

Ex-Post Monitoring of Completed ODA Loan Project

Philippines

Special Economic Zones Environment Management Project

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1. Project Description



Project Location



Aerator (Mactan)

1.1 Project Objective

The project’s objectives are as follows: (a) to establish sewage treatment plants (STP) and treated wastewater reuse facilities in the Special Economic Zones (ECOZONES) of Mactan, Baguio City, Bataan and Cavite, and (b) to strengthen the PEZA’s capability in the planning, regulation, enforcement, and environmental monitoring of the ECOZONES to promote pollution control, to improve public wellbeing in the neighboring areas, and to promote investments in the Philippines.

1.2 Outline of the Loan Agreement

Approved Amount / Disbursed Amount	2,746 million yen / 534 million yen
Loan Agreement Signing Date / Final Disbursement Date	March 1997 / July 2005
Ex-post Evaluation	2007-2008
Executing Agency	PEZA (Guarantor: Government of the Philippines)
Main Contractor	-
Main Consultant	Pacific Consultants International (Japan), TCGI Engineers (Philippines) (JV)

1.3 Background of Ex-post Monitoring

In 1995, the Philippine government enacted into law Republic Act no. 7916 otherwise known as the Special Economic Zone Act of 1995 and developmentally restructured the Export Processing Zone Authority (EPZA) to establish the Philippine Economic Zone Authority (PEZA). The PEZA manages and operates four (4) public Special Economic Zone (ECOZONES) namely Mactan Economic Zone (MEZ), Cavite Economic Zone (CEZ), Baguio City Economic Zone (BCEZ) and Bataan Economic Zone (BEZ), now Freeport Area of Bataan (FAB). In the ECOZONES, preferential treatment for investments, and provision of improved infrastructure and services were offered to attract business enterprises. As a result MEZ, CEZ and BCEZ were filled to their capacity. As investments grew in the ECOZONES, the amount of wastewater and solid waste was expected to increase, and there was urgent need to prevent pollution in the ECOZONES. Therefore, the construction and rehabilitation of sewage treatment facilities were implemented in the four ECOZONES directly managed by the PEZA.

Although Sewage Treatment Plant (STP) and Wastewater Reuse Facility (WRF) were installed, the amount of treated water and their operation / utilization rate was low at the time of ex-post evaluation, and the effectiveness of the project was limited. Further, the ex-post evaluation report indicated that some areas within Mactan needed repair and/or rehabilitation of the existing sewage collection system. In Bataan, besides the low locator filling rate, the necessity for construction and/or renovation of the existing sewage collection system were indicated. In addition, environmental audit/monitoring, and management and maintenance of the STP and the WRF were outsourced to private entities. However, at the time of ex-post evaluation, the PEZA had not outsourced its operations in Bataan, and it continued hiring private engineers and supervising the operations by itself.

In this context, this project was selected for ex-post monitoring, while placing an emphasis on the analysis of the operation / utilization rate, number of locators and the situations of the investment in the ECOZONES, the external monitoring consultants reviewed the findings from the field survey and those of other research activities, and deducted a final conclusion.

2. Outline of the Monitoring Study

2.1 Duration of Monitoring Study

Duration of the Study: September 2012 – June 2013

Duration of the Field Study: November 27, 2012 – December 6, 2012

3. Monitoring Results

3.1 Effectiveness

3.1.1 Quantitative Effects

3.1.1.1 Results from Operation and Effect Indicators

(1) Sewage Treatment Plant (STP) Operation

Since 2007, the volume of treated sewage and the operation rate of the STP have continued to increase (Table 1). However, considering the occupancy rate of ECOZONES in Mactan and Baguio City, which is near 100%, operation / utilization rate for the STP remains low. According to the PEZA, one of the reasons for low operation / utilization rate is due to the overly ambitious prediction of the sewage volume at the time of planning for the construction of the STP. The initial plan assumed the locating companies to be water-intensive manufacturing industries. However, due to the changes in the business environment in the recent years, ECOZONES saw an increase in locators of non-water-intensive industries such as telecommunications service. Further, many locators installed their own STPs in order to fulfill the requirement for the ISO14001 designation. These are believed to have led to the sustained low level of the STP's operation / utilization rate.

