

Document of
The World Bank

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Report No: 47065-MU

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US\$50 MILLION

TO THE

REPUBLIC OF MAURITIUS

FOR A

INFRASTRUCTURE PROJECT

JULY 27, 2009

Africa Transport Unit
Country Department AFCS1
Africa Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective: April 29, 2009)

Currency Unit = Mauritian Rupee
MUR 34.10 = USD1

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AFD	<i>Agence Française de Développement</i> (French Development Agency)
AfDB	African Development Bank
BADEA	Arab Bank for Economic Development in Africa
BRT	Bus Rapid Transit
CEB	Central Electricity Board
CPS	Country Partnership Strategy
CQ	Consultant's Qualifications
CTSAV	<i>Compagnie Thermique de Savannah Limitée</i> (Bagasse-Fuelled Cogeneration Project)
CWA	Central Water Authority
DPL	Development Policy Loan
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EMP	Environmental Management Plan
ERR	Economic Rate of Return
EU	European Union
FM	Financial Management
FDI	Foreign Direct Investments
GDP	Gross Domestic Product
GoM	Government of Mauritius
GPN	General Procurement Notice
HDM	Highway Development and Management Model
IBRD	International Bank for Reconstruction and Development
ICB	International Competitive Bidding
ICT	Information and Communication Technology
IFR	Interim Financial Report
IPP	Independent Power Producer
IR	Irrigation Authority
IRS	Integrated Resort Scheme
IWRM	Integrated Water Resources Management
JBIC	Japan Bank for International Cooperation
LTA	Land Transport Authority
M&E	Monitoring and Evaluation

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METAP	Mauritius Economic Transition Technical Assistance Project
MID	<i>Maurice Ile Durable</i> (Mauritius Renewable Energy Program)
MoENDU	Ministry of Environment and National Development Unit
MoFEE	Ministry of Finance and Economic Empowerment
MoHL	Ministry of Housing and Lands
MoPILTS	Ministry of Public Infrastructure, Land Transport and Shipping
MoREPU	Ministry of Renewable Energy and Public Utilities
MUR	Mauritian Rupee
NEAP	National Environmental Action Plan
NPV	Net Present Value
NSMP	National Sewerage Master Plan
NSP	National Sewerage Program
NTA	National Transport Authority
NTC	National Transport Corporation
O&M	Operation and Maintenance
OPEC	Organization of Petroleum Exporting Countries
OTEC	Ocean Thermal Temperature Conversion
PAP	Project Affected Persons
PBC	Performance-Based Contracts
PCAR	Procurement Capacity Assessment Reviews
PEFA	Public Expenditures and Financial Accountability
PPA	Power Purchase Agreement
PPC	Projects Plan Committee
PPF	Project Preparation Facility
PPP	Public-Private Partnership
PSIP	Public Sector Investment Program
QCBS	Quality and Cost Based Selection
RAP	Resettlement Action Plan
RDA	Road Development Authority
RE	Renewable Energy
RMS	Road Management System
SBD	Standard Bidding Documents
SIM	Sector Investment and Maintenance Loan
SSS	Single Source Selection
TMRSU	Traffic Management and Road Safety Unit
TOR	Terms of Reference
USD	United States Dollar
WMA	Wastewater Management Authority
WRU	Water Resources Unit

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Acting Sector Manager:	Alain Labeau
Task Team Leader:	Pierre Graftieaux

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**MAURITIUS
Infrastructure Project**

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Map IBRD 33446

MAURITIUS
INFRASTRUCTURE PROJECT
PROJECT APPRAISAL DOCUMENT

AFRICA

AFTTR

<p>Date: July 27, 2009 Country Director: Ruth Kagia Sector Director: Inger Andersen Sector Manager: C. Sanjivi Rajasingham</p> <p>Project ID: P091828</p> <p>Lending Instrument: Sector Investment and Maintenance Loan (SIM)</p>	<p>Team Leader: Pierre Graftieaux Sectors: Roads and highways (72%); General water, sanitation and flood protection sector (14%); General transportation sector (10%); General energy sector (4%) Themes: Rural services and infrastructure (P); Infrastructure services for private sector development (P) Environmental screening category: B (Partial Assessment)</p>
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Project Financing Data

[X] Loan [] Credit [] Grant [] Guarantee [] Other:

For Loans/Credits/Others:
Total Bank financing (USDm.): 50.00
Proposed terms: IBRD flexible loan with variable spread

Financing Plan (USDm)

Source	Local	Foreign	Total
Borrower	1.10	0.00	1.10
International Bank for Reconstruction and Development	40.00	10.00	50.00
Total:	41.10	10.00	51.10

Borrower:
REPUBLIC OF MAURITIUS

Responsible Agency:
Ministry of Public Infrastructure, Land Transport and Shipping
Mauritius
Tel: (230) 201-1067 Fax: (230) 201-3387

Estimated disbursements (Bank FY/USDm)								
FY	10	11	12	13	14	15		
Annual	18	21	5	3	2	1		
Cumulative	18	39	44	47	49	50		

Is approval for any policy exception sought from the Board? Yes No

Does the project include any critical risks rated “substantial” or “high”? Yes No
Ref. PAD III.E.

Does the project meet the Regional criteria for readiness for implementation? Yes No
Ref. PAD IV.G.

Project development objective *Ref. PAD II.B., Technical Annex 3*
 To assist the Borrower to improve the national infrastructure, with an emphasis on the transport, energy and water sectors

Project description [*one-sentence summary of each component*] *Ref. PAD II.C., Technical Annex 4*
 Component 1: Road Investments: Upgrading, Periodic Maintenance and Performance-based routine maintenance contracts on key road sections of the Mauritian network.
 Component 2: Technical Assistance and Institutional Development in the Transport, Water and Wastewater, and Energy subsectors to accelerate and improve the 10-year Public Sector Investment Program readiness for implementation.

Which safeguard policies are triggered, if any? *Ref. PAD IV.F., Technical Annex 10*
 - Environmental Assessment (OP/BP 4.01)
 - Involuntary Resettlement (OP/BP 4.12)

Significant, non-standard conditions, **if any**, for: *Ref. PAD III.F.*
 Board presentation: none
 Loan effectiveness: submission to the Bank of the Project chart of accounts reflecting the sources and expenditures, by Project components and activities, satisfactory to the Bank.
 Disbursement Conditions: (i) the consulting services for the setting up of the new Land Transport Authority (LTA) for an estimated amount of USD600,000 and part of the training and assistance, strictly related to the creation of the LTA and estimated at USD150,000, to the agencies in charge of Land Transport, is contingent upon the passage of the LTA bill in Parliament, and (ii) the commencement of the upgrading works on Quartier Militaire Road is contingent upon the completion of a survey and valuation of the land proposed for compulsory acquisition at replacement cost (as deemed satisfactory to the Bank), the establishment of a separate ledger account maintained by the Ministry of Housing and Lands (MoHL) for the purpose of recording the counterpart financing equivalent to the value of the land to be acquired, and the recordation in the account of such amount allocated to the MoHL.

