

# South Mindanao Integrated Coastal Zone Management Project

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## 1 . Project Description



Location Map of the project



Monitoring Board of the Forestry PO

### 1.1 Background

Mindanao Island has rich natural resources, but its environment has been deteriorated by recent rapid development. For instance, almost half of the forest in Mt. *Matutum* Protected Landscape-*Sarangani* Bay Protected Seascape (MMPL-SBPS) watershed area (230,000 has.) was lost, and sewage water from General Santos City (340,000 population in 1996, average rate of increase was 6.7% annually between 1993 and 1998) has generated a negative impact on the environment of the *Sarangani* Bay. And, coastal environment and fishery resources in *Mainit-Balasio* River Watershed-*Malalag* Bay Area (MBRW-MBA) watershed area (6500 has.) have been also deteriorated by loss of forest and unsustainable fishery. In these situations, some methods to prevent deterioration of natural resources, and promote sustainable development should have been taken.

Therefore, the Philippine government formulated a model project for promoting comprehensive environmental conservation in these areas, and tried to apply the lessons of the project to similar projects in other areas of Mindanao and the Philippines, as a whole. In addition, the target area was a part of SZOPAD (Special Zone for Peace and Development), and the project is considered important to consolidate peace in Mindanao.

### 1.2 Project Outline

The objective of the project is to promote comprehensive environmental conservation management of coastal and watershed ecosystems, by undertaking activities that included

tree plantation and agro forestry, civil works including flood control, establishment of the Environmental Conservation and Protection Center (ECPC), livelihood assistance program, and establishment of septage treatment facilities (STFs), in two major target areas, namely, Mt. *Matutum* Protected Landscape-*Sarangani* Bay Protected Seascape (MMPL-SBPS) and the *Mainit-Balasiao* River Watershed-*Malalag* Bay Area (MBRW-MBA), in the southeast part of Mindanao Island, thereby contributing to the conservation and restoration of natural environment and the development in the area.

Approved Amount/ Disbursed Amount	3,201 million Yen / 2,299 million Yen
Exchange of Notes Date/ Loan Agreement Signing Date	September 1998 / September 1998
Terms and Conditions	Forestry, Sewage Treatment Project, Environmental Conservation and Preservation Center: Interest Rate 0.75%, Repayment Period 40 years (Grace Period 10 years), Conditions for Procurement Partial Tied Other components: Interest Rate 1.7%, Repayment Period 30 years (Grace Period 10 years), Conditions for Procurement General Untied Consulting Service: Interest Rate 0.75%, Repayment Period 40 years (Grace Period 10 years), Conditions for Procurement: Partial Tied
Borrower/Executing Agency	Department of Finance/ Department of Environment and Natural Resources (DENR), and Municipal Government of Malalag, Davao del Sur
Final Disbursement Date	January 2007
Main Contractor (Over 1 billion yen)	none
Main Consultant (Over 100 million yen)	Cest Inc.(Philippines),Pacific Rim Innovation and Management Exponents Inc.(Philippines),Tetra Tech EM Inc.(U.S.A.), Nippon Jougesuidou Sekkei Co. LTD.(Japan)
Feasibility Studies, etc.	December 1995: F/S of Sewage Treatment Facility in General Santos City (USAID) January-March 1997:Special Assistance for Project Implementation (SAPI) (JICA)
Related Projects (if any)	JICA, Assistance to Capacity Enhancement of Water Quality Management (January 2006-January 2011) USAID, EcoGov Project, Assistance to enhance Governance of Environment Conservation (2001- 2010) World Bank and SIDA, Sustainable Sanitation in East Asia Project (SuSEA) (July 2007-July 2010)

## 2. Outline of the Evaluation Study

### 2.1 External Evaluator

Juichi INADA, Senshu University

### 2.2 Duration of Evaluation Study

Duration of the Study: May 2010 - February 2011

Duration of the Field Study: August 2- August 18, 2010, November 16 - November 26, 2010

### **2.3 Constraints during the Evaluation Study**

This project contains several components of different nature. Although it is possible to set evaluation rating on each component of the project, there is no established method to aggregate those evaluation ratings of different components into overall rating. This project includes the components with high rating such as, agro-forestry and Livelihood Assistance Program (LAP) and the component with fair rating such as STFs because of the delay of construction, and arriving at an overall evaluation rating was a difficult issue in our evaluation work. In short, we adopted a method to get the average rating of all components, because the project is the comprehensive environmental conservation project and should be evaluated as one package, although this is not an established method to make an overall rating of multi-sector project.

Another constraint for evaluation is that the completion of STFs was delayed because of the change of scope from original STP, and 5 STFs have begun its operation in 2007-2009, but 2 STFs still have not yet been operated. Therefore, it is too early to make our final evaluation rating on its effectiveness at the time of evaluation in 2010.

## **3. Results of the Evaluation (Overall Rating: B)**

### **3.1 Relevance(Rating : a)**

#### **3.1.1 Relevance with the Development Plan of the Philippines**

The ecosystem in the coastal areas in the Philippines had been deteriorated because of the decrease of mangrove caused by the conversion to cultivation and illegal cutting, loss of coral reef caused by the accumulation of mud and destructive fishery, etc., therefore the Philippine Government formulated the law of the conservations in 1992, whereby the government has been promoting sustainable development of coastal zone both in the protected areas designated by the central government and non-protected areas.

The Philippine government continues to promote environmental conservation and more recent policies strengthened the need for integrated coastal zone management. As examples, the Philippine Clean Water Act of 2004 provides for a comprehensive and integrated strategy to prevent and minimize pollution through a multi-sectoral and participatory approach involving all the stakeholders. The signing of Executive Order No. 533 by the President of the Philippines on 6 June 2006, declaring the national strategy and policy

framework for sustainable development of the coastal and marine resources. The MTPDP (Medium-Term Philippine Development Plan) 2004-2010, under its Environment and Natural Resources chapter, has include in its goals and strategies the expansion of the coverage and strengthening the protection of the coastal and marine ecosystem. s

As this project is a model project of integrated environmental conservation management of coastal and watershed ecosystems adopting participatory approach at the time of appraisal as well at the time of ex-post evaluation, this project has been highly relevant with the Philippine government's development plan, therefore its relevance is high.

### **3.1.2 Relevance with the Development Needs of the Philippines**

Both at the time of appraisal and the ex-post evaluation, environmental conservation has been keen issue in *Sarangani Bay- Mt. Matutum* area, and in the *Malalag Bay- Balasiao* River area. There is a possibility that these needs might have been amplified by this time, considering population and industrial growth in both areas. For instance, the population of General Santos City has expanded to 530,000 in 2007. (Average annual population growth rate between 2000 and 2007 is 4.1%.)

Tree plantation and agro-forestry components aim to contribute to the improvement of the livelihood of the local people, most of which are poor in this area. Based on the beneficial surveys, contracted Peoples' Organizations (POs) answered that this project was beneficial to the environmental conservation and improvement of the livelihood of the people. (70 households among 95 households in 10 POs answered positive). Septage Treatment Facilities (STFs) aimed to prevent pollution of the *Malalag Bay* and the *Sarangani Bay* by preventing the inflow of septage to the Bays. Based on the beneficial survey conducted in the municipalities of *Malalag, Alabel* and *Glan*, most of the local people (139 households among 152 households in 3 municipalities) answered that STFs are necessary for environmental conservation of the areas.

Consequently, the project has been highly relevant with the country's development needs, therefore its relevance is high.

### **3.1.3 Relevance with Japan's ODA Policy**

Aid to environmental conservation was raised as a priory area in the former ODA Charter (of 1992). Japanese ODA white paper in 1998 also mentioned that the Philippines needed foreign aid for revitalizing its economy and had a large potential in poverty reduction along with overall economic development, and Japanese government should assist the alleviation

of poverty of the country and raised environmental conservation as a priority area. Environmental conservation projects could get better loan conditions as a priority area (which was also mentioned in the Mid-term ODA Policy formulated in 1999).

Consequently, the project has been highly relevant with the Japan's ODA Policy at the time of appraisal.

