

AFRICAN DEVELOPMENT BANK



MAURITIUS WASTEWATER MASTER PLAN STUDY

**REQUEST FOR TECHNICAL ASSISTANCE FUND FOR MIDDLE
INCOME COUNTRIES**

THE GOVERNMENT OF MAURITIUS

WATER AND SANITATION DEPARTMENT

January 2009

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CURRENCY AND MEASURES

Currency Equivalents

(January, 2009)

1 UA	=	48.9120 MUR
1 UA	=	1.54027 USD
1 USD	=	31.7555 MUR

Fiscal Year: 1st July to 30th June

Measures

km	=	kilometer
l/c/d	=	liters per capita per day
m	=	meter
m ³ /d	=	cubic meter per day

LIST OF ABBREVIATIONS AND ACRONYM

ADB/ ADF	=	African Development Bank / African Development Fund
CPB	=	Central Procurement Board
CWA	=	Central Water Authority
DOE	=	Department of Environment
EA	=	Executive Agency
ESIA	=	Environmental and Social Impact Assessment
ESW	=	Economic and Sector Work
GOM	=	Government of Mauritius
ICB	=	International Competitive Bidding
MOFED	=	Ministry of Finance and Economic Development
MPU	=	Ministry of Public Utilities
MUR	=	Mauritius Rupee
NEAP	=	National Environmental Action Plan
NSP	=	National Sewerage Program
NSP-Phase I	=	National Sewerage Program - First Phase
O&M	=	Operation & Maintenance
PPA	=	Public Procurement Act 2006
SMP	=	Sewerage Master Plan
SPN	=	Specific Procurement Notice
TOR	=	Terms of Reference
UA	=	Unit of Account
WMA	=	Wastewater Management Authority

HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH/BENEFICIARIES	PERFORMANCE INDICATORS, SOURCE, PERIODICITY	INDICATIVE TARGETS AND TIME FRAME	RISKS, MITIGATION MEASURE
<p>GOAL:</p> <p>To contribute to the protection of Country's environment through improved management of wastewater.</p>	<p>IMPACT:</p> <p>Safe disposal of wastewater; Clean environment</p> <p>Better Health and Sanitary condition of Mauritian</p>	<p>Population of Mauritius;</p> <p>Ecosystems</p>	<p>Population served with reliable wastewater management services;</p> <p>Wastewater receiving appropriate treatment before disposal;</p> <p>Source: National Statistics Data</p>	<p>Percentage of population connected to public sewerage increases from 26% (2008), to 50% (2013) and to 80% (2033).</p>	<p>Sustained Government support for proper management of and environmental protection.</p> <p>Continued sector support from Development Partners.</p>
<p>OBJECTIVES:</p> <p>To elaborate long term (20 years) wastewater infrastructure development and management programme.</p>	<p>OUTCOMES:</p> <p>Better planned development and timely implementation of wastewater infrastructure in the Country.</p> <p>Improved service delivery of WMA.</p>	<p>Population of the Republic of Mauritius;</p> <p>Wastewater services provider (WMA).</p>	<p>National Sewerage Programme – Phase II;</p> <p>Institutional changes within WMA;</p> <p>Source: Annual sector reports.</p> <p>Periodicity: Annually</p>	<p>NSP-Phase II approved by 2010;</p> <p>Study recommendations implemented by 2013.</p>	<p>WMA continues to improve its operations;</p> <p>Continued improvements in coordination and collaboration among stakeholders.</p>
<p>ACTIVITIES</p> <p>Procurement of consultancy service: undertake the Study activities</p> <p>Hold workshops for stakeholders.</p>	<p>OUTPUTS</p> <p>A Wastewater Master Plan covering a period of 20 years (2014-2033);</p> <p>Feasibility Study for the first 10 years of the master plan (Phase A) of the Master Plan prepared;</p> <p>Environmental and Social Impact Assessment Study</p> <p>Increased public awareness and participation in wastewater management.</p>	<p>The population of the Republic of Mauritius;</p> <p>Private Sector, NGOs, CBOs and the public;</p> <p>WWA staff;</p>	<p>Wastewater Master Plan approved by GoM ;</p> <p>Feasibility Study for Phase A approved;</p> <p>ESIA study approved by GoM</p> <p>Stakeholders' workshops.</p> <p>Sources: Project Reports</p>	<p>Master Plan approved by February 2010;</p> <p>ESIA Study approved August 2010</p> <p>Feasibility Study approved by September 2010.</p>	<p>EA capacity on procurement to perform day to day activities.</p> <p>Mitigation: Assign Project coordinator as well as an engineer and financial expert to perform day to day activities.</p>