I. STRATEGIC CONTEXT AND RATIONALE

A. Country and sector issues

1 General Background

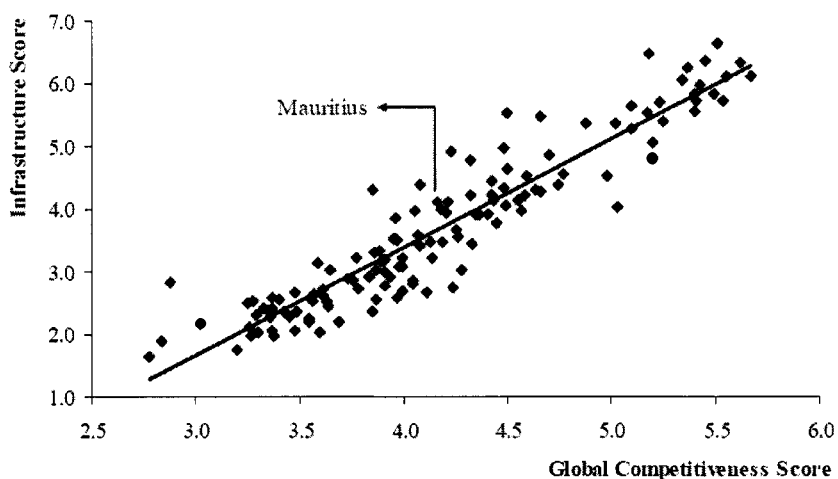
1. With about 610 people per square kilometer, Mauritius is one of the most densely populated countries in the world. The population is estimated at about 1.2 million people, of whom about 1.14 million live on the island of Mauritius. Port Louis is the only port city in Mauritius and is its commercial, industrial, and administrative center. About 45 percent of the people that inhabit Mauritius Island live in the Port Louis/Plaine Wilhems conurbation, comprising Beau Bassin, Rose Hill, Quatre Bornes, Vacoas, Phoenix, and Curepipe. Population density in Port Louis stands at about 3,250 people per square kilometer. The average density in the remainder of the conurbation is around 1,750 people per square kilometer.

2. Mauritius has experienced impressive economic growth by regional and international standards over the last few decades, spurred mostly by preferential access to export markets for its textiles and sugar. It is a small, open economy with a specialization in relatively low-cost labor intensive industries. Growth rates began to slow in the late 1990s as a result of adverse changes in key export markets, new trade patterns and competition from lower cost manufacturers in Asia and Africa. The end of preferential trade access between 2005 and 2009 in sugar and textile triggers an urgent need for continuing the implementation of reforms that can sustain economic growth.

3. Mauritius was hit hard by the world economic crisis. Just before September 2008, outlook for the Mauritian economy was very strong and gross domestic product (GDP) growth for the next year was expected to be above six percent. In December 2008, the Government revised downwards its growth forecast to four percent and, by March, official projections were further lowered to 2.5 percent. In May, the Ministry of Finance was quoted predicting 2009 GDP growth between 2 and 2.2 percent. The World Bank predicts GDP growth for 2009 at two percent in Mauritius with downside risks, and the International Monetary Fund (IMF) has similar projections. Overall, the economic outlook is negative. Key areas for concern are: (i) performance of Foreign Direct Investments (FDI) inflows and strategic economic activities; (ii) risks to the fiscal outlook, and (iii) risks to the balance of payments. At the same time, some sectors of the real economy have continued to show resilience, leveraging the successful reforms over the last years. Job market performance has shown only mild signs of deterioration so far once seasonal adjustment to 2009 first quarter figures are taken into account. Provisional government figures indicate positive overall job growth during the first quarter of 2009, despite the export sector losing 5000 jobs over the same period. More importantly, the Mauritian government continues to be pro-active and innovative in its response to the global economic crisis. A six-month budget (July-Dec 2009) to align calendar and fiscal years was announced at the end of May. The budget has been cast as an 18-month action plan “to ride out the global crisis to save jobs, protect people and prepare for the recovery”. Numerous measures grouped in five different paths to accomplish such an objective were announced. The paths were (i) job preservation through direct support to enterprises, (ii) boosting project realization capacity in the public sector, (iii) launching a large public sector investment program, (iv) strengthening the eradication of poverty program and (iv) maintaining expansionary fiscal and monetary policies.

4. Among the obstacles to further growth is the erosion of Mauritius' competitiveness due to increasing cost of export products caused by a combination of factors including emerging infrastructure bottlenecks. Evidence of the significance of public infrastructure for growth comes from the rapid economic growth of East Asian economies in the 1980s and 1990s which was preceded by substantial investments in physical capital with particular attention to the development of roads, ports and airports to ease both domestic and international movement of goods and people. On the other hand, inadequate and unstable power supply, inefficient transport systems, poor-quality roads and unreliable communication systems tend to raise transaction costs, curtail productivity growth, and reduce the viability of investment. Indeed, a close relationship can be observed between infrastructure development (e.g. quality of road, port and electricity supply) and the competitiveness of the economy based on cross-country data published by the World Economic Forum (Figure 1).

Figure 1: Positive Correlation between Infrastructure and Competitiveness



Source: World Economic Forum 2007

5. While a number of key infrastructure projects are envisaged, a key challenge will be their coherent and timely implementation. Delays have been observed in the implementation of planned public investment projects as reflected by a low disbursement ratio of 43 percent of the 2007/08 capital budget. This suggests that the constraint on infrastructure capacity expansion is not only inadequate financial resources but also inadequate institutional and human capacity to fast track the implementation of infrastructure development projects. The proposed project will aim precisely at providing technical assistance to the government to lay the groundwork for future infrastructure investment projects in three sub-sectors namely transport, water/wastewater, and energy. Simultaneously, the proposed operation will finance urgent road investments, which can be seen as the first module of the long-term, more ambitious Public Sector Investment Program (PSIP) that this loan will help formulate.

1.2 Current issues and constraints in the Transport, Water/Wastewater and Energy Sectors

Transport

6. In line with fast growing incomes has come equally high demand for automobiles and transport services. Since 1988, the number of cars and dual-purpose vehicles has grown steadily at about seven percent per year. Mauritius now has about 300 motorized vehicles per 1,000 inhabitants, which is fairly typical for upper-middle income countries. The overall transport infrastructure has not been upgraded at the same pace and is lagging behind in terms of development. This shows both in the most densely populated area, the Port-Louis – Curepipe corridor and on the national road network, two areas where the government has identified a series of priority transport infrastructure investments which are at different stages of project preparation including mainly: (i) a road maintenance program for the national road network, including pilot performance-based contracts, (ii) a ring road in Port Louis and Harbour Bridge, and (iii) a Bus Rapid Transit (BRT) from Port Louis to Curepipe where there is a strong need to improve bus service quality significantly, and especially to reduce bus travel times.

