

1. Project Data:		Date Posted : 09/25/2007	
PROJ ID : P001921		Appraisal	Actual
Project Name : Environment Sewerage & Sanitation	Project Costs (US\$M):	65.6	61.0
Country: Mauritius	Loan/Credit (US\$M):	12.4	9.9
Sector Board : WS	Cofinancing (US\$M):	33.6	39.1
Sector(s): Sewerage (60%) Central government administration (25%) Water supply (15%)			
Theme(s): Water resource management (29% - P) Other urban development (29% - P) Other communicable diseases (14% - S) Biodiversity (14% - S) Pollution management and environmental health (14% - S)			
L/C Number: L4283			
	Board Approval Date :		02/12/1998
Partners involved : Japanese Bank for International Cooperation (JBIC)	Closing Date :	06/30/2003	12/31/2006
Evaluator :	Panel Reviewer :	Group Manager :	Group:
Kavita Mathur	Ridley Nelson	Alain A. Barbu	IEGSG

2. Project Objectives and Components:

a. Objectives:

The main objectives of the project as stated in the Project Appraisal Document (PAD) were to: (i) improve the health and sanitary conditions of the populations of the southern districts of Port Louis and affected coastal zones; (ii) reverse the trend of environmental pollution on the island and in its coastal zone; and (iii) support Government's efforts to implement priority institutional and technical measures identified in the Sewerage Master Plan.

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

No

c. Components (or Key Conditions in the case of DPLs, as appropriate):

A. Montagne Jacquot Sewerage System (estimated cost US\$57.2 million; actual cost US\$56.5 million). This component included: (i) land acquisition and compensation; (ii) pipelines and sewers; (iii) pumping stations; (iv) treatment plant; (v) sea outfall; (vi) industrial pretreatment; and (vii) supervision of works.

B. Wastewater Sector Equipment and Expertise (estimated cost US\$4.6 million; actual cost US\$1.7 million). This component included: (i) sector studies; (ii) sector expertise; and (iii) equipment.

C. Waste Water Authority (WWA) Institution-building (estimated cost US\$3.8 million; actual cost US\$2.8 million). This component included: (i) WWA program management assistance; (ii) WWA personnel training; and (iii) support for industrial waste management program implementation.

The components were not revised.

d. Comments on Project Cost, Financing, Borrower Contribution, and Dates:

The project was extended for a total of three and a half years, with one donor continuing for a further two years. There were two extensions: (i) for two years to June 30, 2005 to finish the construction of the pumping stations, treatment plant, and sea outfall (all financed by JBIC), implementation of the newly added house connection program and implementation of institutional reforms; and (ii) another extension of eighteen months (December 31, 2006) to enable completion of JBIC financed physical works. JBIC further extended its loan to December 25, 2008, two years after the Bank's closing date to allow for a year of operations and maintenance.

The actual disbursements were US\$9.9 million compared to the original commitment of US\$12.4 million. It is not indicated in the ICR that the undisbursed amount was cancelled.

3. Relevance of Objectives & Design:

The project objectives were in line with 1993 Sewerage Master Plan that laid out a 20-year program (1993-2012) to expand the sewerage network and to construct new pumping, treatment, and discharge facilities. The project objectives were consistent with the 1997 Country Assistance Strategy (CAS), which supported safeguarding of the environment through better planning and improving wastewater management. The project objectives are in conformity with the 2002 CAS, which supports preserving the environment through better solid and liquid waste management.

The project was well designed; it was based on feasibility studies and environmental impact assessment. It covered all aspects of wastewater management – construction, operation of facilities and financial management. The main shortcoming of the project design was the weak Monitoring and Evaluation (M&E) framework. Although the Project Appraisal Document included both outcome and output indicators, it lacked baseline and target values (see section 10 for details).

4. Achievement of Objectives (Efficacy):

Improve the health and sanitary conditions of the populations of the southern districts of Port Louis and affected coastal zones: **Not Rated** (due to lack of outcome data for the health objective. However, output data in terms of sea water quality are promising for a positive health outcome).