This project has been highly relevant with the country's development plan, development needs, as well as Japan's ODA Policy; therefore, its relevance is high.

### 3.2 Efficiency(Rating : b)

(ratings by components: a for tree plantation, agro-forestry, and LAP; b for civil works<sup>1</sup>, *Malalag* water facility, ECPC, and STFs)

#### 3.2.1 Project Outputs

This project consists of several different components such as tree plantation, agro-forestry, civil works (including flood control, water supply facility), STFs, ECPC (Environment Conservation and Protection Center), Livelihood Assistance Program (LAP), and consulting services.

The changes of scope of each component from original plans to actual implementation are summarized as follows in Table 1.

Table 1: Major changes of Output (Planned and Actual)

Items	Planned	Actual (major changes of scope)
Tree plantation, Agro-forestry	(A) Mt. <i>Matutum</i> Protected Landscape- <i>Sarangani</i> Bay Protected Seascape (MMP/SBPS) (1)Enrichment Planting 500ha (2)Rattan Plantation 200ha (3)Reforestation 2000ha (4)Assisted Natural Regeneration 500ha (5)Agroforestry1500ha (6)Riverbank Rehabilitation 800ha (7)Mangrove rehabilitation 200ha	(A) MMP/SBPS (1)(2)(3)(4)As planned (5)1854ha(354ha increase) (6)496ha(304ha decrease) (7)70ha(130ha decrease)
	(B) <i>Mainit-Balasiao</i> River Watershed- <i>Malalag</i> Bay Area (MBRW-MBA) (1)Tree plantation 1500ha (2)Agro-forestry 1760ha (3)Riverbank Rehabilitation 200ha	(B) MBRW-MBA (1)(2)(3)As planned (4)10ha (40ha decrease)

<sup>1</sup> Civil works components are sometimes divided into *Malalag* waterworks (water supply facility) and infrastructure for flood control.

	(4)Mangrove rehabilitation 50ha	
Civil Works	<p>(A) Mt. <i>Matutum</i> Protected Landscape-<i>Sarangani</i> Bay Protected Seascape (MMP/SBPS)</p> <p>(1)Slope Protection 2000m (revetment 4 units, hydraulic drop 3 units, gabion revetment 5 units)</p> <p>(2)Inland Siltation and Mitigation (check dams 11 units)</p> <p>(3)Shoreline Siltation and Erosion Prevention (revetment 1 unit, rubble mound revetment 1 unit)</p> <p>(B) <i>Mainit-Balasio</i> River Watershed-<i>Malalag</i> Bay Area (MBRW-MBA)</p> <p>(1)Water quality monitoring equipment</p> <p>(2)Farm to Market Road – 24 km with 6 m gravel road</p> <p>(3)Water Supply -Water spring development 7 units</p>	<p>(A) MMP/SBPS</p> <p>(1)Almost as planned 1876m (revetment 3 units, hydraulic drop 4 units, gabion revetment 5 units)</p> <p>(2)Almost as planned(check dams 7 units)</p> <p>(3)Almost as planned(revetment 1 unit)</p> <p>(B) MBRW-MBA</p> <p>(1)As planned</p> <p>(2)cancelled</p> <p>(3)Water supply – 450 m<sup>3</sup> ground water reservoir; provision of pumping equipment and pump station; laying of distribution pipes with a total length of 17,426 m.</p>
STFs	Sewage treatment facility(3 STP, 3 sewage pipes, 4 pumping station)	7 septage treatment facilities,8 vacuum trucks
ECPC	Environmental Conservation and Protection Center (construction of center building, laboratory, laboratory equipments)	Almost as planned
LAP	<p>Provision of livelihood assistance grant (total amount 3 million Pesos)</p> <p>(A) MMP/SBPS (protected area) 600 house holds</p> <p>(B) MBRW-MBA (non-protected area) 300 households</p>	<p>(A) MMP/SBPS (protected area) 40 POs, number of beneficiaries 1643 2 million Pesos</p> <p>(B) MBRW-MBA (non-protected area) 20 POs, number of beneficiaries 1782 1 million Pesos</p> <p>Total 60 POs, number of beneficiaries 3425</p>
Consulting services	<p>Total 436M/M</p> <p>Foreign portion : 35M/M,domestic portion : 294.9M/M,</p> <p>Other support staffs : 106M/M</p>	<p>Total 582.8M/M (144% increase)</p> <p>Additional portion:</p> <p>foreign : 13M/M,</p> <p>domestic : 69.27M/M,</p> <p>other supporting staffs : 65M/M</p>

Source: DENR

The biggest change was the change of scope from the set-up of Sewage Treatment Project (STP)<sup>2</sup> in General Santos to seven (7) Septage Treatment Facilities (STFs) in the coastal area. The change was due to the failure of General Santos City to comply with its commitment to provide the land for the STP site, as the bill was rejected by the city

<sup>2</sup> Both STP and STF have the facilities with stabilization pond in which septage is purified by bacteria, but STP is a larger facility with drain pipes and pump station(s) around it, in contrast that STF does not have those facilities. The STP planned in General Santos City was a larger facility which have the same stabilization pond as STF, but have 35 km of drain pipes, and 4 pump stations.

council. Therefore the plan was amended to constructing seven (7) STFs in surrounding municipalities instead of one single STP. This change of scope could be accepted, but this change caused the delay of the construction of the facilities, and the STFs had not been completed at the planned termination period of the project.

There are some other changes in other components as follows:

JICA approved DENR's request to reduce the targets in mangrove and riverbank rehabilitation plantations by 474 hectares (i.e. reduction of 304 hectares from riverbank rehabilitation and 170 hectares from mangroves), and transfer this target to agro-forestry. The request was made due to the low survival rate of mangrove and riverbank plantations, and the reason for increasing the agro-forestry target is the willingness and preference of beneficiaries for agro-forestry. Others are almost as planned.

Regarding the civil works component, due to changes in the actual condition of the site during the time of construction, the original design for the gabions no longer applied and there were some minor changes. The change in design of water supply to one facility (water tank and pumping facility) in *Malalag* reduced the cost of meeting the water demand of *Malalag*. The cancellation of the farm-to-market road was due to the shift in the priority of the Municipality, and the road was already constructed by their own budget.

In the Livelihood Assistance Program, the method of counting the number of target beneficiaries changed from the number of households to the number of POs. In fact, the total number of benefited people is almost the same in both methods of counting, and the total amount of assisting grants is as planned.

The increase of M/M in the component of consulting services was caused by the extension of the termination period from June 2005 to December 2006. This was regarded as necessary for effective implementation of the project. There was no significant change of TOR except STF component.

### **3.2.2 Project Inputs**

#### **3.2.2.1 Project Period**

Project period was 115 months from September 1998 (signed date of LA) to March 2008 (completion of civil engineering work<sup>3</sup>, which was 141% of the planned period of 82 months from September 1998 (signed date of LA) to June 2005 (completion of civil

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<sup>3</sup> The termination period is defined as the time of completion of all civil engineering work.

engineering work<sup>4</sup>, and longer than planned.

The factors that contributed to the overall extension in project implementation are: (i) the late engagement of project consultants due to the delay of concluding MoU (Memorandum of Understanding) between DENR and Local Government Units such as South Davao Province, *Sarangani* Province and South *Cotabato* Province.; (ii) changes in project scope, i.e. *Malalag* waterworks and STP, to respond to actual needs and implementation problems; (iii) delayed procurement of contractors. Also, unfavorable weather condition/flash floods affected the delay of construction of the infrastructure projects.

Major factors of the extension of project period were (i) and (ii). The factor (i) caused 28 months delay, which could have been recovered to some extent because of effective implementation of the project. The factor (ii) caused 33 months delay, which was regarded as an unexpected external factor.

DENR requested JICA one year extension of loan period, because the construction of 7 STFs could not be completed by the planned termination period of January 2007. JICA denied this because the reason of delay proposed by the DENR was not regarded as an appropriate reason for the request of extension of loan period.