7. **Urban Transport in the Port-Louis – Curepipe corridor:** The Government of Mauritius (GoM) recognizes that future high and sustainable economic growth depends on reducing the chronic traffic congestion and improving traffic flows in and around Port Louis. With rising car ownership and the increasing concentration of employment in Port Louis, traffic congestion has steadily worsened and is now severe during the morning and evening peak travel periods. Congestion imposes significant costs on travelers who spend up to two hours a day commuting and employers who bear the costs of missed appointments and late arrivals. Congestion slows the delivery of freight and prevents public service vehicles from rapidly responding to emergencies. It also increases vehicle operating costs. Increasing use of private vehicles also negatively affects those without cars, as it reduces overall demand for public transport services, leading to less frequent and more expensive services for those who require them. The government estimates that the cost of congestion totals MUR 2 billion per year.

8. **Overall Road Network:** The Road Development Authority (RDA) is responsible for the provision and maintenance of roads classified under the Roads Act as motorways and main roads and this includes bridges and other structures found therein. The road network under the jurisdiction of the RDA consists of 55 km of motorways (dual carriageway) and 1,019 km of main roads. Some key segments of the road networks are currently saturated and/or not optimally maintained. Presently, maintenance, rehabilitation and reconstruction budgets are based on one or a combination of the following techniques:

- Based on the previous year's budget possibly with an arbitrary increase or decrease;
- Periodic maintenance schedule such as surfacing or overlays every seven to ten years, whether the road needs it or not;
- Fire fighting approach i.e. to attend to complaints from public;
- Political imperative; and
- Experience and knowledge.

9. However, this is not a satisfactory approach since scarce resources may end up being used on roads which are in bad shape only, thereby neglecting roads in good condition. However, these roads need to be subjected to preventive maintenance to avoid deterioration which could prove costlier in the long term.

10. A 10-year maintenance program (2009-2018) has been prepared in-house on the basis of visual inspections, taking on board the state of the existing network based on the RDA's knowledge of the condition of the roads under their responsibilities as well as the projected traffic levels which would be plying on Mauritian roads in 2015-2020. This has enabled identification of roads in the network which would need upgrading as opposed to others which will be provided with overlays, local interventions only and implementation of Road Safety measures.

11. Institutional framework: Several institutions are currently responsible for planning and managing transport systems. The arrangement leads to fragmented management processes, with duplication, conflicts, and obstacles to perform integrated planning. A consensus-forming exercise conducted with the participation of twenty major stakeholders in 2006 resulted in agreement on a package of measures which includes the setting up of a Land Transport Authority (LTA) and which has already received government's approval. The bill needed to create it will be sent to Parliament during the second semester of 2009. A team of consultants, already selected, will help the government (i) plan and design the new LTA organizational structure; and (ii) actually implement the LTA. It is expected that by end 2009 the existing functions of the RDA, the National Transport Authority (NTA), and the Traffic Management and Road Safety Unit (TMRSU) will be transferred to the future LTA. It will have the following main responsibilities:

- provide the necessary institutional mechanisms for integrated and coordinated policy formulation, planning, project implementation, and transport systems management;
- produce a land transport master plan, manage transport resources effectively and plan, execute and manage all land transport projects;
- remove duplication and bureaucracy and improve cost efficiency.

Water Supply and Wastewater.

12. **Water**: Some 30 years back, the water distribution systems in Mauritius were limited to a low coverage throughout the island. With time, massive investments have been made in the water sector as a result of which about 99 percent of the population has access to safe water supply. The present domestic water demand is met from groundwater (55 percent) and four impounding reservoirs and river off-takes (45 percent). However resources available remain limited particularly during the dry season (September - December), which means that in some regions (center, north, south, Port-Louis), access is limited to around 10 hours per day. In parallel, demand is more and more increasing in sectors such as urban, tourism, industry, irrigation, etc. as a consequence of economic development growth, agriculture and food crisis.

13. Despite the performance of the water sector towards meeting demands of the different economic sectors, several challenges are appearing which need to be addressed in order to ensure an adequate supply for the sustainability of the Mauritian economy. Until now, management of water resources has been driven by 'supply-side management' with less attention to Integrated

Water Resources Management (IWRM), the absence of which has led to low operating efficiency of the water supply systems, outdated water laws and inadequate water storage. The water sector, therefore, is facing a number of challenges that need to be addressed and which include: (i) increasing demand from the various economic sectors, (ii) reduction in average annual rainfall due to climate change, (iii) sea level rise leading to groundwater quality degradation in the coastal zone, (iv) degradation of groundwater quality due to low coverage of sanitation facilities, and (v) water quality degradation due to effluent discharged by industrial development.

14. The sector is also faced with several constraints that include: (i) need for capacity building and technology transfer, (ii) lack of financial resources to be invested in the water sector, (iii) inconsistencies between the different pieces of legislation related to water, (iv) obsolete water laws dealing with water allocations, (v) institutional weaknesses, and (vi) lack of cross-sectoral consultation and interaction.

15. To address these issues, the GoM seeks to strengthen the water sector and increase its capacity to provide the necessary production, financing, delivery, and management support for improved service delivery. A new National Water Policy is under finalization, in which emphasis was placed on the need to enhance and promote all national efforts towards the efficient, equitable, and optimum utilization of water resources for the social, economic and environmental sectors on a sustainable basis. Accordingly, ongoing and future efforts will be targeted to strengthen water services delivery, develop and manage human resources in the water sector, optimize water resource mobilization and allocation, and promote demand side management. There is, therefore, a clear need for the definition and implementation of a sound strategy ranging from the short, medium, and long term which encompasses the management of the water sector from a spectrum of instruments ranging from supply and demand-side management, institutional review/reform and the legal instruments in order to ensure a sound and sustainable base for the sector.

16. **Wastewater:** In the mid-1990s, expansion of the high-end tourist industry which contributed 5.7 percent of GDP, rapid growth of residential and industrial development in Port Louis, and other agglomerations have resulted in noticeable pollution of rivers and land as well as coastal pollution by untreated sewage discharged to the sea through short sea outfalls built in the 1970s. To address the problem, the government developed in 1993 the National Sewerage Master Plan (NSMP) that laid out a 20-year program (1993–2012) to expand the network and to construct new pumping, treatment, and discharge facilities to serve households and industries throughout Mauritius and Rodrigues. The master plan specified the most urgent investments required to reverse damage to the environment and to protect public health.

17. Implementation of the National Sewerage Program (NSP) developed within the framework of the NSMP led to increased coverage of the sewerage infrastructures to provide adequate waste water treatment facilities. As a result, the connection to public sewerage networks is presently at 25 percent (i.e. 63,000 households) and waste water is treated at some ten plants, out of which the main ones (Saint Martin, Montagne Jacquot, Grand Baie and Baie du Tombeau) have been designed to receive significant waste water for treatment at different levels. The remaining 75 percent continue to use on-site waste water disposal systems having resulted in

serious threats to the aquifers, health hazards and odors due to leaching or overflowing cesspits and leaching fields.

18. In parallel, different activities which form part of the wastewater development program continued to be undertaken with noticeable progress, in particular: (i) the institutional strengthening of the Wastewater Management Authority (WMA) with adequate legal status, human resources and tariff structure with a view to full cost recovery of Operation and Maintenance (O&M) expenditures. The WMA is presently responsible for both managing the implementation of large wastewater sewerage projects on behalf of the government and for O&M of sewer networks and wastewater treatment plants; (ii) environmental monitoring to provide a quality analytical service for the monitoring and control of wastewater discharges to the WMA sewer system, effluent quality of industries, hotels and Wastewater Treatment Plants; (iii) implementation of industrial pollution control program, and (iv) improvement of access of the poor to suitable sanitation. In addition, a funding request for a Wastewater Master Plan has been recently submitted by the government to the African Development Bank and is currently being evaluated.