Furthermore, as indicated at the time of ex-post evaluation, insufficiency of the improvement in installation of sewage pipeline network is also a factor in the STP's low operation rate. Sewage pipelines in the ECOZONES require large-scale repairs, but due to budget restraints, the PEZA is implementing such repairs gradually. The PEZA has already started the procurement for Phase 1 (Repair and Rehabilitation of MEZ Drainage and Sewage Collection System Project). PHP 79 Million have been earmarked for Phase 1 and the PEZA plans to complete this project in 2014. Since these repairs are planned to span several years, their impact on the improvement in the STP's operation rate is not yet noticeable.

Table 1. Volume of Treated Sewage (Operation / Utilization Rate) in the ECOZONES
(unit: m³/day)

		Mactan	Baguio	Bataan	Cavite*
Installed Capacity		4,700	1,500	15,500	-
Treated Volume (Operation Rate)	2009	1,400 (30%)	-	1,100 (7%)	-
	2011	1,713 (36.5%)	495 (33.0%)	1,112 (7.2%)	-

Source: PEZA/AFAB

*Data for CEZ was not collected since it did not take part in the project.. The same applies to the rest of this report.

(2) Water Quality of Treated Sewage

The PEZA has made protection of environment one of its main objectives, and has implemented a strict effluent control. Each ECOZONE has its own standards for effluent wastewater in accordance

with Department of Environment and Natural Resources (DENR) classifications. The project's initial objective to improve environmental management has been attained and maintained, as the effluent's BOD, COD, and SS values, which are indicators for water quality, are below the standard value (Table 2).

In 2010, Bataan ECOZONE has changed from Special Economic Zone to a Freeport Area, and jurisdiction of Bataan Special Economic Zone has been transferred from the PEZA to the Authority of Freeport Area of Bataan (AFAB). At the FAB, the effluent water quality is monitored under a standard more stringent than the standard set by the DENR, and the monitored indicator values collected there are also maintained below the standard (Table 2).

Table 2. Water Quality of Treated Sewage

		(mg/l)							
		2008		2009		2010		2011	
		Actual	Standard	Actual	Standard	Actual	Standard	Actual	Standard
Mactan	BOD	19	100	3.7	100	4.7	100	7	100
	COD	79	200	46	200	50	200	54	200
	TSS	16	150	14	150	9.5	150	12	150
Baguio City	BOD	6.2	50	7.74	50	9.86	50	13.4	50
	COD	N/A	100	N/A	100	49.67	100	39.6	100
	TSS	4.81	70	7.79	70	6.76	70	14.4	70
Bataan	BOD	11.22	30	17	30	21.5	30	29.5	30
	COD	N/A	60	N/A	60	N/A	60	N/A	60
	TSS	4.18	50	4.5	50	8.25	50	10.5	50
Cavite	BOD	-	-	-	-	-	-	-	-
	COD	-	-	-	-	-	-	-	-
	TSS	-	-	-	-	-	-	-	-

Source: PEZA/AFAB, JICA

In FAB, BOD in 2011 was 29.5mg/l which is near the effluent standard which is 30mg/l. This was due to one locator company, which was not properly pre-treating the influent that was released to the STP. The AFAB instructed this company on sewage treatment after the incident, and the problem were resolved at the time of ex-post monitoring.

(3) Water Supply and Consumption

Table 3 shows the amount of water supply and consumption of each Special Economic Zone. At the time of ex-post evaluation, there was a concern for the lack of water in Mactan. However, the data for the water supply in Mactan was not available, since the aggregate water supply data is not collected on a regular basis. According to an interview with the officials conducted at Mactan, it was revealed that Mactan is currently provided with ample water through three water pipelines from neighboring Cebu Island, and there is no longer any concern over the shortage of water. In Bataan, the water is transported from a dam located within the FAB, hence, there is no concern over water shortage, either.