### 3.2.2.2 Project Cost

Project cost was 3,181 million Yen (including 2,229 million Yen loan portion), which was 74.53% of planned 4,268million (including 3,201million Yen loan portion), and lower than planned.

Planned budget and actual cost of each component of the project were as follows:

Table 2: Comparison in project cost (Planned and Actual)

Components	Planned	Actual
Tree planting	690 million Yen	314 million Yen
STFs	1,447 million Yen	899 million Yen
ECPC	101 million Yen	106 million Yen
Civil Works	66 million Yen	36 million Yen
Consulting Services	679 million Yen	874 million Yen
reserve	218 million Yen	0

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<sup>4</sup> The termination period is defined as the time of completion of civil engineering work of STF.



Major reasons of the decrease of project costs are (1) the change of exchange rate, (2) the change of project scope from STP to STFs, (3) savings from operational costs etc., among which, (2) was the biggest factor of the decrease.

Although the project period was longer than planned, the project cost was lower than planned; therefore efficiency of the project is fair.

### **3.3 Effectiveness(Rating : a)**

(rating by components: a for agro-forestry, LAP, civil works, *Malalag* water facility and ECPC; b for tree planting and STFs)

#### **3.3.1 Quantitative Effects**

##### **3.3.1.1 Results from Operation and Effect Indicators**

Any clear quantitative operation and effect indicators of the project were not mentioned at the time of appraisal. Therefore, our team tried to elaborate appropriate operation and effect indicators in each component and collect relevant data for them. Those indicators are as follows : survival rate of tree planting, income of POs and households, number of users of STFs.

(1) Tree planting : survival rate of tree and mangrove

The project requested the contacted POs to adhere to more than 80% survival rate of tree and mangrove plantation, as agreed in contracts with POs. Based on the survey of plantation management performance of 12 POs with SMICZMP intervention, conducted in August and September 2009, the actual survival rates in two target areas (Mahogany in the mountain area, Mangrove in the coastal area, etc.) at the time of monitoring are as follows:

MBRW-MBA 12PO(3,114 has) : 75~95%

MMP/SBPS 5PO(380 has) : 60~86%

Average survival rate of the above is 83.7%, which is higher than the minimal target of 80%. The fact that most contracted POs have agro-forestry component as a package and it works as an incentive to continue their activities is considered to be a key factor of the relative high survival rate.



P-1 tree planting in mountain area P-2 mangrove rehabilitation in coastal area

(2) Income generation of POs and household members

The LAP was planned to obtain the following targets:

- (a) the formation of multi-purpose cooperatives
- (b) the conversion of breeding of vegetables (by giving money to buy new seeds and use them for agro-forestry and home garden)
- (c) the distribution of cattle (poultry, goats etc.)

The amount of money given (in 2004) to each PO<sup>5</sup> was 50,000 Pesos, which was planned for the improvement of the livelihood of PO members, and enhance the assets of POs by selling cattle and agricultural products they grew. How to use LAP grant is considered an open menu, depending on the decisions of POs. At the time of appraisal, total amount of LAP grants of 3 million Pesos increased to 4.82 million Pesos in two (2) years (161% increase rate). Some POs used the grant for animal dispersal or cultivation of crops, and other POs used the money for micro lending to the PO members (as shown in BOX 1).

Based on the monitoring survey conducted in 43 POs among total 60 targeted POs in July 2006, total assets of 43 POs have expanded from 2.15 million Pesos to 3.652 million Pesos (170% increase rate).

Our evaluation team conducted a beneficial survey in 17 target POs (total 102 households, 6 households per each PO), which shows that average monthly income of households of target POs increased from 2004 to 2010. (See Table 3)

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<sup>5</sup> The targeted POs which received LAP grants were selected by the method of “first come, first served” basis, among the contracted POs in tree plantation or mangrove plantation.

Table 3: Comparison of average income of contracted POs before and after LAP(Pesos)

	MBRW-MBA		MMPL-SBPS	
	With LAP	Without LAP	With LAP	Without LAP
2004	2,166	2,000	3,800	1,000 – 6,000
2010	3,600	2,500	4,440	1,500 – 8,000

Source: Beneficiary survey

Because the usage of the LAP grant was decided by each POs based on participatory approach, the results likewise vary across POs. The asset of each PO has not always increased but as a total, it has increased more than that of expected. (See BOX 1.)

#### BOX 1 Beneficiary survey to contracted POs

To check the change of assets given by the LAP grant, beneficiary surveys to 12 POs were conducted in August 2010 (Interviews to PO chairman and 6 households in each PO, as a total 72 households).

Based on the interviews to PO chairmen, assets of 50,000 Pesos in 2004 increased to an average of 125,000 Pesos in 2010 in 6POs of MBRW-MBA. In contrast, the assets decreased to an average of 8,000 Pesos in 2010 in 6POs in MMPL-SBPS (as shown in Table 4).

The major reason of the difference between the two areas is considered that many POs in MBRW-MBA used the grant for water system or animal dispersal, but many POs in MMPL-SBPS used the money for micro lending to the PO members, which could not be returned because of poor crops etc. Table 5 shows the usages of LAP grants in contracted POs, based on the interviews.

Table 4: The changes of assets of LAP in contracted POs (Pesos)

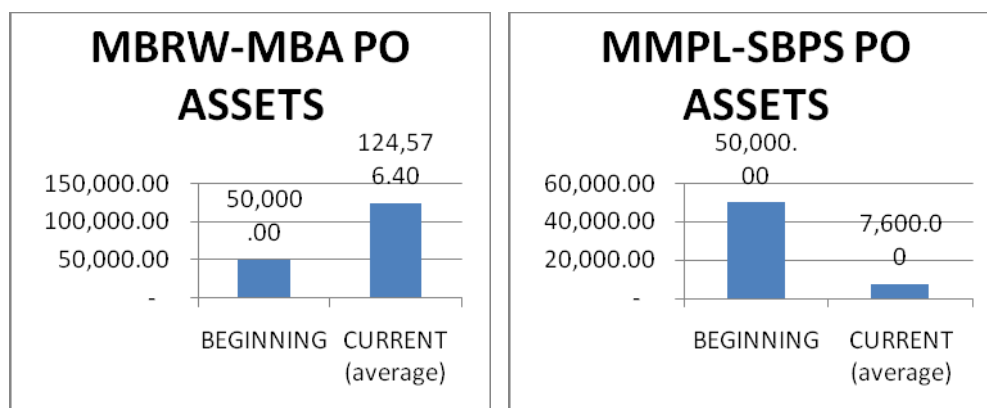
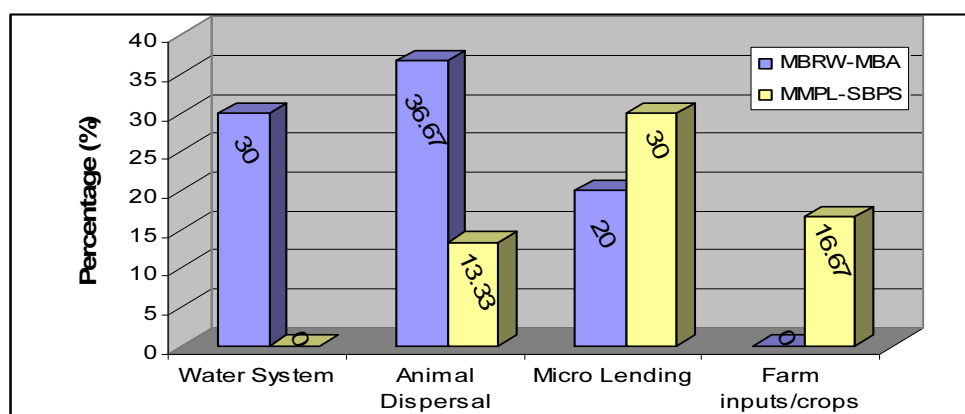


Table 5: The usages of LAP grants to contracted POs



(3) *Malalag* Water Supply: the number of users

The *Malalag* water supply facility was completed in August 2004, and began its operation in January 2005. There was no estimation of future number of users at the time of appraisal. The number of users of water supply in *Malalag* was 521 in January 2005, and 1146 new users (1115 households and 31 organizations) have added to it by the time of evaluation in 2010, which means the number of users has expanded three times after the completion of the facility.

