

Mauritius: Baie du Tombeau Sewerage Project

Ex-post evaluation report

OECD sector	14020/ Water supply and sanitation - large systems	
BMZ project number	1995 66 290	
Project executing agency	Wastewater Management Authority (WMA)	
Consultant	GIBB (Mauritius)	
Year of ex-post evaluation report	2007	
	Project appraisal (planned)	Ex-post evaluation (ac- tual)
Start of implementation	1st quarter 1996	1st quarter 1996
Period of implementation	48 months	82 months
Investment costs	EUR 30.3 million	EUR 29.6 million
Counterpart contribution	EUR 11.1 million	EUR 10.4 million
Finance, of which FC funds	EUR 3.2 million	EUR 3.2 million
Other institutions/donors involved	EUR 16 million (EIB)	EUR 16 million (EIB)
Performance rating	2	
• Relevance	3	
• Effectiveness	2	
• Efficiency	2	
• Impact	2	
• Sustainability	2	

Brief Description, Overall Objective and Project Objectives with Indicators

The overall objective of the project was to mitigate the health hazards for the population in the project area (capital: Port Louis and adjacent northern areas) and protect groundwater and marine flora and fauna in the shallow water zone and the coral reef through improved sewage disposal. The project objective was to collect the sewage from Nord Port Louis and from the area north of the capital, Baie du Tombeau, and pretreat it to ensure an acceptable level of environmental pollution due to sewage at the new sea outlet. The project target group was the population of Nord Port Louis and the adjacent northern periurban residential areas along the coast.

No indicators were defined for the overall objective. The project objectives were, however, to be deemed as achieved if the new facility treated at least an average 30,000 m³ of sewage a day and ensured an adequate dilution of heavy metal concentrations (arsenic, cadmium, chrome, copper, lead, nickel, silver, zinc). At ex-post evaluation, another indicator was added for water quality in the lagoon in the Baie du Tombeau project area to meet Mauritian bathing water standards. Moreover, the target percentage of mains connections to the sewerage grid (50%) was included in the set of objectives. The method for water quality measurement at the sea outlet point was also adjusted.

Project Design/Major Deviations from Original Planning and Main Causes

The project is embedded in Mauritius' extensive National Sewerage Programme (NSP), which in 1994 identified priority investments amounting to MUR 18 billion (EUR 450 million) for the next 20 years in the sewerage sector (1993-2012). So far, investments for various individual projects totalling approx. MUR 8 (EUR 200 million) have been implemented, two-thirds of which financed by various donors and about one-third by the Republic of Mauritius.

The individual Baie du Tombeau Sewerage Project cofinanced by FC largely comprised pumping sewage from Port Louis into the new sewage plant in the Baie du Tombeau area north of the capital for pretreatment and then discharging it via an outlet into the sea 1.4 km away from the coast (1.0 km away from the coral reef). Moreover, the southwestern part of the Baie du Tombeau area (1,500 service connections) was connected to the sewage plant through the construction of suitable sewage collectors. The investment components included the construction of the new sewage plant, the sea outlet pipe, the feedpipe from the old collection point, Northern Works, to the new sewage plant, two pumping stations as well as a part of the sewerage system in the Baie du Tombeau area. The project design proposed at appraisal was generally adhered to. Despite a three-year delay in implementation, actual costs were slightly below those budgeted at project appraisal due to cheaper offer prices.

Considering the general local conditions, the considerable distance of the outlet from the coast and reef and the sewage dilutions at the outlet, we consider the plan to pretreat the sewage only (coarse trash rack, sieve and sand trap) before discharge into the sea as generally appropriate. This option is also less prone to disruptions than a complex biological treatment with a much shorter sea outlet pipeline, for example. Moreover, the scheme is only an initial phase of a planned progressive development of the sewerage system with upgrading measures for the treatment plant envisaged in later phases.

Key Results of Impact Analysis and Performance Rating

The project executing agency responsible for the implementation of the project until the foundation of the Wastewater Management Authority (WMA) was the water department in the Ministry of Energy, Water Resources and Postal Services. Only towards the end of project implementation in 2001 was responsibility for the project and the operation of the facilities assigned to the WMA founded at this time. WMA is a professional organization with sufficient technical capacity to run the facilities. It is very short of personnel, however, which is why the project facilities are run by a private operator for the time being. More complex repair and maintenance work also has to be assigned to external contractors. The project facilities are in a satisfactory condition and operating results are acceptable. The current financial position of the executing institution is still very good. The rising operating costs due to system extension can, however, only be paid for with higher wastewater rates, which are presently pending government approval.

In interaction with other causal factors, the project has been able to make a contribution to protecting marine flora and fauna in the shallow water zone, the coral reef and groundwater as well as to reducing health hazards for the population. Among other things, this is evident in the improved lagoon water quality in Baie du Tombeau, the sewage dilution at the new sea outlet point and the improvement in sanitation for the additional population connected to the central sewerage grid. We see deficits in the low capacity utilization of the sewage plant (presently 43%). Owing to the consistent implementation of the NSP over the past years, however, we expect that the connection of additional areas in the catchment zone of the sewage plant - as planned and in part already under construction - will be carried out in the coming years, thus raising capacity utilization by a considerable margin.