19. However achieving the government objective, which consists of attaining 50 percent coverage by 2011/2012 and 80 percent by 2030, remains a huge challenge and will require substantial investment. EIB, AfDB, BADEA, OPEC, Indian and Chinese (Exxim Bank) funds are available for the next five years to fund projects aimed at connecting an additional 35,000 households but there are additional identified priority projects totaling about MUR 6,500 million (approximately USD200 million) the funding of which still needs to be secured.

Energy

20. Renewable energy sources accounted for 22 percent of total electricity generation in 2006 as shown in the table below, placing Mauritius well above the level of many developing countries in its commitment to a diversified energy mix.

Figure 2: Sources of Energy and Power

Sector	Output/GWh	Energy Source	%
Hydro	76.6	Water	3.7
Thermal	998.8	Fuel oil and kerosene	47.8
Purchase (CPP)	113.5	Bagasse (Seasonal)	5.4
Purchase (IPP)	902.2	Coal and Bagasse	43.1
Total	2 091.1		

Source: CEB Annual Report 2006. Data as of December 20, 2006.

21. While the growing diversification of energy sources is to be commended, there is growing concern about the need to meet demand for electricity. After a dip in the growth of electricity consumption in 2006 (1.8 percent as compared to double digit growth in previous years) there has been a marked increase in electricity demand in Mauritius. This is due to a resurgence of economic activity over the last two years and it is highly likely that this trend will continue, given plans to build Tianli, the Chinese Economic and Trade Cooperation Zone planned at Riche Terre; the new administrative city at Highlands; and the many new hotel

projects in the pipeline. Population growth and higher household income is expected to boost residential demand.

22. Central Electricity Board (CEB) forecasts indicate that in 2013 approximately 3,092 GWh of energy would have to be generated to meet demand, with a peak power demand of more than 500 MW, compared to 2,224 GWh and 389 MW in 2008. Additional generating capacity is therefore critical to meet demand in the medium term, and support the projected economic development of the island.

23. In the medium to longer term the challenges for Mauritius are:

- To serve increasing energy demand in a cost-efficient way (growth is estimated to be around 5 percent per annum);
- To ensure sustainable development and the reduction of local and regional pollution, and global (greenhouse gas) emissions;
- To determine the type, sequencing and timing of new generation facilities;
- To find transparent and efficient means to finance new investments; and
- To ensure security of supply regarding fuels through the reduction of fuel imports.

24. In view of the serious challenge to energy security posed by rising oil prices and the high cost of additional energy generation (imposed by changes in world markets), the GoM intends to adapt its energy strategy to guarantee energy security, maintain the financial viability of the utility, and promote efficient and sustainable use of energy. This will be accomplished through further diversification of the energy sector, the establishment of a regulatory body for energy (and water) which would facilitate increased private sector involvement in the sector, and the promotion of energy efficiency and energy conservation measures.

25. With bagasse and hydro resources almost fully exploited, the island will resort to coal- and other fossil fuel-based power generation unless substantial commercially viable renewable energy resources are developed. Increased fossil fuel-based development comes with negative environmental implications which could affect tourism, (the island's economic base) and has global implications – an increase in greenhouse gas emissions.

26. Recognizing this, the GoM has set up a fund in support of an innovative and visionary concept – *Maurice Ile Durable* (MID) – to increase the proportion of renewable energy (RE) in the energy mix, and to promote energy efficiency. Key opportunities for renewable energy development must therefore focus on solar (thermal, photovoltaic, and Concentrated Solar Power), wind, tidal wave, Ocean Thermal Temperature Conversion (OTEC), geothermal and biomass (cane trash, coconut husks, etc).

B. Rationale for Bank involvement

27. The Investment Climate Assessment and Doing Business reports have identified key constraints on the growth of the private sector in Mauritius. In response, the government's reform program seeks to address most of these constraints through a combination of different projects and programs. The Mauritius Infrastructure Project is only one such project, focusing on infrastructure investments, while the METAP (Mauritius Economic Transition Technical Assistance Project, approved in January 2009) aims at strengthening the investment climate and public enterprise reforms, both supporting Mauritius' broader and longer-term economic reform program, along with other projects included within the IBRD portfolio for Mauritius and the Country Partnership Strategy (CPS) such as the Development Policy Loan series (DPL3 was approved in March 2009) and the Mauritius Manufacturing and Services Development and Competitiveness Project (formerly the SME development Project).

28. The project is seen by both the government and the World Bank as an efficient tool to speed up the preparation of follow-up bulkier investment projects in the transport, energy and water sectors, which could be funded by the World Bank through a subsequent Sector Investment Loan (SIL) series, and/or other donors and could become effective approximately 18 to 24 months after the approval of this project. The multi-sector nature of the proposed project, which was a request from the government, is intended to address simultaneously and in a cost-efficient way infrastructure bottlenecks that affect the overall infrastructure sector.

29. The government unambiguously expressed its interest in securing IBRD support to increase rigor of project selection, preparation and implementation through close supervision. The involvement of the World Bank is also expected to address the Ministry of Finance and Economic Empowerment's (MoFEE) concerns on governance in infrastructure investments through helping to improve the methodological framework currently used to design and select investments.

30. More specifically:

- In the transport sector, over the past years, the Bank has played a key role in (i) supporting the development and implementation of performance-based contracts (PBC) for the rehabilitation and maintenance of non-concessioned roads especially in Latin America and in Africa, enhancing the gradual transformation of road agencies into evermore results-oriented organizations, in accordance with the GoM emphasis on Programme-Based Budgeting and (ii) in financing and providing technical advice to bus reform projects in Latin American cities and elsewhere. This experience will be quite valuable when accompanying the Road Authority in their willingness to implement routine maintenance Performance Based Contracts (PBCs) and in providing advice, technical assistance and potentially funding at a later stage for the planned Curepipe-Port Louis Bus Rapid Transit Project, the major and most impactful and hence most complex public transport project in Mauritius for the years to come.
- In the water/wastewater sector, the government has requested assistance from the World Bank to design its water resources strategy and prepare future investments in the water and wastewater sectors. Activities to be carried out under this TA will include: (i) a design of a master plan for water resources; (ii) feasibility/detailed engineering studies

for future investments; (iii) studies on rationalization of the water rights and preparation of a new Water Bill, and (iv) capacity building. The proposed activities will bring a focus on institutional development and sector strategy that is essential for long-term sustainability. These activities are complementary to the METAP Project which is already assisting the government with the preparation of the new Water Act, and the set up of a regulator to implement water pricing and other market-based measures on a cost-recovery basis. In other respects, the Bank will help the government to prepare its future investments (water production capacity increase, house connections project), the financing of which may be provided by the Bank.