(4) STFs: the number of users of STFs

Based on the F/S conducted in 2004 at the time of scope change from STP to STFs, the expected number of users of each STF in 7 municipalities at the year of 2015 is shown in Table 6.

Table 6: Expected and actual number of users of 7 STFs

	Expected number of users of STF (2004 F/S)	Actual number of STF users(2009)
<i>Alabel</i>	16569(64.4%)	166
<i>Malapatan</i>	6727(34.1%)	115
<i>Kiamba</i>	4706(33.0%)	22
<i>Matium</i>	3619(27.6%)	30
<i>Malalag</i>	5954(60.1%)	16
<i>Glan</i>	6038(20.5%)	Not yet operated
<i>Maasim</i>	5497(32.5%)	Not yet operated
Total	49,110(38.0%)	299

Source: beneficiary survey, % is the share of the STF users among all households in the target areas.

7 STFs were completed by March 2008. At the time of evaluation survey in November 2010, five (5) STFs began their operation but two (2) remained not in operation. The number of users of five (5) STFs at the end of 2009 is shown in Table 6.

As shown in Table 6, the STFs have just begun their operations and the number of users is still small, therefore it is too early to evaluate the effectiveness of the STF component. Our evaluation team conducted the survey for potential use of the STFs in 3 municipalities of *Alabel*, *Malalag* and *Glan*.

Expected number of users at the time of 2015 in the survey conducted in 2004 was overestimated, because the estimate was based on the assumption that most households have desludgable septic tanks, but in reality, only half of households have them. However, the population of 7 municipalities is not small (each has 10,000-20,000 households, 30,000-50,000 people), still the estimated number of potential users remains high.



P-3. STF in *Malalag*



P-4. Building of ECPC

### 3.3.1.2 Results of Calculations of Internal Rates of Return (IRR)

#### (1) Financial Internal Rate of Return (FIRR)

This project has several different components. FIRR can be calculated in some components, such as users' fee of STFs and ECPC, but it cannot be calculated in others, such as tree plantation and civil works for flood control, because the economic benefits of the latter are measured more broadly in terms of better environment, decrease in flood incidence, or overall improvement of people's life. Therefore, due to the nature of the project, the financial internal rate of return (FIRR) was not possible at the time of appraisal and completion of the project.

## (2) Economic Internal Rate of Return (EIRR)

At the time of appraisal, the EIRR was calculated to be 19.7% in Mt. *Matutum* Protected Landscape-*Sarangani* Bay Protected Seascape (MMPL-SBPS) area, and 19.8% in *Mainit-Balasiao* River Watershed-*Malalag* Bay Area (MBRW-MBA). On the other hand, at the time of this ex-post evaluation, it was calculated to be 25% as a total package of the project in PCR (Project Completion Report), but our team examined the EIRR using almost the same assumption as in the PCR, and the EIRR was calculated to be 26.3%. The major reason for the increase in EIRR was brought about by the reduced project investment costs (about 40% reduction from 1,477 million Yen to 899 million Yen) of the 7 septage treatment facilities (STFs), which replaced the General Santos City sewage treatment project (STP)..

In the calculation of the EIRR at the time of this ex-post evaluation, the following figures were used for the project life, costs and benefits: The project life- 25 years; Costs- costs in the construction period including civil works construction, and costs in the operation and management period; Benefits- income from tree planting and agro-forestry, user fees of STF service, user fees of ECPC facility and water quality monitoring equipment etc.

### 3.3.2 Qualitative Effects

This project as a comprehensive environmental conservation project and each component has its own qualitative objectives.

As to the expected qualitative effects in the forestry components, the following two (2) were mentioned: (1) the appropriate use of forest and sustainable management of mangrove area by tree and mangrove plantation and agro-forestry, and; (2) the offer of incentives for sustainable use of forest and land in the area where minority people live in by authorizing their traditional living rights.

Although other qualitative effects in other components were not clearly articulated at the time of appraisal, our evaluation team examined the following qualitative effects of other components of this project, these being, (3) Agro-forestry: income generation of the households of contracted POs, (4) Civil Works: flood prevention in surrounding areas, (5) ECPC: Environmental conservation activities in *Sarangani* Bay area.

In addition, at the time of appraisal, (6) the increase of awareness for environmental conservation in target areas was also mentioned as an overall effect of this project.

The above mentioned six (6) effects will be examined in the following.

(1) Sustainable activities of contracted POs for forestry

This project was designed to make contracts with POs for maintaining the forest even after the tree planting.

Based on the survey conducted in summer of 2009, all of 12 POs continued their activities in maintaining the forest in the *Mainit-Balasiao* River Watershed-*Malalag* Bay Area (MBRW-MBA), and 80-95% of the households of 6 POs continued their activities. In the Mt. *Matutum* Protected Landscape-*Sarangani* Bay Protected Seascape (MMPL-SBPS) area, 18 POs among contracted 20 POs still continued their activities to maintain forest of 885has (41has of Mangrove planting).

The households of the contracted POs are allowed to plant fruit trees even in the protected area, and this becomes the incentive of the POs to continue the maintenance of the forest. In that sense, the incentives to the relatively poor POs in mountainous and coastal areas are very effective tool for sustaining the forest in those areas.

In addition, many contracted POs received Livelihood Assistance Program (LAP) as well. The 50,000 Pesos grant was given to the POs, and this grant contributed to increase the incentives of the households to join into the membership of the cooperatives of the POs. Table 7 shows that average number of households joined into the member of POs differs between the POs with LAP and POs without LAP, and the number has increased in the POs with LAP and decreased in the POs without LAP, based on the beneficiary survey conducted in 12 POs with LAP and 5 POs without LAP.

Table 7: The change of the number of member households of POs with and without LAP

	MBRW-MBA		MMPL-SBPS	
	With LAP	Without LAP	With LAP	Without LAP
2004	79	36	58	60
2010	121	29	84	53

Source: beneficiary survey

(2) Authorizing traditional living rights of the minority as the incentive

Authorizing the traditional living rights of the minority in the contracts with POs for keeping activities for sustaining the forest was designed as incentives for sustainable use of forest and land in the area where minority people live in.

In reality, most POs in the target areas are the POs of the Christian residents who moved into the area. Only a few POs are the POs of Moslems (most of them are minority people), and some are the mix of Christians and Moslems. In that sense, this project has targeted the poor people in the mountainous and coastal areas, but most of them are not always “the minority”. “Authorization of the traditional living rights” was realized as the authorization of using the land in the area of forest contracted to maintain, and this is one of the important incentives to sustain their activities for maintaining the forest.

(3) Agro-forestry: income generation of the households of contracted POs

Fruit trees, such as Mango, Rambutan, Durian etc., have entered into their harvest period, which is already 3-6 years after the planting of those trees. These fruit trees became an important source of income of the households of contracted POs as expected, based on the beneficiary survey conducted by our evaluation team.



P-5. Harvested Durian and other fruits



P-6. Products transported to the market

(4) Civil Works: flood prevention in surrounding areas

Since most of the civil works structures (shoreline and riverbank protection, siltation/erosion control, and infrastructure for bridge protection) are still intact in 3-4 years after the completion, they continue to serve their purposes for flood control, because there has been no flood around there in spite of increase of water in rainy seasons. However, some of riverbank revetments have been losing their function because of accumulation of mud, and some additional repair works (and budget for them) will be necessary in the future to maintain the function of flood prevention.