Table 3. Potable Water Supply and Consumption

		(1,000 m ³ /year)			
		Mactan	Baguio City	Bataan	Cavite
2010	Water Supply	N/A	1,167	N/A	6,890
	Water Consumption	17,098	1,096	700	-
2011	Water Supply	N/A	1,111	N/A	6,890
	Water Consumption	N/A	916	2,561	-

Source: PEZA/AFAB

(4) Volume of Recycled Water

After reviewing the status of wastewater reuse in Mactan, it was found that, since 2009, the number of the companies using the recycled water had been slowly increasing. (Table 4) 13 out of 105 companies (12.4%) were using recycled water in 2009, and 17 out of 114 companies (14.9%) in 2011.

Use of recycled water is free of charge. However, in order for companies to use recycled water, additional investment is necessary to install an additional interior pipeline to connect to the recycled water pipeline. Also, the use of recycled water is restricted to limited use, such as watering the plants or flushing the toilet. In this context, most locator companies do not feel the incentive balances with the required investment. In addition, the fact that the problem of water shortage in Mactan has already been eliminated has also contributed to the low usage rate.

Table 4. Volume of Reused Water

	(m ³ /day)	
	Dec-09	2011 Average
Installed Capacity of WRF	1,269	1,269
Actual Usage	340	414

Source: PEZA

(5) Water Quality of Recycled Water

No problem was detected regarding the quality of recycled water. Since 2009, water quality of recycled water has always been maintained and its values stayed below the standard. In the project, the PEZA is paying particularly close attention to the maintenance of water quality. Problems of soil pollution or of odor due to the use of reused water have not been reported.

Table 5. Water Quality of Reused Water

	(mg/l)
	BOD
2009 Average	3.0
2010 Average	4.7
2011 Average	6.1
Standard	10.0

Source: PEZA

(6) Volume of Treated Solid Waste

There were no revisions to the “Republic Act No. 8749”, enacted in 1999, which prohibits the use of incinerator. Construction of a new incinerator for solid waste disposal has not been implemented. There is no change in the methods for treating solid waste in Mactan or Baguio since ex-post evaluation. Although Bataan's jurisdiction changed from the PEZA to the AFAB, there is no change concerning the method of solid waste disposal.

Table 6. Volume of Treated Solid Waste

	(tons/day)			
	Mactan	Baguio City	Bataan	Cavite
Disposed amount in disposal sites	34.4	0.36	N/A	N/A
Collection & Disposal	Private Contractor	Private Contractor	Private Contractor	Private Contractor

Source: PEZA/AFAB

In Mactan, solid waste is collected by approved contractors and disposed at waste disposal sites approved by the DENR. Baguio's solid waste is collected and sorted by approved contractors and disposed at the municipal disposal site. In Bataan, solid waste is collected by approved contractors and disposed at the ECOZONE's disposal site.

From the above indicators, concerning the water quality of treated sewage and recycled water, the process is properly managed to keep the water quality indicators below the pollution standard. Therefore it can be concluded that the effect of environmental protection continues to take effect since the time of ex-post evaluation. On the other hand, in considering the STP and the WRF, the amount of treated sewage is consistently low compared to the capacity of the facilities, though the increasing trend has been seen. However, there have been significant changes in the surrounding environment since the appraisal of this project. In this context, the selection of the operation / utilization rate of the STP as the only indicator to measure the effectiveness of this project is questionable. (See Lessons Learned (2))

3.1.1.2 Results of Calculations of Internal Rates of Return (IRR)

Re-calculation of Internal rate of return (IRR) will not be performed due to the fact that IRR was not calculated at the time of ex-post evaluation.