1. INTRODUCTION

1.0.1 The Republic of Mauritius consists of several islands in the Indian Ocean, among which Mauritius and Rodrigues are the main ones. The country has a surface area of about 1865 sq. km. Rodrigues island has an area of 109 km² and is located 560 km East of the main Island of Mauritius. Agalega on the other hand is located 1100 km North of the main Island and comprises two islands with a total area of 70 km². Mauritius enjoys a tropical climate, and has an annual average rainfall of 2200 mm, while that of Rodrigues averages 1130 mm yearly.

1.0.2 The Republic of Mauritius population reached 1,227,075 at the end of 2007, out of which about 43.2% lives in the urban conurbations of the districts of Plaines-Wilhems and Port-Louis. Out of the total population of Mauritius, the population of Rodrigues is about 40,000 and Agalega's population is less than 1,000. More than 900,000 tourists visited Mauritius in 2007, up 15.1 % on the arrivals for the previous year.

1.0.3 Over the years, Mauritius has successfully sustained an impressive economic growth rate, which now stands at 7% per year. The key country's resources include its people, land, water, coastal and marine resources. These form the foundation of the country's economy which stands on four main pillars namely: agriculture (sugar cane growing), tourism, economic processing zones (EPZ) and financial services. Information and Communication Technology (ICT) has been added as the fifth pillar of development.

1.0.4 This rapid economic and demographic growths which took place in the late eighties and early nineties had a heavy toll on the environment. As a result, the need to preserve the country's fragile environment has been recognized as one of the challenges which have to be addressed for the country to continue with its impressive record of economic growth.

1.0.5 As a response to the deteriorating environmental situation in the country, the country's first National Environmental Action Plan (NEAP) was prepared in 1990 with financing from the World Bank. The NEAP clearly identified poor or lack of management and infrastructure of wastewater in the country as one of the major factors contributing to the environmental degradation. A number of environmental activities were identified as requiring immediate attention. Among these was the need to draw up a Sewerage Master Plan. The plan was subsequently prepared in 1994 with ADB financing. This provided a global development framework and strategy for the development of wastewater infrastructure over a period of twenty years (1994-2013), on the basis of which the first National Sewerage Programme Phase I (NSP-Phase I) was prepared. The Master Plan also provided an overview and recommendations of the long-term institutional, financial, and operational management requirements of the sub-sector, to ensure its sustainable development.

1.0.6 In order to maintain this economic growth record, the government has identified the main challenges which require addressing. One of the key areas requiring urgent attention is the need to protect and preserve the Country's fragile environment. In particular the way wastewater is managed has a major influence on the status of the environment in the country. The proposed study is part of the Government's continued efforts to address the issues related to the environment.

2. THE SANITATION SUB-SECTOR IN MAURITIUS

2.1 Legal and Institutional Framework

2.1.1 The country has a comprehensive Environment Protection Act (EPA) which provides the legal framework for environmental protection throughout the country. This is based on the National Environment Strategy 1999 – 2010 which reflects the Government’s policy objectives for the preservation of the environment. Besides providing means of protection enforcement, the Act also aims at encouraging responsible behavior towards the environment, promote innovation and business opportunities. In the meantime, the second Environmental Action Plan (NEAP2) has since been prepared (1999).

2.1.2 According to EPA, the primary responsibility for environmental management in Mauritius rests with the Ministry of Environment (MOE). The Ministry is responsible for policy formulation and implementation as well as environment law enforcement. The Ministry has a strong institutional supervision and monitoring capacity. There is also an Environmental Audit Committee (EAC), chaired by the Ministry, whose main task is to review environmental audits for all developments and make recommendations on remedial measures. The enforcement of environmental laws is decentralized to local authorities. In addition, there is a full-fledged division, under the MOE which is responsible for environmental safeguards during implementation of projects. A Pollution Control Unit (PCU) has also been set up to monitor pollution levels along the coastline and conduct environmental audits on wastewater disposal.