P-7. Buayan River Mouth gabion revetment



P-8. Silway hydraulic drop

(5) ECPC: Environmental conservation activities in *Sarangani* Bay area

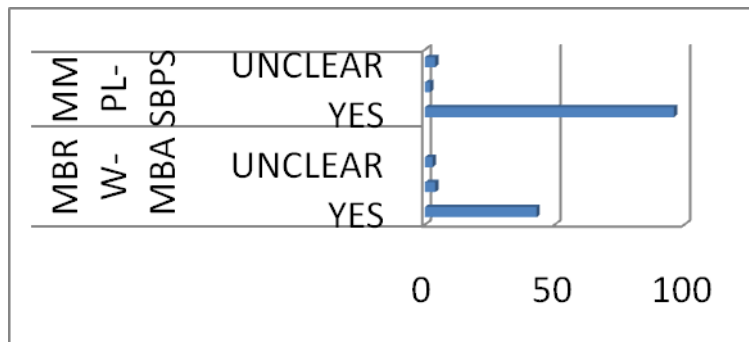
The construction of ECPC was completed in 2003. Thereafter, it was turned over to the Provincial Government of *Sarangani* in October 2006, and began its operation. The ECPC's activities include the following: management and monitoring of the coastal environment, evaluation of level of pollution in the costal areas, research on bio-diversity, accumulation and dissemination of skills for the costal area management, demonstration to residents and promotion of resident participation in environmental conservation activities. As of July, 2010, the ECPC has made contracts of water quality monitoring with 16 executing agencies including surrounding local governments such as *Alabel*, and also generates revenues (around 100,000 Pesos every year) from the visitors/students who avail of the IEC programs of these facilities, both of which are expected to increase in the future.

(6) The increase of awareness for environmental conservation in target areas

It is not easy to judge how much of awareness for environmental conservation has increased in the target areas for reforestation, but as a related evidence, 76 households out of 85 (89%) in the contracted POs answered that their awareness for environmental conservation increased by this project of forestry, based on the beneficiary survey of our team.

In addition, based on our survey to potential users of STFs in 3 municipalities (102 households in *Alabel* and *Glan* in MMPL-SBPS area, and 50 households in *Malalag* in MBRW-MBA area: 152 households in total), 86% of the MBRW-MBA area and 94% of the MMPL-SBPS area answered that STFs are necessary to protect environment of *Malalag* Bay and *Sarangani* Bay, as shown in Table 8.

Table 8: Answers to the question “Is STF useful to protect environment?”



Source: beneficiary survey

Thus, this project has largely achieved its objectives, therefore its effectiveness is high.

### 3.4 Impact

#### 3.4.1 Intended Impacts

At the time of appraisal, the following impacts were expected: (1) to develop the region through the environmental conservation of the coastal and mountainous areas and the sustainable use of natural resources, and; (2) to become a model project to promote comprehensive environment conservation in other areas of the Philippines.

##### (1) Regional development through the sustainable use of natural resources

At the time of appraisal, it was expected that livelihood of local residents, including women and children, would improve through the grant of the livelihood assistance program, income from agro-forestry and cutting trees, the increase of fish catch by mangrove planting, water supply improvement, etc.

As already mentioned above, LAP and agro-forestry have contributed to the increase of average income of the contracted POs.

As of 2010, there is no income from planted trees because those trees were planted in 2004-2007 and cutting trees is possible in 7-8 years after the plantation. The income from tree planting (25-50 Pesos per tree) has contributed to the increase of income of PO members, but it was limited at the time of planting according to the interviews with beneficiaries.

The increase in fish catch because of the mangrove plantation became noticeable, according to the interviews with coastal POs.

The GDP and amount of exports in Region 11 (Davao) and Region 12 (South and Central Mindanao) have been expanding for the last 10 years, as showed in Table 9. However, it is very difficult to quantify the degree of contribution of the project to the economic development because this project focused on the increased income of the people of specifically targeted areas. The factors that contributed to the economic development in the south Mindanao area as a whole are supposed to be improvement in other internal and external factors including: (1) relatively stable situations after the peace agreement in 1996, and; (2) increase of export caused by the rapid economic growth of Asian economies, especially China.

Table 9: Major Economic Indicators in South Mindanao (region 11 and 12)

	Region 11(Davao)		Region 12(South Central Mindanao)	
	GDP growth rate(%)	Amount of Export (million US\$)	GDP growth rate(%)	Amount of Export (million US\$)
1998	32.8	697	3.0	164
1999	13.2	648	11.0	86
2000	0.2	724	10.3	105
2001	4.4	723	7.5	101
2002	n.a.	519	n.a.	239
2003	9.8	585	9.7	279
2004	15.8	658	15.1	266
2005	11.5	751	8.7	250
2006	9.8	779	11.8	305
2007	12.2	825	13.4	456
2008	14.0	1,137	13.3	800

Source: Mindanao Development Statistics 2008

GDP: at current prices, Amount of Export: FOB (Freight on Board) value

(2) A Model of comprehensive environmental conservation project

After the completion of this project, according to DENR's explanation, it has attempted to formulate participatory forest management projects, which include measures to promote residential livelihood, in 3 areas, namely, Upper *Magnat* and *Cagayan* River Basin, Pampanga River Basin, and *Jalaur* River Basin. This new project is to implement sustainable forestry management by incorporating the factors of organizing POs, Agro-forestry assistance and the establishment of Watershed Management Board in 3 areas that were not covered in SMICZM. This new project adopts a similar project framework of the forestry component of the project; therefore it builds upon experiences of the project.

However, the components of the above mentioned project are limited to forest management, not including STFs and water supply. As its background, the DENR decided that the forest management component should be separated from water supply and sewage components,

and SMICZM is the only one case that included both components.

### **3.4.2 Other impacts**

#### **(1) Positive impacts on the natural environment**

This project is a comprehensive environment conservation project that aimed to conserve and rehabilitate the natural resources in mountainous and coastal areas, and expected to make positive impacts on the natural environment.

At the time of appraisal, baseline data of water quality was not prepared, but the ECPC has started gathering the data. Nevertheless, it is very difficult to verify how much this project has contributed to the improvement of water quality of the *Malalag* and *Sarangani* Bay because the change of water quality is caused by many factors.

Based on the interviews and beneficiary surveys with contracted POs, we received answers such as “Green has increased surrounding us,” “Landslides have decreased,” and “Villages are protected by mangrove.”

#### **(2) Negative impacts on the natural environment**

The implementation of Environment Impact Assessment (EIA) is necessary to get an Environment Compliance Certificate (ECC). For the implementation of the project, EIA was conducted, and ECC was issued consequently in February 1998, for the components of forestry, civil works, STP, ECPC etc.

The projects had almost no negative impacts on the environment. In particular, no or very limited, if any, impacts were observed: on bio-systems and agriculture by forestry; on water and land quality, natural environment for animals and plantations, and landscapes by infrastructure development; and on natural environment by sewage treatment in STFs.

#### **(3) Land Acquisition and Resettlement**

With respect to the construction of STP in General Santos City, acquisition of 6 ha. land and small-scale resettlement of 23 households were expected by the end of 1998 based on the original plan. However, the STP was not constructed, and there was no land acquisition and resettlement of the residents. The reason for the change of the plan was the denial of the provision of land for the STP in the city council of the General Santos City.

After the change of scope, STFs were constructed in publicly-owned land, of the seven (7) municipalities, where no resettlement of the residents was needed, and there was no

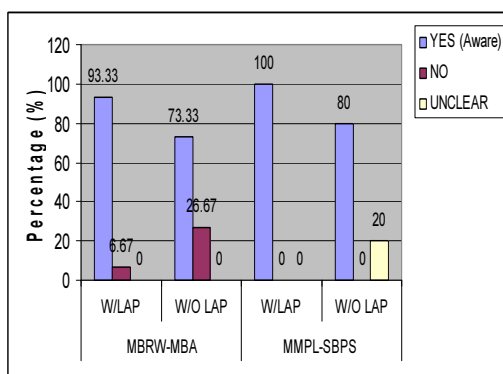
objections from the people in the surrounding areas.

