenance cost is high, particularly with the initial investment cost of software, and it has been proposed to be transformed into a regular unit of BFAR with sufficient annual budget allocation. Two of 11 repeaters were damaged by typhoon, and are not functioning. Since the first batch of 22 patrol boats had the high costs of operations and maintenance, the type of other boats procured later was changed taking into consideration the local conditions so that the LGUs could afford from their budget. Several boats are not operating since they were damaged by typhoons. In the three to four years following the completion of the three interchanges, no major structural failures have been observed. From the field visual inspection, it was confirmed that the pavement surface condition was satisfactory. However, as the need for major rehabilitation works arises in the future, there is a possibility that the financial resources will be insufficient. As such, the financing plan and implementation schedule for major rehabilitation works should be formulated well in advance. (confirmed at Lingayen)

In Puerto Princesa, where a CRM pilot program was implemented, even after the project was completed, the project focusing on training has been continued under the same project name, and the project sites have been expanded to other barangays. Puerto Princesa city currently spends at least 3 million peso for the project every year. Its budget is used for procurement of seeds (about 10,000 seeds) for the San Jose mangrove nursery, and about 1 million peso is spent for growing mangrove trees. About 7,000 – 10,000 trees are planted at the upland nursery in Saint Lourdes (one of seven nurseries in the city). The area of fish sanctuaries has been expanded since then.



### 3. Feedback

#### 3.1 Conclusion

In light of the above, this project is evaluated to be satisfactory.

#### 3.2 Lessons learned

1) In the LGUs which participated in this project, the coastal resource management program has been integrated into the development plan of each LGUs and project objectives were somehow achieved. However, the readiness to continue the program (sustainability of the project) differs from LGU to LGU. From this experience, since continued BFAR's technical assistance (promotion, training and monitoring) and administrative guidance is needed even after the project completion, it is most important to select a LGU who indicates "ownership of the project and willingness to continue the project even after the project completion" during a project preparation/processing stage.

2) Due to lengthy procurement process for equipment/materials and consulting services, a few subcomponents were not implemented. It is essential at the project preparation stage: i) to provide training to staff of relevant executing agencies on domestic/JICA's procurement process and procedures; and ii) to prepare a detailed procurement implementation plan and share this information with all the relevant project executing agencies.

3). Since the selection of equipment (such as patrol boats) was made without detailed consultation on operation manners with the end-users at the operation stage, it was difficult to properly maintain and operate some equipment. Later, specifications for some equipment were downgraded to fit into local conditions. At the appraisal stage, it is essential to select the efficient model taking into consideration the operation manner (usage) and sustainability of the equipment in the local conditions.

#### 3.3 Recommendations

None.

### Comparison of the Planned and Actual Figures

Component	Planned	Actual
<p>I. Fisheries Resource Management Project</p>	<p>1. Fisheries Resource Management</p> <p>① Fisheries Information System (PHILFIS) *consulting service: 5M/M (foreign), 60 M/M (local) *equipment: LS (105 units)</p> <p>② CRM Planning and Implementation (procurement of GIS) *consulting service: 24M/M (local) *equipment: 6 items 25 units (GIS)</p> <p>③ Integrated CRM Pilot Program in Puerto Princesa *workshop/training: (8 times, 90 participants) *equipment: 9 items *study (data collection/zoning) *vehicle (4 items, 10 units) *boat (2 items, 7 vessels) *materials (seeding, fish sanctuaries) *consulting service: 36M/M (local)</p> <p>④ Fisheries Legislation and Regulation *training (total 408 times, 24,300 participants) *consulting service: 36M/M (foreign), 60 M/M (local) *materials (for 100 municipalities)</p> <p>⑤ Community-based Law Enforcement *boat (2 items, 314 units) *equipment (4 items, 1,718 units) *training/seminar (total 216 times, 7,320 participants)</p> <p>⑥ Regional Coordination and MCS Centers *vehicle (2 items, 314 units) *equipment (10 items, 190 units) *training (25 participants)</p>	<p>1. Fisheries Resource Management</p> <p>① Fisheries Information System (PHILFIS) *consulting service: 8.5M/M (foreign), 107.9 M/M (local) *equipment: LS (105 units) : as planned</p> <p>② CRM Planning and Implementation *consulting service: 59.6M/M (local) *equipment: 6 items 25 units (GIS) : as planned</p> <p>③ Integrated CRM Pilot Program in Puerto Princesa *workshop/training: (3 times, 259 participants) *equipment: almost as planned *study (data collection/zoning): as planned *vehicle as planned *boat : 0 (changed to patrol boat) *materials : as planned *consulting service: 66.9 M/M (local)</p> <p>④ Fisheries Legislation and Regulation *training (total 1,966 participants, partly undertaken under other components) *consulting service: 34.6M/M (foreign), 55.0 M/M (local) *materials : as planned</p> <p>⑤ Community-based Law Enforcement *boat (113 units) *equipment (17 items, 3,049 units) *training/seminar (total 3,360 participants)</p> <p>⑥ Regional Coordination and MCS Centers *vehicle (2 items, 311 units) : as planned *equipment (14 items, 135 units) *training (undertaken under the BFAR's regular programs)</p>
<p>2. Income Diversification and Micro-enterprise Development</p>	<p>① Micro-enterprise Development *training (total 3,000 times, 46,500 participants)</p>	<p>① Micro-enterprise Development *training (total 38,000 participants) 5,000 took other programs.</p>
<p>3. Capacity Building and Strengthening of</p>	<p>① Strengthening of Implementing Agencies</p>	<p>① Strengthening of Implementing Agencies</p>

Institutions	<p>*training i) overseas: total 36 training with 36 trainees (12 for overseas Masters Degrees) ii) domestic: total 910 training with 5,425 trainees</p> <p>*workshop i) 3 workshops with 986 times with 26,160 participants *study tour ii) 6 visits *project impact evaluation</p> <p>Commercial fisheries and aquaculture: *consulting service: 42M/M (foreign), 36 M/M (local)</p>	<p>*training i) overseas: total 13 training with 13 trainees (1 under Australian Masters Degrees, 7 under local Masters degrees ) ii) domestic: total 8,467 trainees (Most took other training programs simultaneously) *workshop i) 3 workshops with 10,489 participants *study tour ii) 11 visits *project impact evaluation 3 baseline study *consulting services: Experts in several fields: 224.2M/M</p> <p>The study was not implemented.</p>
II. Study on Future Development		
Term	September 1998 (L/A) – December 2003 (project completion: 5 years 4 months)	September 1998 (L/A) – December 2006 (project completion: 8 years 4 months)
Project costs		
Foreign currency	1,867 million yen	1,714 million yen
Local currency	8,568 million yen	4,700 million yen
Total	10,435 million yen	6,414 million yen
Yen loan	2,428 million yen	1,496 million yen