2.1.3 In the water supply and wastewater sector, the Ministry of Public Utilities (MPU) is responsible for all planning and co-ordination activities. For service delivery, the Ministry operates through two authorities, one for water supply and the other for wastewater. According to the Central Water Authority (CWA) Act of 1971, the CWA is the sole body responsible for providing water supply services, and it also carries out assessment, development, management and conservation of water resources in Mauritius. It undertakes this role under a mandate from the MPU.

2.1.4 For the wastewater related services, the mandate of the MPU is carried out by the Wastewater Management Authority (WMA), a body that became operational in August 2001 upon proclamation of the Wastewater Management Authority Act (2000). WMA took over from its predecessor, the Waste Water Authority (WWA). The creation of the WMA was one of the major recommendations of the SMP and is meant to address institutional weaknesses and strengthen the day-to-day administrative and financial management capacity of the wastewater sector. The WMA Act (2000) was amended in 2004 to ensure that a maximum number of premises get connected to the public sewer system whenever necessary; specify environmental and service standards, enforcement responsibility, and define responsibilities relative to the WMA and other agencies involved in the sector.

2.1.5 The WMA under the aegis of the Ministry of Public Utilities, operates as an autonomous body whose functions are defined in the WMA Act, 2000 and the following two agreements.

- (a) “Contrat De Maitrise D’Ouvrage Déléguée”, whereby the Government delegates to WMA the duties of constructing new wastewater assets;

(b) “Contrat De Délégation”, whereby the Government entrusts to the WMA the operation and maintenance of all Government’s assets pertaining to the public sewerage systems. The WMA is empowered to charge rates to those connected to the sewerage systems in the country. The prevailing wastewater tariffs cover, inter-alia, operation and maintenance costs, and 25% depreciation of assets.

The WMA is also responsible for the following tasks:

- (a) Regulate, monitor and control industrial effluent discharges to the public sewer network;
- (b) Monitor and evaluate public and private wastewater treatment plants’ effluent in compliance with the Environmental Protection Act discharge standards;
- (c) Review and approve wastewater related infrastructure and industrial development applications; and
- (d) Provide advice and assistance on wastewater related issues and nuisances, drafting of Standards and Guidelines.

The WMA is equipped with a laboratory, which is in the process of accreditation as per ISO 17025:2005.

2.2 Sector Development

2.2.1 Approximately 99.6% of the Mauritian population has access to piped water supply. Most of the people are supplied through house connections, while a small number is served by yard taps, and only very few who are dependent on public fountains. Of the estimated total water utilisations in the country of nearly 900 Mm³/d, an average of 22% of this amount is used for domestic, industrial purposes and for tourist industry. The rest is used for agro-industry and hydropower.

2.2.2 In contrast, only 26% of the Mauritian population is connected to the public sewer network. The remaining 74% uses on-site wastewater disposal systems. The first sewer pipes were laid in Port Louis in the late 19th century. However, since then and until mid 20th century, there was very little development for the sub-sector. The present Plaines Wilhems system was developed in the 1960’s, while major improvements were made to the Port Louis sewerage system in the late 1960’s and early 1970’s.

2.2.3 As mentioned in the Introduction, a list of priority projects (13 in total) was prepared for implementation under NSP – Phase I, based on the recommendations of the first SMP. As a result of what has already been implemented of this programme so far, the percentage of the population of the main island of Mauritius having access to the public sewer network has now reached 26%. This is expected to reach 50% when the house connections under the 1st Phase projects are completed in 2013. The main areas under sewer include the capital city of Port Louis and its surrounding areas, parts of Plaines-Wilhems and the coastal area of Grand Baie. The public sewerage systems currently comprise 553 km of sewer network, 12,236 manholes, 62 wastewater pumping stations and 17 wastewater treatment plants.

2.2.4 Besides the ADB, implementation of the projects identified under the NSP – Phase I which started in late 1990s, has been supported by a number of development partners. These include the World Bank, European Union, Kuwait Fund, Nordic Development Fund, AFD, KfW, BADEA and Chinese Government.