**BOX 2: Perceptions of SMICZMP as a JICA assisted project**

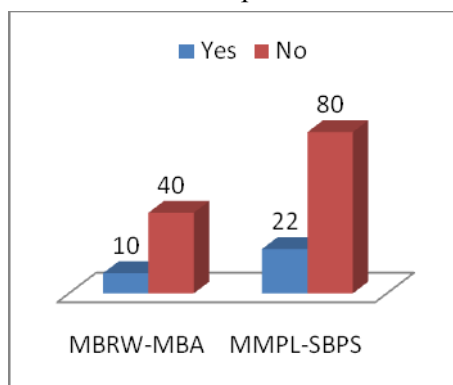
The perceptions by the people of the SMICZMP are different and contrasting for the components of forestry and LAP, which have already been finished, and the component of STFs, which has just begun their operations. Table 10 shows the results of the beneficiary surveys conducted for 17 POs that were supported by forestry and agro-forestry components, and in 3 municipalities with STFs. The results show that the project of forestry and agro-forestry is well recognized by the people as a JICA supported project while STFs is not well recognized as such.

**Table 10: The answers to the question  
“Do you know this project was supported by JICA?”**

**Forestry, Agro-forestry and LAP**



**STFs in 3 municipalities**



Source: interviews to 102 households in 17 contracted POs Source:152 Households in 3municipalities

Thus, as this project originally aimed at environmental conservation, it has, in fact, largely achieved its expected impacts. On the other hand, no unexpected negative impacts or extraordinary positive impacts have been observed.

**3.5 Sustainability (Rating: b)**

(ratings by components: a for agro-forestry and *Malalag* water facility; b for forestry, LAP, civil works, ECPC, and STFs)

**3.5.1 Structural Aspects of Operation and Maintenance**

This project was a pilot project of comprehensive environmental conservation and livelihood promotion through an integrated ecosystems management approach under

partnership among DENR, LGUs, NGOs, POs and other stakeholders.

In addition, several institutional frameworks were established to strengthen the sustainability of the project. For instance, Protected Areas Superintendent was established in both areas of MBRW-MBA and MMPL-SBPS, to make the basic policy directions of environment and natural resources conservation. In the MMPL-SBPS area, Protected Area Management Board was also established. The division of labor of the responsibilities among these institutions is, however, complicated and some duplications of authorities can also be observed. As a whole, participatory and transparent policy processes among several different stakeholders have been progressing, but these do not comprise an effective decision making system. Specific policy process in each component is made at more local framework and it depends on each component as follows.

(1) Forestry, Agro-forestry, and LAP

At the time of appraisal, maintenance of the forests was supposed to be managed by the POs based on the contracts that DENR and POs conclude after the end of forestation activities. The long-term contract with POs on the forestry management is effective as an institutional arrangement to persistently ensure the survival rates of the forestry. In particular, the package of agro-forestry component in the contract has served as an effective incentive to continue their activities.

As to the mangrove plantation, however, the incentive to manage them is not so strong because surrounding coastal fishermen can get free-ride benefits from the increase of fish caused by mangrove plantation, and the contracted POs have complaints about the cost they pay for the maintenance. This leads to the decrease in mangrove rehabilitation area, and the relatively low survival rate of mangrove plantation.

There are specific units in charge of monitoring and management of the forestation and agro-forestry component in Region 11 and 12. Those in charge in Region 11, where the MBRW-MBA area is located, are the Forest Management Sector (FMS), the PENRO of Davao del Sur, and CENRO of *Malalag* while those in charge in Region 12, where the MMPL-SBPS area is located, are the PAWCZM (Protected Area/Watershed Coastal Zone Management) sector and the Protected Areas Superintendents of Mt. *Matutum* and *Sarangani* Bay protected areas.

As to the LAP, the targeted POs which received the grant are responsible for management of this grant as an asset of the POs.

(2) Civil Works (flood control, *Malalag* Water Supply facility) and ECPC

At the time of appraisal, the facilities developed by civil works and ECPC built in this project were supposed to be turned over to the local government units (LGUs), including the provincial governments of South *Cotabato* and *Sarangani*, and the municipal government of *Malalag* for operation and maintenance after the conclusion of MoUs (Memorandum of Understandings) between these LGUs and DENR. At the time of evaluation, the MoUs were already concluded and responsibilities of management and operation have already been transferred to those LGUs, which already built up necessary organization for fulfilling their responsibilities.

The *Malalag* water facility is managed by the *Malalag* municipal government with 5 staff members, who deal with incidents such as the power failure and water leakage etc. Also, the *Malalag* municipal government manages the facility by its own budget, and obtains revenues from user fees.

With regard to the ECPC, the provincial government of *Sarangani* is responsible for operation and maintenance of the center as well as formulation of policies related to it. The provincial government also provides necessary staff and budget for the ECPC. In addition, DENR is ready to extend coordination and support to the center and surrounding LGUs.

(3) 7 STFs

Although there was a change of scope from STP to 7 STFs, no change was seen for arrangement of operation and maintenance from the original plan; that is, the facilities developed by civil works in this project were supposed to be turned over to the local government units (LGUs) for operation and maintenance after the conclusion of MoUs (Memorandum of Understandings) between these LGUs and DENR. Around 3 months after the completion of the facilities, they were transferred to 6 municipalities, namely, *Malalag*, *Alabel*, *Malapatan*, *Kiamba*, *Matium* and *Maasim*; however, the turnover of 1 STF in *Glan* was delayed. Now, the process in order to hand over the STF to *Glan* is in progress<sup>6</sup>. In addition, the Regional Offices of Environment Management Board (EMB) are providing technical assistance to the LGUs for operation of the STFs.

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<sup>6</sup> The former mayor of the *Glan* municipality upheld a policy not to accept the transfer. The new mayor who was elected in May, 2010, however, changed this policy, and the process for the transfer is currently in progress.

In this project, the assistance to enhance the capacity of management of municipalities after the transfer of STFs to them was not enough, but USAID's EcoGov project continues to provide technical assistance to the municipalities in *Sarangani* province, General Santos City, and *Malalag*, particularly in wastewater and solid waste management. A more recent project funded by the World Bank and Canadian International Development Agency (CIDA), the Sustainable Sanitation in East Asia, is likewise providing technical assistance to the municipalities of *Sarangani* Bay. The both projects are assisting the municipalities for strengthening their organization and improving capacities in order to make the STFs funded by SMICZMP operational.

Thus, various kinds of assistance for strengthening organization and capacities for operation and maintenance of facilities have been extended; therefore, no problem is observed with respect to the structural and organizational sustainability of operation and maintenance.

### **3.5.2 Technical Aspects of Operation and Maintenance**

As to agro-forestry, there were some cases in which Mango trees were lost because of diseases, and the POs lacked the necessary knowledge on how to deal with those diseases. In light of such cases, there is demand from POs for training and technical transfer to deal with this problem, and DENR has held seminars to transfer knowhow to deal with these technical issues as necessary. With regard to forestation and water management infrastructure, DENR is also ready to extend technical support as necessary; however, no major problem has occurred.

As to the *Malalag* water facility, the technical members of the municipality manage daily operation and repair work, and there has been no major problem.

As to the STFs, each municipality maintains and operates its own facility. Maintenance of facilities itself, in fact, does not require very high technical knowledge; however, knowledge of management and marketing for expanding the number of users is a key for sustainability. With regard to capacity development for such management and marketing, other projects implemented by JICA and other donors such as USAID and the World Bank have provided technical assistance for strengthening such capacities, and it is expected that the knowledge of operation and maintenance be shared among the municipalities.

For instance, JICA implemented the technical assistance project for "Capacity



Development for Water Quality Management” to General Santos City and other areas for 5 years from January 2006. In the project JICA provided assistance for improving water quality, including that of making a action plan for water quality improvement centered on EMB (Environment Management Board). Thus, with regard to operation and maintenance of the STFs, although technical levels are not sufficient at the time of evaluation, the above-mentioned assistance activities have been implemented in order to upgrade their capacities; therefore, no major problem is observed in terms of technical aspects of sustainability.

With regard to the ECPC, there is need for improving technical levels of staff and developing human resources. At the time of evaluation, the EcoGov project by USAID partially provided capacity development assistance to deal with such needs, and there is strong demand for further assistance from JICA in the future.