While the ICR did not collect outcome indicators of improvement in health and sanitary conditions, access indicators were provided although no targets were set. These indicators included: (i) the percentage of population connected to the sewerage network increased from 20% in 1997 to 30% by the end of 2006; and (ii) the number of structures connected to Montagne Jacquot sewerage system rose by 1400, while the numbers connected nationwide increased from 24,000 in 1997 to 60,000 in 2006. A review of the documents suggests that the extent to which improved potable water quality was an objective was somewhat unclear. The borrower's ICR states (ICR page 44) that "the aim of the project was to protect the marine environment" and that the new wastewater treatment plant "... did not have any link in improving potable water". IEG concludes, therefore, that there was some disconnect between the Bank's PAD objectives, which refer to potable water and the borrower's objectives. Nevertheless, it is clear that a significant element in the health objective was related to quality of lagoon sea water for swimming and tourist activities and there is evidence of great improvement there.

Reverse the trend of environmental pollution on the island and in its coastal zone: rated **Substantial**.

With the opening of the Montagne Jacquot treatment plant, additional 17 million cubic meters of wastewater is being treated.

Water quality in the vicinity of the new long sea outfall at Montagne Jacquot shows that the treatment is removing 40% of organic and 60% of chemicals and total suspended solids contained in the influent.

The project assisted in defining the standards for industrial effluent, determining incentives to ensure that industries complied with the standards, monitoring. The Waste Water Management Authority (WMA) regularly monitored the effluents from the industries pretreatment facilities and found it in compliance with the agreed standards.

Support Government's efforts to implement priority institutional and technical measures: rated **Substantial**.

The Waste Water Management Authority (WMA) was established as an autonomous government entity from the former Waste Water Authority. The project financed training in investment planning, contract management, financial management, procurement, supervision of operations and maintenance, and monitoring and evaluation. The project also assisted in developing a new wastewater tariff policy and a mechanism for collecting revenues through joint billing with the central water authority. By project closing, the WMA was collecting about 88% of the amount billed. Despite this progress, there are areas that need further improvement: (i) clarification of the roles and responsibilities of the WMA, its Board of Directors and government ministry; (ii) the ability of WMA to recruit and retain qualified staff; and (iii) completion of investments on time and within budget.

5. Efficiency (not applicable to DPLs):

The ex-post financial Internal Rate of Return (IRR) is 12.2%, substantially lower than the appraisal estimate of 23% but still satisfactory. The reduction is because of two reasons: (a) the revenues from user fees are 60% lower than the appraisal estimate; (b) difference in the methodology for calculating the ex-post environmental benefits from the project; and (c) it may also have been influenced by the implementation delays that stretched the project by three and a half years. The ex-post environmental benefits include: (i) avoided medical costs due to reduced incidences of illness from contaminated water, (ii) estimated willingness to pay to restore beaches and lagoons, and (c) estimated impact on tourism.

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

	Rate Available?	Point Value	Coverage/Scope*
Appraisal	Yes	23%	72.6%
ICR estimate	Yes	12.2%	92.6%

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

6. Outcome:

The project objectives were and remained relevant to the Bank and Government's priorities throughout the life of the project. The project achieved its development objectives with minor shortcomings although, as noted above, the health impact has to be inferred from water quality improvement because of lack of health outcome data. Although the IRR is far lower than the appraisal estimate it is over the 10% opportunity cost threshold although this is a financial not economic return. Therefore, the overall outcome is rated satisfactory.

a. Outcome Rating : Satisfactory

7. Rationale for Risk to Development Outcome Rating:

The Government is fully committed to the institutional reforms and has enacted legislations to strengthen sector management such as the 2000 wastewater management act and its 2004 amendments. The main area of concern is the ability of WWA to generate surplus from its operations. The financial ratios of the WWA show that the ability of WWA to generate surplus from its operations has been deteriorating over time. This is linked to the reluctance of the government to increase tariffs, which have remained unchanged since 2003. The Region clarified that the Government had recently completed the wastewater sector policy letter, which includes a new schedule of tariffs. The risk to development outcome rating is therefore rated Negligible to Low.

a. Risk to Development Outcome Rating : Negligible to Low

8. Assessment of Bank Performance:

The project design took into account the lessons learnt from Bank projects in other countries and designed a sewerage system that reflected local needs and matched local capacity. The Bank also helped mobilize concessional finance from JBIC. However, the Bank Performance during preparation was moderately unsatisfactory largely because of inadequate attention given to M&E (see section 10). The Bank performance

during supervision was satisfactory. Supervision missions paid attention to institutional and policy issues as well as financial sustainability. Overall the Bank Performance is rated Moderately Satisfactory.