3. THE PROPOSED STUDY

3.1 Objective

The objective of the proposed study is to elaborate a programme covering a period of twenty years (2014-2033), of the development and management of the wastewater on the main island of Mauritius and the island of Rodrigues.

3.2 Justification for Use of MIC TAF Resources

The Guideline for the Administration and Utilization of Technical assistance Fund for Middle Income Countries (ADB/BD/WP2005/90) allows the resources to be used mainly for activities which fall within the priorities articulated in the Country Strategy Paper (CSP), such as (i) preparation of program and projects, (ii) feasibility studies and sector studies, (iii) intensification of Economic and Sector Work (ESW) and other country analytical work (iv) environmental and social impact assessments (v) activities with potential to create new business opportunities both in public and private sectors (vi) capacity building and institutional strengthening activities. The proposed study falls under four of these categories (i, ii, iv and v).

3.3 Justification for the Study

3.3.1 As indicated in the introduction section, environmental issues in Mauritius are cross-cutting in all the country's identified pillars of development. The country has to maintain the integrity of its water resources including both ground and surface water for the water sector to continue to thrive; the tourism industry depends on adequate infrastructure including water supply and sanitation, as well as pollution free coastal environment. Industries too require abundant supply of quality water, as well as means of evacuation and safe disposal of the wastewater. For sustained economic development of the country, it is therefore essential that all sources of pollution are effectively addressed including wastewater generated from domestic, institutional and industrial enterprises.

3.3.2 In accordance to the MIC guidelines of the Administration and Utilization of the Technical Assistance Fund for the Middle Income Countries, the fund requested will be used to undertake a study which will help GoM to plan the development of the wastewater sub sector for 20 years (2014-2033). The proposed study will especially support the same areas identified in (CSP 2004 - 2008) as well as the Country Strategy Paper which is under preparation (CSP 2009-2013). Both CSPs focus on promotion of the private sector and support for infrastructure development, essential for the diversification and re-engineering processes, aimed at strengthening Mauritius's competitive edge and for efficient functioning of the private sector. The proposed Master Plan will prepare a framework for long term development of wastewater infrastructure in the country. Wastewater management is one of the infrastructure essential for private sector to thrive, especially industries, manufacturing

and even commercial activities. Furthermore, the study will contribute the Banks for the development of the country pipeline of projects.

3.3.3 The master plan will help the GOM to assess and review its sub sector strategy on the technical, institutional and financial sustainability. Commitment of GOM in implementing NSP phase 1 to prevent further degradation of the country's environment shows ownership and readiness of the government in the wastewater management sub sector. This commitment has positively impact on the health and sanitary condition of Mauritians. Consultation with stakeholders especially representatives of end users shall continue during the proposed and subsequent studies as well as during implementation of the program. The study will recommend any changes required including tariffs to reach cost recovery taking in to account the social nature of these services, cross subsidy between users as well as administrative efficiency. The study will assess the existing institutional arrangements and enforcement of related national laws and make recommendation for effective management of wastewater and sanitation management of its facilities and delivery of services and recommendation will be provided for the main island of Mauritius and the island of Rodrigues.

3.3.4 The last Sewerage Master Plan prepared with financing from the Bank in 1994, has ever since, been the basis of a development programme for wastewater collection, treatment and disposal in the country. The study will help the GOM to assess the existing wastewater sector strategy and to incorporate lesson learnt from the implementation of the first Master plan. The Government's determination to improve management of wastewater in the country is demonstrated by the speed at which it has implemented the recommendations of the first National Sewerage Programme Phase I which contributes to the county's initiative in protecting its environment (costal as well as water resources). Furthermore, reuse of treated wastewater and sludge for agricultures is one of the important achievements of GOM based on the recommendations of the first master plan which can be taken as best practice and lesson learnt for future planning and implementation of wastewater management projects. In addition, the Master Plan had a catalytic effect of rallying the development partners to support wastewater development programme and enhanced coordination and joint review of the sub sector among development partners in the country. It is expected that the proposed Master Plan will be prepared in close collaboration with all stakeholders. It is also anticipated that once ready, the second plan will also receive the same support and provide the basis of wastewater development in the country for the short, medium and long term.