### **3.5.3 Financial Aspects of Operation and Maintenance**

In this project, there are different financial situations by different components as explained in the following.

#### **(1) Tree Plantation and Argo-forestry**

At the time of appraisal, operation and maintenance work for forestry including buying young plants was supposed to be implemented by local POs after concluding the plantation agreement with DENR. With respect to financial management of forestry activities by POs, it was planned that it would be sustained through revenues generated from handling charges for planting, sales revenue of fruits in agro-forestry, and revenues arising from lumbering and sales.

According to the agreement for management of planting and forestry, planting revenues belong to POs in the project period while expenses for operation and maintenance including expenses to procuring additional young plants would continue to be covered by POs. In this point, households of contracted POs are highly motivated to participate in forestation activities because the sales of fruit harvests, which was included in the package of agro-forestry, bring profits to them. However, the expenses for operation and maintenance of forest are a financial burden for POs, and funding such expenses continue to be an issue for them, In addition, with respect to the financial management of mangrove plantation in the coastal area, it is difficult to package it with agro-forestry activities; therefore, the plantation of mangrove does not provide a motivation for contracted POs to implement further plantation and maintenance due to additional expenses.

Long term contracts with POs are the institutional arrangements needed to maintain the forestation activities. Sales revenue generated from agro-forestry, however, will not be sufficient enough to sustain the plantation; therefore, DENR has been subsidizing the POs by providing three million pesos annually from "sustainability fund" since 2008 for compensating the financial shortage. Nevertheless, the amount of subsidy is assumed to make up only one-third of the estimated necessary expenses (about nine million Pesos).

(2) Livelihood Assistance Program (LAP)

Local subsidies of 3 million pesos in total for improving livelihood of households of 60 POs (50,000 pesos per PO) has been granted by the Philippine government, as planned. At the time of appraisal, the subsidized asset of 3 million pesos was expected to increase to around 4.82 million pesos in 2 years (growth rate of 161%); in fact, actual performance was better than planned so far.

The management of subsidized funds has been entrusted to POs, which have had almost no problem encountered thus far. Some POs are very careful and successful in maintaining financial balance in revenues and expenses, for instance, by collecting fees for the use of power supply from generators and that of water supply from well. However, some POs are facing the problem of decrease in assets caused by bad loans in micro financing to PO members.

The subsidies by the Philippine government under the LAP component in this project were provided only once for each PO; however, there have been observed some cases in which similar grants were extended in other projects by other Philippine central government departments (e.g. Department of Agriculture, Department of Agrarian Reform, Department of Labor and Employment) and other donors<sup>7</sup>.

(3) Water supply facility in *Malalag*

At the time of appraisal, the Philippine government had a plan to extend the sub loan from the project to cover the construction expenses of the water supply facility, and that the *Malalag* municipal government makes a repayment, as it operates and maintains the facility.

At the time of evaluation, the *Malalag* municipality has been making the repayment based

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<sup>7</sup> USAID, AusAID, and the World Bank have implemented anti-poverty projects and Dole (large US foreign investor in the region) has provided assistance POs in its surrounding agricultural villages.

on amortization schedule, and no particular financial problem has been observed. Also, expenses for fixing any operational malfunctions of the facility have been covered by the budget of the municipality. According to the financial status report of the municipality for 2009, 1.546 million pesos for repayment and 2.479 million pesos for maintenance (4.025 million Pesos in total) are fully compensated by 5.195 million pesos from the revenue of water supply.

(4) Environment Conservation and Protection Center (ECPC)

Almost all costs related to operation and maintenance of the ECPC, amounting to around 5 million pesos, have been compensated by annual subsidies from the provincial government of *Sarangani*. In addition, some revenues have been generated from admission fees for educational tours, rental fees of laboratory, inspection charges of water quality, etc. The revenues in 2006 were placed at 300,000 pesos while annual revenues after 2007 have been about 100,000 pesos. In the mid-term, the center is trying to cover whole expenses for operation and maintenance although the subsidy from the provincial government is currently still needed.

(5) Civil works for flood control

The infrastructure in riverbanks that handles accumulated mud and sand needs continuous repair work and management, and requires additional money. At the time of appraisal, the municipal governments of *Cotabato* and *Sarangani* were supposed to take charge of paying the expenses for the maintenance as these local governments were responsible to operate and maintain the facility after the project completed.

DENR estimated that an annual budget of 750,000 pesos for the maintenance work would be necessary at the time of project completion. However, actual data of the budget for operation and maintenance of the local governments were not available at the time of evaluation.

(6) Septage Treatment Facilities (STFs)

The ownerships of the STFs were transferred to the municipal governments after the completion of the project. And, the financial responsibilities of operation and maintenance are supposed to have been transferred to the local governments as they generate revenues from user fees. However, because of the delay of construction, many of the facilities have just started their operation, which resulted in revenue shortfall at the time of evaluation. Nevertheless, it is expected that when full utilization is realized, operation and maintenance will be financed by user fees with no problem.

As of the end of 2009, the STFs have not been profitable yet as indicated in Table 6. To achieve financial soundness, individual STF has to cover the expenses of about 350,000 pesos for operation and maintenance annually, according to the interviews during evaluation work. The municipality of *Alabel* made a detailed financial projection of costs and benefit of the STF after it took over the ownership of the facility. Their estimate shows that the necessary maintenance budget including vacuum vehicles is around 2.1 million pesos annually. The expenses are currently covered by the municipal budget.

Some municipalities, such as *Glan* and *Massim*, are facing the problem of the remoteness of their facilities' location from the center of the town. They need additional expenses for paving access roads, which were not originally earmarked in the project component. In the case of *Massim*, the expense is estimated at about 5 million pesos, and the construction work has not commenced due to budgetary constraints, which limits smooth traffic of a vacuuming car and is a bottleneck for expanding STF users.

In short, individual project components have developed structures in which POs, LGUs (Provincial governments and municipalities), and other relevant actors are responsible for financial sustainability of operation and maintenance. More specifically, contracted POs are the responsible entities for the management of forestation, agro-forestry and LAP activities. LGUs are responsible for water supply, infrastructure for flood prevention and STFs. ECPC is charged with itself and the provincial government. All portions of the project except *Malalag* water supply, however, are facing financial shortage, and there remains a challenge in terms of financial sustainability at the time of evaluation.

#### **3.5.4 Current Status of Operation and Maintenance**

With regard to plantation activities, contracted POs are realizing more than 80% of survival rate of plants as already mentioned although the survival rate of Mangrove in the coastal area is lower than that of forest in the mountain area.

As for infrastructure for flood prevention (river, riverbank, seashore), 8 sites out of 12 sites continue to function well. The remaining 4 sites (gabion revetment) are buried and/or broken by annual seasonal floods. These problems were already anticipated at the time of appraisal, and cannot be attributable to poor maintenance.

The *Malalag* water supply facility has started its operation and continues to operate without any problems. The construction of the ECPC building was completed in 2006, and the expansion of the facilities were done by the *Sarangani* provincial government's

own funding and finished in 2010.

5 STFs have just started their operations while the remaining 2 STFs have not. The facilities themselves, however, do not have any problems for all the STFs including those that are not operational.

In sum, the constructed facilities and procured equipments under the project are properly maintained without major serious problems.

Some problems have been observed in terms of financial aspects of some components except agro-forestry and water supply; therefore sustainability of the project is fair.

**4. Conclusion, Lessons Learned and Recommendations**

**4.1 Conclusion**

As this project consists of many different components, the results of the evaluation rating differ depending on the components. The following table shows the results of the rating of each category of each component. However, the evaluation rating of this project should be judged as a whole because this project is a comprehensive environmental conservation project, and overall rating was decided based on the average rating of all components of the project without Relevance—given only overall evaluation. Among these components, it is too early to judge the effectiveness of the STFs, as already mentioned above, but our team made our tentative evaluation rating.