- In the energy sector, the Bank is well placed to assist the GoM, given its expertise and experience in developing renewable energy strategies in other Middle Income Countries (e.g., Turkey, Mexico, and Argentina). Another key comparative advantage in Bank participation is the Bank's depth of experience in managing projects in conventional energy and renewables, and in assisting countries in design and implementation of a comprehensive energy policy that covers conventional and renewable energies, and incorporates an efficient pricing and taxation mechanism. This widely ranging perspective would enable the GoM to maintain a realistic approach on how to balance the growth in energy demand with a desire for sustainable development and energy security. For example, introducing too high a proportion of wind energy into a small grid can destabilize the grid. The Bank can help ensure that the renewable energy component is expanded in a technically and financially sustainable manner.

C. Higher level objectives to which the project contributes

31. General: The proposed project is consistent with the objective of the CPS (dated October 12, 2006), which is to help the government realize successfully Mauritius' transition to a more competitive and sophisticated economy that requires the removal of infrastructure bottlenecks. The government plans to embark on ambitious 10-year road rehabilitation and maintenance program and a Public Sector Program with heavy emphasis on transport and utilities. A significant part of the program is expected to be financed by Public-Private Partnerships (PPP). The magnitude of such part and the modalities to be adopted for PPPs remain to be defined in view of the current global context and through a project-by-project approach. The exact projects to be financed will be worked out on the basis of a revived Public Sector Investment Program (PSIP) which will be put together with assistance from the Bank under the Mauritius Infrastructure operation. Once the PSIP is in place (within the next 12 months after project effectiveness) and once the sequencing and pacing of projects and their allocation to various development partners for financing will be defined, the World Bank may be requested to finance a share of such program and to provide a series of loans over the next decade in support of this program. The Bank may finance either specific projects or provide budget support for a share of the infrastructure program provided the Bank is satisfied that the overall program is consistent with sound principles.

32. Transport: Recent empirical research shows that improvements in the stock and quality of the road network and in the delivery of good quality urban transport services leads to higher rates of economic growth and better income distribution. Better roads and better logistics will provide more business development opportunities, removing infrastructure bottlenecks that constrain the

productivity of Mauritius, buttressing growth and competitiveness, particularly in the tourism sector. The project will also ensure the implementation of a sustainable and cost-effective long-term road management strategy, through the introduction in the road sector of performance based contracting which involves a significant shift away from more traditional approaches to the delivery of road maintenance. PBCs are neither input nor output focused, but rather focus on the key outcomes that the client wishes to achieve. PBCs demand a significant change in the culture of both the Contracting and Consulting industries and within the Road Authority. The PBCs pilot projects under the proposed operation are hence expected to contribute further to a performance-based multi-annual budgeting system, as promoted and desired by the Ministry of Finance, and to improve the efficiency of government expenditure.

33. Energy: By identifying renewable energy projects that can be implemented cost-effectively, the proportion of imported fossil fuel in the energy mix would decrease, ultimately reducing the foreign exchange burden and limiting vulnerability to currency risk (capital expenditure on renewable energy projects will limit revenue gains in the short to medium term). With the contribution from bagasse reaching only 600-700 GWh (in 2012 and thereafter, in case no special initiatives are taken), and without development of any alternate renewable energy sources, this will imply more than 90 percent dependence on imported energy.

II. PROJECT DESCRIPTION

A. Lending instrument

34. The project will be supported by a Sector Investment and Maintenance Loan (SIM) in the amount of USD50 million from International Bank for Reconstruction and Development (IBRD) resources. The project will provide the necessary financing for activities which have been identified through extensive policy dialogue with the government, as well as through consultations with other development partners. The project will be implemented over a period of five years, mainly to allow for multi-year performance based road maintenance contracts.

B. Project development objective and key indicators

35. The proposed project will aim at meeting the following specific objective: **To assist the Borrower to improve the national infrastructure with an emphasis on the transport, energy and water sectors.** Through playing a key role in the definition and implementation of a high-quality Public Sector Investment Program, the project will contribute to: (i) improve the condition of the road network through road upgrading, periodic maintenance and pilot performance-based routine maintenance contracts, (ii) prepare investments in the urban transport sector to alleviate congestion between Curepipe and Port-Louis and in the road sector to keep upgrading the existing network, (iii) help the government in defining a ten-year Public Sector Investment Program, (iv) assist in establishing a framework for economically viable clean energy development, and thereby increase the proportion of renewable energy in the energy mix, (iv) identify and prepare key investments in the water and wastewater sectors so as to increase water production in a sustainable way and to augment the connection to public sewerage networks from 25 percent of households as of now to 50 percent by 2012, and (v) provide technical assistance and training to the line Ministries and agencies.

36. The achievement of the Project's development objective will be assessed through the following key indicators: (i) disbursement ratio of annual capital budgets related to PSIP, (ii) number (and value) of projects in the infrastructure sector implemented, being implemented, or ready for implementation as defined in the Public Sector Investment Program, and (iii) travel times (minutes) and number of accidents per year on Quartier Militaire Road.

C. Project components

Component 1: Road Investments (USD36.1 million out of which USD1.1 million will be financed by the Borrower)

37. Priority is given to roads whose capacity have been or will soon be exceeded, which constitute main links to key economic areas of the island or which connect or pass through major villages and which constitute safety hazards.

38. **Upgrading of Belle Rive - Quartier Militaire Road (USD22.7 out of which USD1.1 million will be financed by the Borrower);** Government funding will be used to acquire the land needed for the widening of the road right-of-way), a 5.5-to-6.5 meter road, the main link between the East and the West of Mauritius, will be fully or partially rehabilitated and widened to up to 7.5 meters under the proposed project, to alleviate congestion and above all to improve road safety on this axis, largely used by trucks and buses. Works will include slight modifications to the alignment to smoothen the sharpest curves, the construction of bypasses to Valetta and Quartier Militaire villages and the widening of culverts in areas that get partially flooded during heavy rains.

39. **Periodic Maintenance (USD10.4 million)** for three highway sections, which have not been treated since their construction in the late 1970s and the pavement of which presents clear signs of fatigue: (i) Terre Rouge – Quay D on M2 (5 km of dual carriageway), (ii) Nouvelle France – La Vigie on M1 (8 km of single carriageway) and (iii) parts of Pamplémousses-Grand Baie on A13 (4 km of single carriageway).

40. **Performance-based routine maintenance contracts (USD3 million)** for the three highway sections mentioned above. Another performance based maintenance contract will be executed to test the concept on lower-volume roads, possibly B20 (Old Flacq Road). The objective of this sub-component is to determine whether performance-based contracts, once adapted to the local context, are the right means to overcome a backlog of deferred maintenance on key sections of Mauritius primary network.

Component 2: Technical Assistance and Institutional Development in the Transport – Water/Wastewater - Energy subsectors (USD14.875 million).

41. The TA components aim at laying the groundwork for possible future SILs in the three sectors in approximately two years after this project becomes effective, within the framework of a Public Sector Investment Plan to be developed through the proposed loan.