3.1.2 Qualitative Effects

Awareness for environmental protection has continually been sustained since ex-post evaluation. According to the interview with the PEZA personnel, this project has contributed to pollution prevention and water preservation. No trouble with residents in surrounding areas has been reported. In addition, although the project is not the only factor, the occupancy rate of Mactan and Baguio is near 100%.



Sedimentation Tank (Bataan)



Faucet for Reused Water (Mactan)

3.2 Impact

3.2.1 Intended Impacts

3.2.1.1 Number of Locators

(1) Mactan Economic Zone

Special Economic Zone is almost filled to its capacity, although fluctuation can be seen in the number of locators. There is a waiting list for companies wanting to locate in the ECOZONE. The number of locators is stable, but change can be seen in the locator's type of industry. At the time of the appraisal of the project, locators were expected to be mostly manufacturing industry. Recently, there are companies from different industries including call centers, warehouses, and real estate.

(2) Baguio City Economic Zone

There are no significant changes in the number of registered locator companies in real term since 2007, though, in the statistics, a significant increase in the number of locators can be seen in 2011. This is due to the fact that the number of permit locators, which are companies that perform support

services such as maintenance and cleaning for registered locators, were added to the number of registered locators in the Special Economic Zone. Therefore, there is no change in the number of companies registered in the ECOZONE.

(3) Freeport Area of Bataan

Number of companies has remained at a constant level. The number has not shown significant fluctuation since the time of the ex-post evaluation. Reasons include the location of Bataan, which is far from a port, and the development of numerous private ECOZONES which has contributed to this cause. Filling rate continues to be low compared to the capacity of the ECOZONE.

Decrease in the number of locators was seen between 2007 and 2010, during which this ECOZONE was under the PEZA jurisdiction. However, after the transfer from ECOZONE to FAB, the number of locators has increased from 39 to 54, which is the same level as at the time of ex-post evaluation.

Table 7. Number of Locators

	2007	2008	2009	2010	2011
Mactan	120	123	113	117	114
Baguio City	22	21	21	27	41
Bataan	53	42	43	39	54
Cavite	-	-	-	-	-
Total	195	186	177	183	209

Source: PEZA/AFAB

3.2.1.2 Investments from Locators

Investments by locator companies were also made continuously since 2007. Investments in Mactan and Baguio have increased since 2007. Investments in the ECOZONE are made through activities of locators such as moving, renovation of existing company facilities, and construction of new facilities. Increase in the investments in Baguio in 2010 and 2011 were due to construction of new manufacturing plants by Moog Controls Corporation.

Table 8. Investments by Locators

(1 billion pesos)

	2007	2008	2009	2010	2011
Mactan	0.78	1.37	2.87	0.97	4.47
Baguio City	3.60	0.41	0.18	18.21	16.50
Bataan	N/A	N/A	N/A	0.00	0.48
Cavite	-	-	-	-	-
Total	(4.38)	(1.78)	(3.05)	19.18	21.45

Source: PEZA/AFAB

*() are reference values since Bataan is not included.

3.2.1.3 Employment in the ECOZONES

Number of employment in the City of Baguio and Mactan has been maintained at a high-level, and has increased from the time of the ex-post evaluation. On the other hand, in Bataan, the number continues to be low in accordance with the number of tenant companies. However, as a result of the transfer of Bataan ECOZONE to the AFAB in 2010, slight increase was seen in 2011.

Table 9. Employment in the ECOZONES

(1,000 persons)

	2007	2008	2009	2010	2011
Mactan	50.5	47.1	43.7	51.9	58.6
Baguio City	7.0	8.0	8.6	9.8	9.2
Bataan	15.5	12.3	13.4	12.6	12.8
Cavite	-	-	-	-	-
Total	73.0	67.4	65.7	74.3	80.6

Source: PEZA/AFAB

3.2.2. Other Impacts

3.2.2.1 Social and Environmental Impact

There is no change from the time of ex-post evaluation in Baguio and Mactan. In Bataan, as the jurisdiction was changed from the PEZA to the AFAB, former PEZA engineers, under the supervision of the DENR and the AFAB, are implementing the operation and maintenance of the STP. An outsourced contractor engages in the daily management of the STP and the WRF and monthly activity reports are submitted to the PEZA / AFAB.