Table 11: Results of ratings of each component

	relevance	efficiency	effectiveness	sustainability
Forestry/ tree-planting	/	a	b	b
Agro-forestry		a	a	a
LAP		a	a	b
Civil works (flood control)		b	a	b
Malalag water facility		b	a	a
ECPC		b	a	b
STFs		b	b	b
Overall rating		a	b	a

Overall rating of this project is high in its relevance and effectiveness, fair in its sustainability and efficiency.

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

## **4.2 Recommendations**

### **4.2.1 Recommendations for the executing agencies**

(1) In the component of civil works for flood control, riverside revetments have been gradually diminishing its function because of mud accumulation after the completion of the project. Under such circumstances, it is highly probable that flooding may reoccur unless necessary maintenance measures are properly taken with appropriate budget allocations. As for this component, both DENR and local government units should continuously secure budgets for maintenance, operation, and repair of the facilities.

(2) Construction of seven STFs in the projects financed by Japan and the Philippines was completed by March 2008. Only five of the above facilities have been just started to be operated, and the number of users remains small at this time. Therefore, it is important that the executing agencies make further marketing efforts for obtaining more facility users.

(3) The scope amendment from STP to STFs has resulted in the delays in the completion of STFs; it is only after November 2007 that five of them have just commenced the operations. Therefore, assessing effectiveness of the STF component at this time may be too early. For that reason, DENR and other executing agencies should continuously monitor the facilities' operation and maintenance indicators.

### **4.2.2 Recommendations for JICA**

None

## **4.3 Lessons Learned**

(1) The components of forestry, agro-forestry, and LAP were implemented even in the communities in less accessible remote areas, and the STFs were constructed and operated even in the municipalities in the area of unstable security situations, such as *Sarangani* coast. Nevertheless, these projects have been effectively managed and have contributed to economic and social improvements of the communities. Therefore, it is highly possible and meaningful to consider executing this type of projects even in places like Central and Western Mindanao, where the security situations cannot allow to implement projects easily, with certain level of stability and strong communities' will.

(2) The Scope changes from STP to STFs as well as the delay of the turnover of STF to the municipality of *Glan* are derived from the local political movement. Therefore, in order to avoid having situations where local politics hinder effective implementation and

appropriate management of projects, it is necessary to obtain adequate consensus towards the projects, to carry out suitable stakeholder analysis prior to the implementation, and to perform project planning based on the result of the above analysis.

**Comparison of the Original and Actual Scope of the project**

Items	Planned	Actual
<p><u>1.Project Outputs</u></p>	<p>(1) Tree plantation, Agro-forestry            (A) Mt. <i>Matutum</i> Protected Landscape-<i>Sarangani</i> Bay Protected Seascape (MMP/SBPS)            (a)Enrichment Planting 500ha            (b)Rattan Plantation 200ha            (c)Reforestation 2000ha            (d)Assisted Natural Regeneration 500ha            (e)Agroforestry1500ha            (f)Riverbank Rehabilitation 800ha            (g)Mangrove rehabilitation 200ha</p> <p>(B) <i>Mainit-Balasio</i> River Watershed-<i>Malalag</i> Bay Area (MBRW-MBA)            (a)Tree plantation 1500ha            (b)Agro-forestry 1760ha            (c)Riverbank Rehabilitation 200ha            (d)Mangrove rehabilitation 50ha</p> <p>(2) Civil Works            (A) Mt. <i>Matutum</i> Protected Landscape-<i>Sarangani</i> Bay Protected Seascape (MMP/SBPS)            (a)Slope Protection 2000m (revetment 4 units, hydraulic drop 3 units, gabion revetment 5 units)            (b)Inland Siltation and Mitigation (check dams 11 units)            (c)Shoreline Siltation and Erosion Prevention (revetment 1 unit, rubble mound revetment 1 unit)</p> <p>(B) <i>Mainit-Balasio</i> River Watershed-<i>Malalag</i> Bay Area (MBRW-MBA)            (a)Water quality monitoring equipment            (b)Farm to Market Road— 24 km with 6 m gravel road            (c)Water Supply -Water spring development 7 units</p> <p>(3) STFs            Sewage treatment facility(3 STP, 3 sewage pipes,4 pumping station)</p> <p>(4) ECPC            Environmental Conservation and Protection Center (construction of center building, laboratory, laboratory equipments)</p> <p>(5) LAP            Provision of livelihood assistance grant (total amount 3 million Pesos)            (A) MMP/SBPS (protected area)            600 house holds</p>	<p>(1) Tree plantation, Agro-forestry            (A) MMP/SBPS            (a)(b)(c)(d)As planned</p> <p>(e)1854ha(354ha increase)            (f)496ha(304ha decrease)            (g)70ha(130ha decrease)</p> <p>(B) MBRW-MBA            (a)(b)(c)As planned</p> <p>(d)10ha (40ha decrease)</p> <p>(2) Civil Works            (A) MMP/SBPS</p> <p>(a)Almost as planned 1876m (revetment 3 units, hydraulic drop 4 units, gabion revetment 5 units)            (b)Almost as planned(check dams 7 units)            (c)Almost as planned(revetment 1 unit)</p> <p>(B) MBRW-MBA            (a)As planned            (b)cancelled            (c)Water supply — construction of 450 cu.m. concrete ground water reservoir; provision of pumping equipment and pump station; laying of distribution pipes with a total length of 17,426</p> <p>(3) STFs            7 septage treatment facilities,8 vacuum trucks</p> <p>(4) ECPC            Almost as planned</p> <p>(5) LAP            (A) MMP/SBPS (protected area)            40 POs, number of beneficiaries 1643</p>



	<p>(B) MBRW-MBA (non-protected area) 300 households</p> <p>(6) Consulting services Total 436M/M Foreign portion : 35M/M, Domestic portion : 294.9M/M, Others : 106M/M</p> <p>Project Management (project planning and management, project supervision, capacity building and support service for livelihood support), Civil Works, ECPC, STP, etc.</p>	<p>2 million Pesos (B) MBRW-MBA (non-protected area) 20 POs, number of beneficiaries 1782 1 million Pesos Total 60 POs, number of beneficiaries 3425</p> <p>(6) Consulting services Total 582.8M/M (144% increase) Additional portion: Foreign : 13.00M/M, Domestic : 69.27M/M, Others : 65.00M/M</p> <p>no major changes except STF portion</p>
<u>2. Project Period</u>	September 1998 – June 2005 (82 months)	September 1998 – March 2008 (115 months)
<u>3. Project Cost</u>		
Foreign currency	1,734 million yen	2,197 million yen
Local currency	2,534 million yen (724 million pesos)	984 million yen (338 million pesos)
Total	4,268 million yen	3,181 million yen
(Japanese ODA loan portion)	3,201 million yen	2,229 million yen
Exchange rate	1 peso = 3.5 yen (As of September 1998)	1 peso = 2.91 yen (Average between September 1998 and December 2006)

### **Third Party Opinion on**

#### **“Southern Mindanao Integrated Coastal Zone Management Project” (SMICZMP)**

**Dr. Danilo C. Israel, Research Fellow  
Philippine Institute for Development Studies**

The Project was highly desirable given the rapid deforestation in the target areas. Furthermore, Integrated Coastal Zone Management (ICZM) is a well-proven holistic approach that can lead to better environmental protection and sustainable development in suitable sites.

Given the achievement of most of its objectives, the project was fairly efficient as the completion was delayed. The project period was extended from 82 months to 115 months. Among the reasons for the delay were the late engagement of project consultants and changes in project scope which could have been avoided with better planning and organization. A major change in scope from the set-up of Sewage Treatment Project (STP) in General Santos City to seven Septage Treatment Facilities (STFs) would not have happened if they were with early coordination with the local governments. The project is commendable in that it completed all its revised physical targets. On the other hand, of the seven STFs, two were not in operation. Furthermore, the number of their users was small although the potential users were large. Other positive but long-term impacts may be forthcoming beyond the lifetime of the project.

Like many other development projects that are eventually turned over to executing agencies and/or local governments after project completion, sustainability of the project depends on the financial capability, political will, and other positive factors on the part of the receiving party.

The project has provided good results in terms of the efficiency and effectiveness of ICZM as a management approach in Southern Mindanao.