3.3.5 The GoM has included preparation of a National Sewerage Plan - Phase II in its development agenda, the New Millennium Economic Agenda (NMEA). The proposed intervention is therefore timely to address this identified need by the Government. Mauritius is one of the few African countries which have already achieved most of the MDGs. Five out of the eight goals have been achieved and the country is on track to accomplish the rest. Environmental sustainability is one of those targets that have been achieved; including provision of sustainable water supply and basic sanitation services; 99.6% of the population have access to water supply and 100% to sanitation. However, only 26% of the population is connected with public sewerage system and about 74% is still using onsite sanitation. The improvements of sanitation services can be attributed to the first Bank financed Sewerage Master Plan, which provided the long term framework for development of these services. The proposed study will build on these achievements and therefore assist the Government to sustain and improve on the accomplishments.

3.4 Summary Description of the Study

The study will be carried out in three phases as summarized below:

A. Preparation of Wastewater Master Plan

This part of the study will entail review, update and assessment of the development of the sub-sector, followed by the preparation of a new Master Plan covering the next 20 years. Ongoing developments of the services under the NSP – Phase I, as discussed under section 2.2 above, shall be taken into account while preparing the Master Plan.

- During this phase of the services, the consultant will review the developments which have taken place in the wastewater sub-sector based on the Sewerage Master Plan prepared in 1994. In particular, the consultant shall assess the effectiveness of these developments in addressing the problems of wastewater disposal and protection of the environment. The levels at which the beneficiaries demands have been met including the rate of uptake of the services and the level of utilization of the installed facilities will be assessed and the results taken into account in the consultant's recommendations, and preparation of the Wastewater Master Plan for the next 20 years.
- The consultant will then gather and review all available information on country's current and projected national development and physical planning, identify the drainage basins, and for each, collect and analyze all data including population growth, water demands, ongoing and planned developments, in order to arrive at projected estimates of wastewater generation for each basin over the planning period. Wastewater generation projections shall be made for each category, i.e. domestic, institutional and industrial development. Available data shall be supplemented with field investigations and additional tests and analysis.
- The consultant will then look at the various alternatives available to collect, treat the wastewater and dispose the end products including effluents and sludge. Appropriate onsite sanitation shall be considered for areas where public sewerage system cannot be justified. The most appropriate system shall be recommended for each drainage area considering such factors as level of development, impacts on the environment, capital and Operation and Maintenance (O&M) costs as well as demand on management expertise.
- A Master Plan comprising a phased development programme of these services for immediate, medium term and long term over the twenty years planning horizon will be prepared. It is understood that any necessary rehabilitation of the existing system shall be included as part of the Phase A works. An implementation programme and cost estimate for each phase shall be prepared as part of the Master Plan.

B. Feasibility Study of Phase A of the Wastewater Master Plan.

- This will include wastewater developments identified for the first ten years of the Master Plan including rehabilitation measures where necessary, and shall be presented

in adequate details to form the basis of funding decisions. The consultant will refine the data analysis carried out during updating of the Master Plan, and confirm the proposed phasing of the wastewater development in Mauritius. A feasibility study of the Phase A works of the Master Plan will then be prepared.

- In light of the projected demand for these services, detailed assessment of the current status of the existing Wastewater facilities will be undertaken in order to identify those installations which can be refurbished and incorporated into the new developments and those that will need to be replaced or abandoned. Preliminary designs based on site surveys and investigations of the proposed works will subsequently be prepared including costing of both capital and recurring costs, and the implementation programme.
- The feasibility study will include clear monitoring indicators of the development's medium term and long term outcomes and impacts. Institutional structure shall be evaluated within the context of the Master Plan and feasibility study proposals, and effective institutional arrangement will be recommended. The consultant will assess and recommend any change including tariffs to ensure financial sustainability as per the country's sub-sector policy. Furthermore the consultant will assess monitoring and enforcement of the related national laws. Proposed systems shall be technically, socially, economically, financially and environmentally justified.