a. Ensuring Quality -at-Entry: Moderately Unsatisfactory

b. Quality of Supervision : Satisfactory

c. Overall Bank Performance : Moderately Satisfactory

9. Assessment of Borrower Performance:

The Government Performance is rated moderately satisfactory because although the Government was committed to the reforms through the sector policy letter and had identified the implementation arrangements, it was not able to institute them until the Parliament passed the wastewater authority act in 2000. During 1998-2000 the Government shifted the implementing agency from the Ministry of Public Infrastructure to the Ministry of Environment to the Ministry of Public Utilities.

The performance of the implementing agency – the WWA is rated moderately satisfactory. During the initial years of project implementation, the top management of WWA focused on investigating the feasibility of an alternative, untested technology recommended by a consultant. When the Ministry of Environment refused to license the technology and the Ministry of Public Works dismissed the General Manager, the project proceeded with the original design.

a. Government Performance : Moderately Satisfactory

b. Implementing Agency Performance : Moderately Satisfactory

c. Overall Borrower Performance : Moderately Satisfactory

10. M&E Design, Implementation, & Utilization:

Design: The project’s M&E design was weak. Although the Project Appraisal Document included both outcome and output indicators, it lacked baseline and target values. Some of the outcome indicators such as decline in hepatitis A, eye and skin diseases were inadequate, as they could not be tracked during project implementation. This was mainly because the epidemiological studies linking health and public sanitation were not being undertaken in Mauritius. There was little reliable data on the ambient quality of marine and ground water. Some indicators such as: access (numbers of structures connected to the sewerage system), pollution (concentrations of pollutants in wastewater discharged to the ocean from the wastewater treatment plant), and financial sustainability (tariff collection ratio and financial sustainability ratio) were appropriate.

Implementation: Indicators relating to health or potable water quality were not tracked during implementation. However, indicators relating to access, pollution and financial sustainability (mentioned above) were monitored. Also, a baseline study of the marine environment (including water quality, extent of biodiversity, and the state of coral reefs) was carried out.

Utilization: The borrower and the Bank used the monitoring information to raise awareness of industries of their responsibility for environmental management and their role in reducing wastewater pollution. In addition to the data on industrial pretreatment, the project implementation also used the M&E data to encourage the Government to adopt policies to encourage households to connect to the sewerage system.

a. M&E Quality Rating : Modest

11. Other Issues (Safeguards, Fiduciary, Unintended Positive and Negative Impacts):

The ICR notes that the project complied with all safeguard policies. No fiduciary issues were noted and there were no unintended negative impacts.

12. Ratings:	ICR	IEG Review	Reason for
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			Disagreement / Comments
Outcome:	Satisfactory	Satisfactory	
Risk to Development Outcome:	Negligible to Low	Negligible to Low	
Bank Performance :	Moderately Satisfactory	Moderately Satisfactory	
Borrower Performance :	Moderately Satisfactory	Moderately Satisfactory	
Quality of ICR :		Satisfactory	

NOTES:

- When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006.

- The "Reason for Disagreement/Comments" column could cross-reference other sections of the ICR Review, as appropriate .

13. Lessons:

The ICR identified a number of lessons and four are listed below:

- Joint billing for water and wastewater charges can minimize costs for administration as well as increase public acceptance of the charges, as customers become more aware of the link between the water consumed and wastewater discharged.
- To reduce industrial effluent discharge and develop effluent standards it is important to raise awareness of industries of their responsibility for environmental management and to work with them to find a solution.
- Public outreach and incentives are important to encourage people to pay for services that provide a public rather than private good.
- Thoroughly preparing a project monitoring and evaluation system designed to measure outcomes as stated in the objectives prior to the start of a project will ensure proper tracking of outcomes.

14. Assessment Recommended? Yes No

15. Comments on Quality of ICR:

The ICR is well written and provided adequate information on project implementation and the achievement of project development objectives. The section on economic analysis (actually a financial analysis) is quite detailed.

a. Quality of ICR Rating : Satisfactory