Environmental investigation/monitoring of the effluent from the STP is performed by outsourced contractors. In principle there is no change in the supervisory role of the DENR, PEZA/AFAB, and mandatory monitoring results are submitted to the DENR and the PEZA/AFAB. This environmental investigation/monitoring system are implemented not only in the public ECOZONES, but also in the

private ECOZONES under the supervision of the PEZA.

In conclusion, there are no negative environmental or social impacts in the ECOZONE/FAB areas.

3.2.2.2 Land Acquisition, Relocation

There were no resettlement or land acquisitions.

In addition to the significant contribution by this project to the number of locators, investment from locators, and employment, especially in Mactan and Baguio, the impact of the rise in environmental awareness is evident not only in the four ECOZONES under PEZA jurisdiction, but also in the private ECOZONES.

3.3 Sustainability

3.3.1 Structural Aspects of Operation and Maintenance

Management organizations in the Freeport Area of Bataan have changed, and the operation and maintenance of wastewater treatment facilities have been outsourced to private contractors. However, otherwise, there have been no major changes since ex-post evaluation. Operation and maintenance system is functioning appropriately. In Mactan and Baguio, operation and maintenance have been outsourced to private companies under the supervision of The PEZA's responsible departments. Bataan's managing organization changed from the PEZA to the AFAB in 2010. The AFAB engineers from the time of the Export Processing Zone Authority (EPZA, predecessor of the PEZA) are engaging in operation and maintenance as external contractors. Environmental monitoring results are required to be submitted to the PEZA/AFAB and DENR. All the data and monthly reports submitted by the contractor is stored and being utilized for maintaining and improving the water quality.

3.3.2 Technical Aspects of Operation and Maintenance

Technical training for operation and maintenance has been carried out continuously from the time of ex-post evaluation, and no major problem has been recorded. For each ECOZONE, operation and maintenance of the facility have been entrusted to private contractors, and there have been no reports of technical problems or major breakdowns of the facilities. Environmental training (which covers the Clean Water Act, Water Standards and Monitoring, Environmental Laws) is being conducted on a regular basis to the staff of the PEZA/DENR. In Mactan and Baguio, staffs of Environmental Health and Safety Division (EHSD) receive two-day seminars on Clean Air Act, Clean Water Act, solid waste management, and hazardous waste management at least once a year. In FAB, internal training by engineers and operators is being held on a daily basis.

3.3.3 Financial Aspects of Operation and Maintenance

The PEZA has ensured sufficient profit in operating profit and profit after tax over the past 8 years. No problem can be found concerning the financial status. (Table 10) According to interview with the PEZA, there were no abnormal or extraordinary expenditure that would have impact on the financial situation. (Table 11)

Setting and collection of sewage treatment fees and wastewater reuse fee of Mactan, which was under deliberation in 2007, has not yet been implemented. (Table 15) The matter is still under deliberation. In BCEZ and FAB, sewage treatment fee has been levied continually from 2007.

Table 10. Financial Condition of the PEZA

	(1,000 pesos)				
	2007	2008	2009	2010	2011
Income	7,177,081	6,389,471	5,509,578	6,257,862	7,075,661
Expenses	6,256,809	5,658,067	5,182,953	5,660,664	6,169,785
Income from Operations	920,272	731,404	326,625	597,198	905,876
Other Income (Expenses)	72,521	-314,974	196,960	-3,720	127,810
Income Tax	304,350	117,015	151,042	172,556	293,571
Net Income	688,444	299,415	372,542	420,923	740,116