42. Support to the preparation of the Public Sector Investment Program (USD500,000):

The government has embarked on a comprehensive reform program to enable the transformation of the economy to a well-diversified, high growth economy. The provision of modern and quality infrastructure facilities is critical to consolidate existing sectors, support the development of emerging sectors, stimulate private investment and hence GDP growth. It is in this context that the government intends to prepare a comprehensive Public Sector Investment Program. The Public Sector Investment Program (PSIP) is intended to provide a useful guide to policymakers, development partners, line ministries/public enterprises and the private partners for informed decisions on those investment projects that can be funded partly or wholly through public funds, foreign loans/grants and private capital. The PSIP would present a set of investment projects on a sector basis for implementation over the next ten years. The PSIP aims at charting out a path for the public investment to cater for infrastructure needs in the public sector that best meet the government's overall objectives in conformity with the sector policies taking into account resource availability based on macro-economic projections. The loan will provide technical assistance to assist in the elaboration and finalization of the PSIP.

43. Transport Sector (USD5.175 million):

- Assistance for the setting up of the Land Transport Authority (USD600,000): The government is hiring a consulting firm to help with i) planning and designing the new LTA organizational structure; and (ii) ensuring that the LTA is fully established and operational. Proposals for this assignment are currently being evaluated.
- Assistance to the agencies in charge of Land Transport (USD550,000): The entities to be absorbed by the Land Transport Authority (NTA, RDA, TMRSU), and eventually the LTA itself, will be strengthened in the following areas: (i) specific planning training (such as traffic forecast modeling, public transport regulation, transport economics, land use – urban transport nexus, road safety, contract management, environmental and social management to ensure effective implementation of safeguards, supervision of works, especially performance-based road maintenance contracts etc), (ii) management training (project and program management, finance, budgeting and organizational development), and (iii) ethics/anti-corruption development, studies / technical support.
- Assistance Strictly related to the creation of the Land Transport Authority (USD150,000): The funding of these activities, strictly related to the creation of the LTA, such as the definition of a Human Resources Policy, the setting up of an accounting system, will be contingent upon the passage of the LTA bill in Parliament.
- Supervision and Monitoring of the Quartier Militaire Road upgrading works contract (USD425,000): Supervision of such works will mostly be done in-house by the Road Development Authority but the participation of a consulting firm/specialist will also be needed and financed by the loan.
- Other transport studies, both in the urban transport and road transport sub-sectors (USD2,300,000) including the BRT and Bus Reform Implementation Study for the Port-Louis / Curepipe corridor, a study on taxi industry reform and removal of illegal taxi / van operators, the definition of a parking policy (including partial removal of on-street Parking in Port Louis, engineering studies and tender documents for works to enhance pedestrianised environment in Port Louis, analysis of tolling options for road projects such as the Port-Louis by-pass, technical assistance for the setting up and purchase of a Road Management System and consulting services for the design and evaluation of Performance-Based Contracts, etc.

Feasibility, Detailed Design, Environmental Impact Assessments (EIAs), Tender Documents and whenever needed, Resettlement Action Plans for an amount of approximately USD1,150,000 for (i) roads such as, but not necessarily limited to, Old Flacq Road (from its junction with A2 at Khoyratty through d'Épinay and Camp Créole to its junction with A2 at Grande Rosalie), a 6-km road segment / Terre Rouge – Triolet – Grand Baie Road (14 km from its junction with M2 at Terre Rouge through Saint Joseph, Arsenal, Solitude, Triolet, Chemin Vingt Pieds to its junction with B13 at Grand Baie) / Pailles Branch Road (2.4 km from its junction with M1 at Grewals Underpass through Pailles to its junction with A1 at Grand River North West / B6 to assess the need (and optimal timing) for a dual carriageway, (ii) round-about replacement projects, road extension program, pavement projects, and (iii) Rodrigues airport (construction of a new runway of 2,100m).

44. Water Sector (USD5.2 million):

The proposed technical assistance activities aim at helping the government to prepare the investments needed to meet the objectives mentioned above:

- Development of a Master Plan for Water Resources, Rationalization of Water Rights and Capacity Building (USD2,000,000), to address the issues of water demand, water availability, identification of different/alternative sources of supply, infrastructure development and management plan, etc., keeping in view the outcomes of the different feasibility studies already carried out and projects already identified. Water rights will be reviewed and rationalized taking due consideration of growing water demand, changes in land use and impact of climate change (some of these rights date back to more than two centuries ago and are still in existence although the land use patterns and climate scenarios have evolved).
- Feasibility and/or detailed design studies and/or EIAs for future investments projects (USD2,500,000) that may comprise at this point : (i) increase in storage capacity of the La Nicoliere reservoir and/or construction of Calebasses dam to increase water supply and irrigation in the North region, and (ii) the South Mauritius Water Supply project to increase water supply in the south west region.
- Re-organization of Pollution Control Laboratory (USD500,000) including training of water resources staff and re-organization of Pollution Control Laboratory, including supply of equipment, training of Laboratory staff and building up of enforcement capacity.
- Update of Study on Mauritius Drainage System (USD200,000): The government requested the World Bank to finance the update of a 2003 study on the land drainage system of Mauritius. During these recent years, dramatic downpours, possibly due to climate change, have led to unusual flashfloods and this new context needs to be taken into account before implementing remedial works to alleviate flood problems.

45. Wastewater Sector (USD2 million)

- Feasibility and detailed engineering studies (USD2,000,000) for the Baie de Tombeau Sewerage Project Phase III, consisting in the connection of an additional 7,800 households to the sewerage network in Le Hochet, Riche Terre, Terre Rouge and adjoining areas, and the upgrade/enlargement of the existing wastewater treatment plants.

46. **Energy Sector (USD2 million):**

- A Renewable Energy Development Study (USD1,800,000) will be undertaken, resulting in a development strategy and implementation plan. The goal of the study is to provide an analytical assessment and recommendations, to assist the GoM in identifying priorities and strategies mainly for power-related renewable energy development, but also for primary renewable energy applications. The study will include: (a) an assessment of the economic viability of renewable energy technologies compared with competing conventional technologies for power; (b) a review of issues and policy barriers affecting public and private sector development of these technologies; and (c) preparation of a Renewable Energy Development Strategy and a Policy Matrix and Implementation Plan for the period 2009-2028. It will also identify two renewable energy projects or programs to be taken to feasibility level.
- Capacity Building (USD200,000): it will benefit MoREPU and CEB staff and will include but may not be limited to: renewable energy technology application; and/or maintenance of separate distribution, transmission, and generation accounts.

D. Lessons learned and reflected in the project design

47. **Transport:**

- Long-term road rehabilitation and maintenance commitments reduce the risk of irregular resource allocation to the sector. Historically, resources allocated to road rehabilitation and maintenance projects were subject to disruptive “stop-and-go” type of implementation. Under the PBCs, the long-term payment obligations become legally binding and as a result, the budgetary process is expected to give these contracts a higher priority than other expenditures. Therefore, the adoption of said system guarantees greater budget stability for the road network than has been historically evidenced.
- Establishing appropriate mechanisms to deal with the impact of inflation on project costs. Recent experience has shown that the impact of inflation on projects’ costs is increasing worldwide. Construction prices are very sensitive to oil prices volatility, which has just set new records. The experience under other road operations has shown that the lack of appropriate mechanisms in the project design to manage the impact of inflation can lead to serious problems in the bidding processes, including: (i) bids presented by contractors end up substantially exceeding the project’s estimates, because the estimates were not properly updated; (ii) in anticipation of cost increases due to inflation, contractors presented higher bids to cover potential cost premiums. Learning from these experiences, this project will include a careful design of the procurement strategy to take into account market conditions in an effort to reduce some of the risks that could lead to limited competition and excessive bid prices.