C. Environmental and Social Impact Assessment (ESIA) Study

- The study will ensure that a Strategic Environmental and Social Assessment is conducted as part of the Master Plan while an ESIA will be conducted during the feasibility study to comply with both Bank's and country's environmental guidelines. The study will include assessment of environmental and social impacts of the proposed development, clearly identifying the significant impacts, both positive and negative.
- ESIA will be conducted for projects identified during feasibility study in the required detail as per the Bank's safeguard policies and strategies. The study will identify potentially substantial environmental and social impacts. The related capital and operational costs shall also be determined and an environmental and social management as well as monitoring plan prepared. Mitigation measures including compensation issues, land acquisition, and impacts on ecosystems will be identified. Stakeholder consultation will also be undertaken.

3.5 Study Outputs

The expected outputs of the study will include:

- a) A Wastewater Master Plan: This study will prepare a plan for the management of wastewater for a period of 20 years. The plan will cover the main Island of Mauritius, and the Island of Rodrigues. It will show the required staged development of the infrastructure for each of the main drainage basins, clearly indicating the transportation, treatment and disposal of wastewater and sludge management, necessary to protect the fragile environment of the country.

- b) A Feasibility Study: This study will be for phase A of development as identified by the Master Plan. It is expected that this Phase shall include all the rehabilitation and expansion works of the existing sewerage infrastructure as well as new developments identified for the first ten years of the Master Plan. The study outputs will include the detailed assessment and recommendation on the scope of work mentioned in the TOR, cost estimates and implementation schedule, in adequate details to form the basis for funding decisions.
- c) Environmental and Social Impact Assessment (ESIA) Study: This study will incorporate analysis of the potential impact of the project and preparation of an Environmental and Social Management Plan. Environmental and Social Management Plan shall be in sufficient detail to satisfy the requirements of potential funding agencies, including the African Development Bank.

4. STUDY COST ESTIMATES AND FINANCING

4.1 Cost Estimates

4.1.1 The total cost of the study is estimated at MUR 34,611,214 (UA 685,732) net of taxes and duties. It comprises MUR 24,853,442 (UA 492,407) foreign exchange and MUR 9,757,771 (UA 193,325) in local currency. The cost estimates are based on prevailing fees for consultancy services and include 10 % contingencies. Details are given in Annex 2 attached to this report and the same summarized in Table 4.1 below.

Table 4.1 Cost Estimates by Component

COMPONENT	Mauritian Rupee (MUR)			UA		
	FC	LC	TOTAL	FC	LC	TOTAL
Wastewater Master Plan	11,251,926	3,887,804	15,139,731	222,928	77,027	299,955
Feasibility Study	9,273,241	3,401,880	12,675,121	183,724	59,724	251,125
ESIA Study	2,068,871	342,553	2,411,423	40,989	6,787	47,776
Study Management Cost		1,238,465	1,238,465		24,537	24,537
Sub-Total	22,594,038	8,870,701	31,464,740	447,642	175,750	623,393
Contingencies (10%)	2,259,404	887,070	3,146,474	44,764	17,575	62,339
GRAND TOTAL	24,853,442	9,757,771	34,611,214	492,407	193,325	685,732

4.2 Financing Plan

The study will be financed by the Bank (from the Technical Assistance Fund for Middle Income Countries (MIC)) and the GoM as shown in Table 4.2 below. The Bank will meet 82.1 % of the total costs while the Government will provide counterpart funding of 17.9 %. Government financing will go towards meeting part of the local costs including office accommodation, local transportation, cost of workshops for stakeholders and study management cost.

Table 4.2 Financing Plan

Financing Source	Mauritian Rupee (MUR)			UA			%
	F.C.	L.C.	Total	F.C.	L.C.	Total	
ADB	24,853,442	3,557,510	28,410,953	492,407	70,483	562,890	82.1
GoM		6,200,261	6,200,261		122,842	122,842	17.9
Total	24,853,442	9,757,771	34,611,214	492,407	193,325	685,732	100

5. PROCUREMENT

5.1 Procurement Arrangement

5.1.1 The procurement arrangement for the proposed service is given in Table 5.1 below. The acquisition of consulting services financed by the Bank will be in accordance with the Bank's Rule and Procedures for the Use of Consultants, using relevant Banks Standard Request for Proposal (RFP) for consultancy services.

