



**Ministry of Environment and National Development Unit**  
**Republic of Mauritius**

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**REUSE OF EFFLUENT FOR IRRIGATION AND  
TO SAFEGUARD LAGOON WATER QUALITY  
IN THE GRAND BAY AREA**

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## **INTRODUCTION**

As a small island state with erratic rainfall, the management of freshwater resource is one of the most important environmental issues that Mauritius has to address. Though 99.4% of the population has access to safe water, occasional dry spells occur with the consequences of disrupting the agricultural activities and leading to water cuts. Moreover, due to an increase in water requirements by industries and tourists, an integrated plan has been prepared for harnessing additional water resources to meet the water requirement of different sectors of the economy up to the year 2040.

Reuse of treated wastewater has since long been adopted by the hotel sector and partially by the sugar industry sector. The resulting effluent is then used mainly for irrigation purpose. The country is now turning to a large scale reuse of treated wastewater for irrigation of sugar cane plantation. Based on the technical feasibility and the financial viability, the new wastewater treatment plants at Grand Baie and St. Martin plan to use the treated water for irrigation. These wastewater treatment plants will generate about 73,000 m<sup>3</sup> per day by the end of year 2005 for the irrigation of sugarcane crops in the northern coast and the western coast of Mauritius.

### **1.0 DESCRIPTION OF INITIATIVE**

Grand Baie is a village which lies in the Coastal Northern Plains of Mauritius, extending from Trou aux Biches to Cap Malheureux. This Village has known an unprecedented growth over the last three decades from being a small coastal village with a few fishermen and the cultivation of sugar cane and vegetable inland to being one of the most populated and frequented tourist resorts. Grand Baie is bounded on the southern side by high grounds resulting in all its surface water flowing to sea through wetlands

This has lead to tremendous pressure on the land, as land value went up, there were illegal back filling of wetlands and fast degradation of the lagoon water quality. Unfortunately, the infrastructure development with regard to land use and treatment of waste water did not keep pace with this fast growth.

This is a typical scenario as various coastal villages are subject to similar pressure.

The Government of Mauritius could not tolerate this situation any longer and embarked on Sewerage Scheme for this region. A project was prepared to collect all waste water and sewage for effective treatment. The effluents after treatment will be used for irrigation purposes, mainly sugar cane plantations. The project will cover an area of 575 hectares representing 74 km of sewer network.

The Agence Francaise de Developpement has provided a loan of 11.4 million Euro for financing the project. Works started in June 2002 and has been completed in March 2004.

The proposed development will not only help in conserving a precious resource, but will contribute towards the improvement of the environmental quality in the whole coastal zone. The project is intimately linked with the management of the coastal zone and fisheries given that Grand Bay is a major coastal resort. The contamination of our lagoons by sewer outfalls has been a recurrent issue of sea water degradation. The Ministry of Environment has promulgated various

standards for the control of wastewater disposal, including standards of effluent for use in irrigation.

The treatment plant will have primary, secondary and tertiary treatment processes to produce effluents free from phosphates, nitrates and coliforms fit for use in the irrigation of sugarcane plantations; the average dry matter flow is estimated at 3500 m<sup>3</sup>/d at the commissioning stage, increasing to 7000 m<sup>3</sup>/d by 2020.

## **1.2 LOCATION**

The project is located in the North of Mauritius, extending from Trou aux Biches in the South to Cap Malheureux in the north, passing through Pte aux Cannoniers, Grand Baie and Pereybere. The whole project extends over a shoreline of 20 km, 15 km<sup>2</sup> of lagoon, 500 ha of coastal touristic agglomerations, 1400 ha of urbanised area, 130 ha of wetlands and a large expanse of sugar cane plantation.

## **1.3 TIMEFRAME**

The works started in June 2002 and were completed in March 2004.

## **1.4 PARTNERS INVOLVED WITH THE INITIATIVE**

At this stage, there is little private participation in the project. However, many hotels in the locality are expected to join the project in due course.

## **1.5 DESCRIPTION OF HOW THE INITIATIVE IS INNOVATIVE**

Until recently there was a sectoral approach to water resource management and the re-use of treated effluents by the public sector was quasi-inexistent. This project permits an integrated water resources management in close collaboration with the Water Resource Unit, the Central Water Authority, the Ministry of Fisheries ( responsible for conservation of coastal and lagoon resources), the Ministry of Environment (responsible for the protection of the water quality and the coastal zone) and the Ministry Agriculture /Irrigation Authority (responsible for the use of the treated water).

## **1.6 HOW THE INITIATIVE HELPS TO ADDRESS ENVIRONMENTAL ISSUES SURROUNDING THE MD GOALS AND WSSD TARGETS AS THEY RELATE TO WATER**

- (a) It helps to increase the volume of freshwater available in the island, particularly in the rain-deficit areas
- (b) It help in improving coastal water quality and protection of the coastal zone
- (c) It contributes towards improved sanitation and better living environment
- (d) It promotes sustainable agriculture and food security

## **1.7 MAINSTREAMING/SUSTAINABILITY**

The development of the National Sewerage Master Plan is one of the priority projects of the first Environment Investment Programme. In 1994 the Government of Mauritius adopted the National Sewerage Master Plan and committed itself to the improvement of the environment and to promote sustainable development. At present only 22% of the population are connected to the sewerage network. The goal is to connect at least 50 % of the population by the year 2010 and 80% by the year 2020. The budget for the implementation is US \$40 millions.

## **1.8 REPLICATING THE INITIATIVE**

It is possible to replicate this initiative in coastal areas which are subject to pressure from demographic growth and tourism. It is possible to replicate the initiative in any significant water – deficient human settlement.