48. **Energy:** The proposed Renewable Energy Project takes into account the lessons learned from the implementation of similar IDA and IBRD financed renewable power generation projects in Indonesia, Sri Lanka and India (Indonesia Renewable Energy Small Power Project, Sri Lanka Energy Services Delivery Project, and India Renewable Resources Development Project). The main lessons are:

- To move beyond "one-of-a-kind" demonstration projects and/or pilot projects for grid-connected renewable power generation projects, it is prudent to provide support to countries through a strategic mix of investment and TA instruments.
- Timely development of a pipeline of prospective renewable power generation projects (identification and pre-feasibility studies) facilitates implementation efforts by financial intermediaries and sustains the interest of private developers who might otherwise opt to pursue alternative investment opportunities.

E. Alternatives considered and reasons for rejection

49. **Development Policy Loan type of approach:** The GoM considered going the DPL route, which was conceivable since Bank's support is sought to finance a broad public sector investment program which is accompanied by significant regulatory and institutional reform elements. However, the government decided to opt for the traditional Sector Investment instrument to benefit from the value added offered by the Bank in closely accompanying the development of a pipeline of sound high priority investments in key infrastructure sub-sectors. Such value added is much more likely to materialize under a SIM which implies close technical supervision, procurement advice, safeguards monitoring, etc. than under a DPL.

50. **Three different operations in the transport, water and energy sectors:** It was agreed with the government that the proposal to merge into one loan three sectors was cost-efficient, more expeditious and more likely to address the GoM needs within a short timeframe.

51. **Pure road reconstruction contracts without routine maintenance following.** This alternative was discarded because one of the objectives of this project is to ensure the sustainability of maintenance through PBCs, which have already proven successful to secure funds assigned to maintenance over extended periods of time.

52. **Periodic and Routine Maintenance bundled under Performance-Based contracts:** the government and the RDA are definitely willing to test PBCs on a pilot basis but prefer a step-by-step approach, starting with routine maintenance alone first, with the parallel objective of opening these PBCs to small and medium enterprises. If the PBCs prove successful, the RDA will definitely envisage in a second stage to bundle routine and periodic maintenance under a single PBCs. Consultants are about to be hired under the loan to design the PBC contracts and will advise the RDA/LTA on this issue.

53. **Dual carriageway for the Quartier Militaire Road:** upon request from the Ministry of Finance, the dual carriageway option was considered, but was eventually discarded in view of the expected traffic volumes, of the implementation timeframe of the real estate development projects likely to impact traffic on this road, and considering that the main bottlenecks and dangerous spots in terms of traffic safety will be removed through the widening of the right-of-way and thanks to the construction of the bypasses around Valetta and Quartier Militaire villages. However, the loan will finance a pre-feasibility study to determine if and when the construction of a dual carriageway may be justified.

III. IMPLEMENTATION

A. Partnership arrangements (if applicable)

54. The government would like the Bank to play a leading role in coordinating the donors' involvement in the infrastructure sector, such as the AFD, EU, AfDB, etc. (for more information on the donors already involved in the infrastructure sector, see Annex 2). The activities proposed under this loan will be funded exclusively by the World Bank but it was agreed that such responsibility for coordinating bilateral and multilateral support would be a key component of the proposed operation, with the objective to identify sources of co- and parallel financing for the PSIP in general and the investments to be prepared under this loan in particular.

B. Institutional and implementation arrangements

55. The Ministry of Public Infrastructure, Land Transport and Shipping will be entrusted with the overall responsibility of the loan implementation, and in charge of the coordination between the line Ministries (Public Utilities, Environment, MoFEE) and sector agencies (RDA, CEB, WRU, WMA). Technical responsibilities will be given to the sector Ministries / line agencies for activities pertaining to their respective sectors. Policy guidance and overall project oversight will be the responsibility of a Project Plan Committee (PPC) chaired by the Ministry of Public Infrastructure, Land Transport and Shipping (MoPILTS) with representatives from Ministry of Renewable Energy and Public Utilities (MoREPU), Ministry of Finance and Economic Empowerment, RDA, Ministry of Environment and National Development Unit (MoENDU) and any other agencies which will be involved in major projects. On a yearly basis, the MoPILTS will submit to the Bank an Annual Work Program elaborated by the PPC and through which activities to be financed during the upcoming year would be agreed. The PPC have the role of overseeing the whole PSIP and not just the World Bank project.

56. **Transport:** RDA will, in particular: (i) prepare engineering designs and bidding documents; (ii) carry out the supervision of the contracts for execution of component 1, measuring progress in the execution of works for the purpose of issuing certifications and (being responsible for the technical quality control and compliance with the technical specifications of the contract. The RDA will also be properly represented on the Evaluation Committee in charge of the bidding process for each of the road works contracts to be carried out under this project.

57. **Water-Wastewater:** The MoREPU will be responsible for the overall oversight of program activities with inputs from the Water Resources Unit (WRU) for water resources management related activities and the Wastewater Management Authority (WMA) for sewerage related activities. The implementation of water resources activities including establishing of RFPs, study review and monitoring of progress will be entrusted to the WRU with support from other operating units such the Irrigation Authority (IR) for irrigation sector issues, the Central Water Authority (CWA) for water supply related issues, and the Central Electricity Board (CEB) for energy sector issues particularly during the preparation of the master plan for water resources. The wastewater program activities will be managed by the WMA. The drainage study will be under the responsibility of the Ministry of Environment and National Development Unit.

58. **Energy:** the technical study will be conducted under the responsibility of the Ministry of Renewable Energy and Public Utilities (MoREPU) with inputs from the CEB.

C. Monitoring and evaluation (M&E) of outcomes/results

59. The M&E system will be based on the agreed Results Framework and monitoring arrangements (Annex 3) and is designed to assess whether or not the Project is being implemented in line with the proposed objectives and to measure fulfillment of agreed targets. On a semi-annual basis, the Project Plan Committee chaired by the MoPILTS will submit project progress reports to the Bank for review and comments. Such reports will be elaborated by the MoPILTS (in collaboration with RDA), the Ministry of Renewable Energy and Public Utilities (through its Directorate of Technical Services and in collaboration with CEB, WRU and WMA), the MoFEE, and the MoENDU, and should indicate the progress made under the different components of the Project and measure performance against the results indicators established in the results framework (Annex 3). In particular, progress reports will include information regarding: (i) progress in the implementation of the road works (periodic maintenance and upgrading); (ii) the execution of the PBCs with detailed information of allocated budget, scope of the activities and results achieved; (iii) actions undertaken under the technical assistance components; and (iv) a section describing potential developments that could affect project implementation, which should consist of a review of the main risks and proposed mitigation measures. The loan is financing the implementation of a Road Management System (RMS), the objective of which is to provide RDA with a reliable and systematic methodology to collect data on the collection of the road networks and on that basis to define the optimal maintenance program. Such system will be used to collect the baseline and yearly updated data describing the condition of the road network.