Table 5.1 Summary of Procurement Arrangements (in UA)

CATEGORY	SHORTLIST	Non Bank Funded	TOTAL
1. Consulting Services	562,890 (562,890)		562,890 (562,890)
2. Office accommodation, local transport and workshops		95,851	95,851
3. Miscellaneous (Study Management)		26,991	26,991
Total	562,890 (562,890)	122,842	685,732(562,890)

5.1.2 Procurement of the consulting services for the preparation of the Wastewater Master Plan will be carried out by MPU and WMA through the Central Procurement Agency of the Government. The Authority has in the recent past, implemented a number of donor funded wastewater studies and projects including those financed by the Bank, and has also a long record of use of consultants for preparation of studies. The process for selecting the firm shall be through Shortlist and the evaluation will be based on combined Quality and Cost Based Selection (QCBS).

5.2 General Procurement Notice

A General Procurement Notice will be agreed upon with the GoM and will be issued for publication in UN Development Business online (UNDB online) and the Bank's website, upon approval of the Grant Proposal by the Board of Directors.

5.3 Review Process

The following documents shall be subject to prior review and approval by the Bank before promulgation: (i) Shortlist (ii) Request for Proposal (iii) Report on Evaluation of Consultants' Proposals (iv) The Draft Consultancy Services Contract.

5.4 Disbursement

The consultancy services will be the only contract package under the study. Disbursement for the study shall be by the direct payment method. All disbursements will be subject to the Bank's rules as set out in the Bank's disbursement handbook. Payment will be based on the acceptable output. There will be an initial advance payment upon the presentation of a bank guarantee. The fee shall be paid up on submission and approval of the various reports.

6. **IMPLEMENTATION**

6.0.1 Overall responsibility and authority for the proposed study will reside with the Ministry of Public Utilities (MPU). MPU will be the executing agency and will be directly responsible for the smooth implementation of the study with support from WMA. MPU will assign a senior staff member to be the Study Coordinator who will be assisted by an engineer and one financial expert. The Coordinator will also be the liaison officer between the consultant and the executing agency. The Coordinator will follow the study on day-to-day basis and will timely address any issues arising in order to ensure expeditious implementation of the study.

6.0.2 The study will be carried out over a period of 13 months. The consultant will therefore be expected to commence the work as soon as the contract is signed and a go ahead is given by the executing agency. The timing of the key milestones of the study is given in the table below, while an implementation schedule is annexed to this Memo.

<u>Activity</u>	<u>Target Date End of</u>
Award of Contract	M
Submission of Inception Report	M+1
Draft Wastewater Master Plan Study Report	M+6
Final Wastewater Master Plan Study Report	M+7
Draft Feasibility Study Report	M+11
Draft ESIA Study Report	M+11
Final Feasibility Study Report	M+13
Final ESIA Study Report	M+13

7. **CONCLUSIONS AND RECOMMENDATIONS**

7.1 Conclusions

7.1.1 GoM has been successfully implementing the first National Sewerage Program resulting from the Master Plan financed by the Bank in 1994 covering the period (1994-2013) Out of the 13 priority projects identified in the first national Sewerage Program (NSP – Phase I), 7 have been completed and 4 are under implementation including the Bank financed Plaines Wilhems Sewerage project and two are waiting for funding. With the implementation of NSP-Phase I, the percentage of the population of the main island of Mauritius having access to the public sewer network has now reached 26%, and will increase to 50% by the end of year 2013. The first Master Plan has also contributed to development of the institutional arrangements in the wastewater management sub sector.

7.1.2 The study will help the GoM to continue its efforts at protecting its environment, especially its water resources and costal environment, as well as in promoting private sector development, especially industries, manufacturing and commercial activities. These are in line with identified areas of support in the CSP (2004-2008) as well as the new CSP which is under preparation. The study will support the wastewater sector to assess its institutional arrangement for implementing and enforcing related national laws. Moreover the study will assess the financial sustainability of the sub-sector and recommend any changes required including tariffs.

7.1.3 The study is justified for financing under the Technical Assistance Fund for Middle Income Countries (ADB/BD/WP2005/90) as it supports activities which fall within the priorities articulated in the Country Strategy Paper, as well as a Master plan, a feasibility study and an ESIA study, which will help the GoM to better protect its water resources and costal environment.