Source: PEZA

Table 11. Breakdown of Expenses

	(1,000 pesos)				
	2007	2008	2009	2010	2011
Personnel Expenses	367,566	367,327	495,775	567,138	561,047
Maintenance and Operation Expenses	5,889,243	5,290,740	4,687,178	5,093,526	5,608,738

Source: PEZA

On the contrary, the AFAB is in a state of deficit in its income and net income since its inception. (Table 12, Table 13) Under the new law (Republic Act No. 9728), the AFAB should receive a 500 million pesos budget annually for the five (5) years after its establishment, as subsidy from the Philippine government. However, no such budget was received in 2010 and only 100 million pesos was approved in 2011. The AFAB has requested for an allocation of five hundred million from the Philippine Government budget for fiscal years 2012 and 2013 but the government has only approved 100 million pesos for each year. These cases are not uncommon in the Philippines.

AFAB has drafted a master plan for the renovation of the FAB. Improvement of the operation / utilization rate of the STP is included in the plan. AFAB plans on continuing the request for additional budget. Should they receive the full requested budget, the AFAB plans to invest in the

installation of sewage pipe network in areas which are not yet connected to the STP and improve the utilization of the STP. Despite the AFAB's current budget constraints, they are properly operating and maintaining the STP.

Table 12. Financial Condition of the AFAB

	(1,000 pesos)	
	2010	2011
Income	342,503	775,577
Expenses	363,312	813,347
Income from Operations	-39,350	-37,770
Other Income (Expenses)	-16,142	-30,916
Income Tax	-	-
Net Income	-38,949	-68,686

Source: AFAB

Table 13. Breakdown of Expenses

	(1,000 pesos)	
	2010	2011
Personnel Expenses	28,803	60,164
Maintenance and Operation Expenses	353,071	753,184

Source: AFAB

Table 14. Operation and Maintenance Cost of the STP

	(1,000 pesos)			
	2008	2009	2010	2011
Mactan	5,640	5,888	5,888	5,989
Baguio City	1,816	1,653	1,772	1,687
Bataan	919	1,069	1,137	1,017
Cavite	-	-	-	-

Source: PEZA/AFAB

Table 15. Revenue from Sewage Treatment Services

	(1,000 pesos)			
	2008	2009	2010	2011
Mactan	-	-	-	-
Baguio City	1,491	1,416	1,558	1,663
Bataan	3,590	3,140	3,028	3,214
Cavite	-	-	-	-

Source: PEZA/AFAB

3.3.4 Current Status of Operation and Maintenance

There is no change in the status of operation and maintenance from the time of ex-post evaluation. Operation and maintenance is carried out properly based upon the manual. In Mactan, operation and maintenance is done by 3 shifts of 5 workers and 2 back-up workers, and the periodic inspection has also been carried out properly. Check-up of all equipment in the plant is carried out daily, and ampere voltage information of the device is recorded. Cleaning of the pump stations, manhole stations, strainer of final sedimentation tank is done on a daily basis. Removal of suspended solids in the tanks, such as plastic and paper, and cleaning of pipes for water reuse facility is being conducted on a regular basis several times a month. With respect to the management of the facility, there has not been an issue to date from the time of the ex-post evaluation. There is no problem obtaining spare parts. Their purchase is to be approved by the PEZA and executed on the needs basis.

From the above, the operation and maintenance conducted by the PEZA is satisfactory, and no major problem has been identified. On the other hand, although the AFAB is sufficiently implementing the operation and maintenance activities such as water quality monitoring within the limits of its budget, governmental budget has not been allocated and future prospects remain unclear. The AFAB has fallen into a deficit and is in a severe financial situation.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

In Mactan, Baguio City, and Freeport Area of Bataan, the operating / utilization rate of the wastewater treatment facilities has increased, though slightly. However, the operation / utilization rate is constantly low compared to the projected / designed capacity of the facility, and its value remains below 50%. One of the major causes is the increase in the number of non-water-intensive, non-manufacturing locators resulting from the diversification of business environment. Also, locators are constructing their own STP facilities to obtain the ISO certification. In addition, as has been detected prior to this report, the upgrading/rehabilitation of the existing sewage collection system has been prolonged and not sufficient areas have been covered, which is also a contributing factor to the situation. Therefore, it can be speculated that the dramatic increase in the utilization rate in the future is unlikely.