At appraisal, the project was not directly aligned with poverty reduction or gender equality. Only

a small percentage of the population in the project area can be classed as poor. There is therefore no direct poverty relevance. Under the given set of objectives, the project had no scope for making a contribution to gender equality.

The introduction of the extensive progressive and transparent Waste Water Management Act was supported by relevant project requirements. We may therefore assume impacts in promoting good governance.

Environmental protection and resource conservation was a primary objective of the project. It has caused no adverse environmental impacts. Where there are marked increases in wastewater volumes or concentrations, however, it should be ascertained whether a sufficient sewage dilution is still assured at the sea outlet point. Otherwise, consideration should be given to upgrading the sewage plant in Baie du Tombeau straight away.

The project was geared to remedying a major developmental constraint with high investment needs. It conformed with the goals of German development cooperation and directly supported the priorities of the government of Mauritius, as evident in the preparation of the relevant sector programme and in the provision of substantial local funds for the sector. The project was thus capable of making a contribution to attaining the MDGs (Goal 7 - Ensure environmental sustainability). Altogether, the donors coordinated closely in the wastewater sector and adopted harmonized sectoral approaches. We assess relevance altogether as satisfactory (Subrating 3).

The project objective indicators have been met for the most part. On average, only about 25,000 m³ of sewage is pretreated a day. At project appraisal, the quantity of sewage in the north of Port Louis was overestimated. Water quality measured every quarter at the sea outlet point is quite admissible. At the coast of the Baie du Tombeau lagoon, it has improved since project operation and meets bathing water standards. Complaints by the local population about dirty, clouded lagoon water and eutrophication have diminished greatly. The percentage of mains connections to the sewerage grid currently amounts to 50%, and is likely to increase to 90% by 2009. As the project objective indicators have been met for the most part, the effectiveness of the project is judged to be good (Subrating 2).

Despite three-year delays in implementation and the largely unchanged project design, the investment costs of the individual project are slightly under the cost estimate at project appraisal. The average capacity utilization of the sewage plant currently amounts to only 43%, but this can be expected to increase substantially as the sewerage grid is extended in the next few years. Considering the subsystems operated externally, the number of personnel per 1,000 connections is comparatively high. However, production efficiency is judged as adequate in all. Since its foundation, the executing institution has earned a considerable surplus every year, though with a downtrend. Operating costs have been regularly covered in the past, with the recovery rate falling from 221% in 2002/03 to 146% in 2005/06, however. Currently, moreover, as the government still bears the operating costs of the system components operated by external enterprises, we may assume a realistic operating cost recovery of 120%. To meet rising operating costs due to system extension in the next few years, rates will have to be raised again; this is awaiting government approval. Collection efficiency is good at 90%. Altogether, we judge efficiency as good (Subrating 2).

The project has plausibly contributed to improving water quality in the Baie du Tombeau lagoon and with that to protecting marine flora and fauna in the shallow water zone and the coral reef. Moreover, it is also likely that due to this and the connection of additional residents to the sewerage grid, the project has also contributed to a certain extent to protecting groundwater and safeguarding the health of the population through better sanitation and cleaner bathing water. The impact is therefore rated as good (Subrating 2).

With a substantial increase in the quantity of sewage and concentrations, in-company pretreatment of industrial wastewater may need to be stepped up or the sewage plant will have to be upgraded to ensure adequate sewage dilution at the sea outlet point (project objective). The executing agency is aware of this and regularly monitors sewage dilution in the sea. In future connection measures, there is, however, a small risk that the requisite upgrading of the sewage plant is not carried out on time. We see a medium risk posed by high personnel turnover, although we expect that the measures introduced will have a stabilizing effect. Thanks to the substantial commitment on the part of the government in the NSP and its solid finances, we see no significant risks of the government failing to meet its financial obligations in additional investments and reinvestments. In view of present operating cost recovery and assuming that rates are actually raised as planned at the beginning of 2008, we see no other major financial or technical sustainability risks. Since risks are also limited due to the long-term sectoral engagement of other donors both in the financial sector and in technical advisory services and above all also due to the local involvement of the EU, sustainability is assessed as good (Subrating 2).

Weighing up the individual subratings and risks, we rate developmental efficacy as good (Rating 2).

General Conclusions

In the present case, the disbursement of FC funds was made contingent on considerable conditionalities. The resulting prefinancing of all FC funds by Mauritius shows the restricted scope for imposing extensive conditionalities when FC cofinancing is small. Projects whose implementation is only warranted with extensive conditionalities should only be financed by KfW, if it makes a significant financial contribution or binding conditionalities can be agreed on with other donors.

In this case, the sustainability of the very short and limited FC commitment by the German Government in Mauritius can only be assured through a much longer-term engagement by other donors. To pre-empt possible sustainability risks, FC funds should be concentrated on partner countries where FC is engaged in the long run and a joint long-term strategy has been agreed, which can then be sustained accordingly.