7.2 Recommendations

It is recommended that the Board approves a grant not exceeding UA 562,890 from the resources of the MIC Fund to the Government of Mauritius to carry out the study described herein.

ANNEX 1 – MAURITIUS LOCATION MAP



ANNEX 2 COST ESTIMATE:

A	MASTER PLAN STUDY	No of MM			Unit Price (MUR)	MUR			UA		
		Home	Field	Total		Total	F.C	L.C	Total	F.C	L.C
1	Study Manager/Sanitary Engineer	0.5	6.5	7	444577	3112039	3112039		61657	61657	
2	Sanitary Engineer	0.5	3.5	4	412822	1651286	1651286		32716	32716	
3	Electro-Mechanical Engineer	0.5	2	2.5	412822	1032054	1032054		20447	20447	
4	Hydrologist/Hydro geologist	0.5	2	2.5	412822	1032054	1032054		20447	20447	
5	Socio-Economist	0.5	3	3.5	412822	1444875	1444875		28626	28626	
6	Financial Analyst/Institutional Expert	0.5	1.5	2	412822	825643	825643		16358	16358	
	Sub Total	3	18.5	21.5		9097951	9097951		180252	180252	
	Local Staff										
1	Surveyor			3	19053	57160		57160	1132		1132
2	Technician			3	15878	47633		47633	944		944
3	Secretary			7	15878	111144		111144	2202		2202
4	Office Assistant			7	12702	88915		88915	1762		1762
5	Driver			7	12702	88915		88915	1762		1762
	Sub-Total			27		393768		393768	7801		7801
	Total for Master Plan Study					9491719	9097951	393768	188054	180252	7801
B	FEASIBILITY STUDY										
1	Study Manager/Sanitary Engineer	0.5	5.5	6	444577	2667462	2667462		52849	52849	
2	Sanitation Engineer	0.5	3.5	4	412822	1651286	1651286		32716	32716	
3	Electro-Mechanical Engineer	0.5	1.5	2	412822	825643	825643		16358	16358	
4	Hydrologist/Hydro geologist	0.5	1.5	2	412822	825643	825643		16358	16358	
5	Socio-Economist	0.5	1	1.5	412822	619232	619232		12268	12268	
6	Financial Analyst/Institutional Expert	0.5	1.5	2	412822	825643	825643		16358	16358	
	Sub-total	3	14.5	17.5		7414909	7414909		146907	146907	
	Local Staff										
1	Surveyor			4	19053	76213		76213	1510		1510
2	Technician			4	15878	63511		63511	1258		1258
3	Secretary			6	15878	95267		95267	1887		1887
4	Office Assistant			6	12702	76213		76213	1510		1510
5	Driver			6	12702	76213		76213	1510		1510
	Sub-Total			26		387417		387417	7676		7676
	Total for Feasibility Study					7802326	7414909	387417	154583	146907	7676
C	ENVIRONMENTAL AND SOCIAL STUDY										
1	Environmental input during master plan stu	0.5	1.5	2	412822	825643	825643		16358	16358	
2	Environmental input during feasibility study	0.5	2	2.5	412822	1032054	1032054		20447	20447	
	Sub total for ESIA Study		3.5	4.5		1857697	1857697		36805	36805	
D	Reimbursable/Miscellaneous										
1	International Travel	No.		14	63511	889154	889154		17616	17616	
2	Per Diem	day		525	6351	3334328	3334328		66061	66061	
3	House Accommodation			19	47633	905032		905032	17931		17931
4	Office Accommodation	month		13	79389	1032054		1032054	20447		20447
5	Local Transport	month		13	222289	2889751		2889751	57253		57253
6	Study Document	LS				1031922		1031922	20445		20445
7	Waste Water Quality Test	LS				171987		171987	3407		3407
8	Site Investigation	LS				343974		343974	6815		6815
9	Workshops	No.		3	158778	476333		476333	9437		9437
	Sub-Total					11074533	4223482	6851052	219413	83677	135736
	Program Management Cost			13	95267	1238465		1238465	24537		24537
	TOTAL					31464740	22594038	8870701	623393	447642	175750
	Contingency					3146474	2259404	887070	62339	44764	17575
	Grand Total					34611214	24853442	9757771	685732	492407	193325