On the other hand, in terms of prevention of pollution of the surrounding environment, which was one of the objectives of the project, the PEZA and the AFAB are particularly observant, and water quality survey has been carried out continually on a regular basis. The indicators for the water quality are maintained below the water quality standard, and the STP's effluent and Mactan's recycled water quality is maintained at a satisfactory level. There have been no reports of soil contamination or odor. In this regard, the role played by this project is particularly significant.

4.2 Recommendations

None.

4.3 Lessons Learned

(1) PEZA

In planning of water use project in the ECOZONE, it is desirable to predict the potential industries of locators, as much as possible. At the time of appraisal, locators from water-intensive industries such as garment and steel industries were assumed to be potential locators. However, rapid growth of information and technology industries and other factors have led to a change in the locator industries. Predicting such changes is difficult. While taking into account the “future economic conditions”, consideration should be given to the possibility of changes in the industry of the locators at the time of appraisal; review, including the reconsideration of the project at a reasonable timing, is desirable.

Also, if the promotion of environmental protection by water conservation is conducted at government level and ample budget can be allocated for this cause, then raising the operation / utilization rate of the existing facilities through the completion of proposed sewage collection system projects in the ECOZONES and the strengthening of environmental awareness programs for locators will become possible. Because Mactan and Baguio are leading tourist destinations in the Philippines, linking such efforts to tourism projects may lead to further promotion of environment protection.

(2) JICA

Operation / utilization rate has been adopted as the indicator to evaluate the effectiveness of this project. However, since the objective of the project is to prevent pollution and to improve public well-being in the neighboring areas through installation of the STP and the WRF, operation / utilization rate should not be the only indicator to measure the effectiveness of this project. As for the indicators used for the evaluation of such project, in order to assess the project from different viewpoints, it is desirable to use multiple indicators, or to leave a certain flexibility to revise the indicators when the situation evolves. In this project, for example, the proportion of locators using the STP (including the STPs installed by the locators themselves) may be an effective indicator.

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
(1) Output		
STP	Mactan (New construction)	As planned (ODA loan)
	Baguio City (New construction)	As planned (PEZA own fund)
	Bataan (Rehabilitation)	As planned (PEZA own fund)
Wastewater Reuse Facilities	Mactan (New construction)	As planned (ODA loan)
	Baguio City (New construction)	Postponed
	Cavite (New construction)	Postponed
Environment Management Equipment for the ECOZONES	Procurement	Cancelled
Consultant Services	International : 180M/M Local : 399M/M 1. D/D, construction supervision, and other tasks for STPs (Mactan, Baguio City, Bataan) 2. D/D, construction supervision and other tasks for wastewater reuse facilities 3. D/D, and other tasks for wastewater reuse facilities (Mactan, Baguio City, Bataan, Cavite) 4. Capacity building 5. Urgent planning of engineering services of ECOZONES	International : 49.2M/M Local : 603M/M 1. As planned 2. As planned in Mactan (Postponed in Baguio City and Cavite) 3. Cancelled - RA8749(Clean Air Act, 1999) prohibits incinerators. 4. As planned 5. Cancelled
(2) Project Period	March 1997 – February 2001 (4 years)	March 1997 – July 2005 (8 years and 5 months)
(3) Project Cost		
Foreign Currency	2,746 million yen	534 million yen
Local Currency	357 million yen (89 million pesos)	636 million yen (292.8 million pesos)
Total	3,103 million yen	1,170 million yen
ODA Loan Portion	2,746 million yen	534 million yen
Exchange Rate	1 peso = 4 yen (in 1997)	1 peso = 2.17 yen (average of 1997-2005)