60. Semiannual reports will also include information regarding disbursement levels under the period and expected disbursements for the next period (consolidating information from the quarterly reports mentioned in Annex 7), a procurement report, an updated procurement plan if changes are expected, and an environmental report indicating measures being undertaken to ensure compliance with Bank safeguards. An overall assessment of the impacts of the Project (enhanced road condition, reduced transport costs, increased road safety, completion of the Public Sector Investment Program, number of infrastructure projects fully prepared and ready for implementation or being implemented, etc) is to be presented at Mid-Term Review and Project ending. Baseline data need to be obtained regarding indicators selected to assess the impact of the project. MoPILTS will be responsible for collecting such data within the first six months of Project implementation in collaboration with the designated focal point in each beneficiary agency. The designated focal points of the beneficiary agencies will be responsible for the data collection and reporting of their respective component and subcomponent.

D. Sustainability

61. Critical to the sustainability of this operation is further investment in infrastructure, not just in transportation but also in power and water supply. The restructuring of public enterprises and the facilitation of public-private partnerships envisaged under the METAP will play an

important role in facilitating the materialization of these investments, but additional public and private investment will be required to achieve real change.

62. **Transport:** Road works sustainability in the long-run depends on the implementation of comprehensive cost-effective strategies to maintain the network so as to reach a steady-state condition where annual maintenance needs become manageable with existing budget allocations. To reach such stage, several elements are being pursued through this Project: (i) supporting the transformation of the RDA into a result-oriented organization capable of managing strategic and rational road programs, (ii) ensuring their capacity to plan, contract out and monitor road works in a cost effective and efficient manner; and (iii) applying performance management schemes through further performance-based contracts to maximize project impact on road condition and safety standards in the long run.

63. **Water – Wastewater:** All activities planned under this project are identified as strategic priorities for the water sector in the National Water Policy, which has been elaborated in consultation with the main water users (such as the Ministry of Agriculture and the private sector), includes comments from the World Bank team, is endorsed by the government and will be approved by Cabinet by September 2009. Water production infrastructures projects which will be the subject of feasibility/ detailed studies under this TA are already in the government plan. The legal and institutional priorities identified in the National Water Policy will be implemented under the METAP and will comprise inter alia: (i) the preparation of the new Water Act which will cover all activities governing the water sector ranging from protection of the ecosystems to end-users as well as the water rights, and (ii) the set up of regulator to implement water pricing and other market-based measures on cost recovery basis. In terms of waste water, the government has already committed MUR 13.6 billion to implement the National Sewerage Program (NSP) and the investment projects which will be the subject of feasibility/ detailed studies under this TA are included among medium term sewerage projects already identified in the government plan.

E. Critical risks and possible controversial aspects

<i>Risk factors</i>	<i>Description of risk</i>	<i>Rating of risk</i>	<i>Mitigation measures</i>	<i>Rating of residual risk</i>
Country Ownership of Program	Lack of commitment from the government to implement the loan and materialize the infrastructure investments to be identified and prepared under the project.	H	The GoM acknowledges the need to undertake a comprehensive assessment of key infrastructure requirements and overall infrastructure management, and to identify and prepare investment projects in the infrastructure sector, especially in the energy, water and transport sector. A coordinated donor financing program (AFD, EU, AfDB) is in place to support the government in the implementation of the infrastructure program.	M
Technical Design	Unpreparedness of project designs	L	The detailed engineering design for the upgrading of Quartier Militaire Road is completed. The works are relatively	L

<i>Risk factors</i>	<i>Description of risk</i>	<i>Rating of risk</i>	<i>Mitigation measures</i>	<i>Rating of residual risk</i>
	Gap that may materialize between project costs estimates at appraisal and real costs at bid presentation	H	<p>straightforward and the Road Development Authority has a good track record and quite a lot of experience in such projects. The situation is different for the performance-based contracts, which will be tested on a pilot basis. The Bank does have a lot of experience in this and will share it with the client.</p> <p>Lessons learned from recent cases include (i) the need to carefully review the technical assessments of the road conditions (actual deterioration may have been underestimated) and their cost estimates, (ii) to factor into the cost estimates the likely inflation on costs between appraisal and bid presentation, and (iii) the need for an update of the Engineer's estimate at time of final design. All estimated costs will be reviewed with this in mind.</p>	M
Magnitude of TA components	Staff in sector agencies and line Ministries seem overstretched and may have difficulties preparing and supervising properly the TA activities, raising the question of whether this component might be oversized, and consequently slow to disburse.	H	The government reiterated its willingness to borrow significantly for technical assistance, with the understanding that World Bank staff will provide technical value added and spur the development of the PSIP through a deep involvement under the TA component. Technical teams in sector agencies will be strengthened and an implementation unit, mapped to the MoPILTS will be fully dedicated to the preparation and implementation of the PSIP to coordinate and accelerate the execution of the TA components, with the broader goal of speeding up the PSIP readiness.	M
Implementation Capacity and sustainability	Institutional and regulatory arrangements in the water and energy sectors not yet clearly defined and mature enough to launch a large-scale investment program.	M	The METAP will look deeply into these issues and help the government to create a clear institutional and regulatory framework, likely to attract private investors and to maximize the benefits expected from the investments to be prepared under this operation.	L
	Delays in the institutional arrangements to create the Land Transport Authority	H	The creation of the LTA is one of the 18 measures adopted during consensus-building forums held in September 2007. All these measures were backed by all stakeholders (20) but one. The presentation to Parliament of the bill creating the Land Authority is due in mid 2009.	M
Financial Management	Accounting Transactions may not be properly accounted for as the existing Chart of	M	Review of the Chart of accounts to ensure that it captures properly expenditures categories, components/activities needed to carry out the project as reflected in the Project Appraisal	L

<i>Risk factors</i>	<i>Description of risk</i>	<i>Rating of risk</i>	<i>Mitigation measures</i>	<i>Rating of residual risk</i>
	<p>accounts within the Treasury Department may not reflect categories of expenditures, and components/activities to be implemented under this loan.</p> <p>Financial Reporting: The Interim Financial Reports (IFRs) may not be presented in conformity with Bank requirements Risk of delays in their production due to the fact that the three executing agencies are not quite acquainted with Bank FM procedures.</p>	M	<p>Document (PAD). The review of Chart of accounts is underway and expected to be completed prior to Loan Effectiveness.</p> <p>Organization during the appraisal mission of a working session to familiarize the financial Officers of MoREPU, MoPILTS and RDA accounting staff with the Bank FM procedures, including the preparation of IFRs and disbursement.</p>	L
Procurement	<p>Overall procurement performance</p> <p>Reluctance of the local companies to bid for performance-based contracts in the context of this loan</p>	<p>M</p> <p>M</p>	<p>Last CPAR highlights “<i>the satisfactory rating of the implementation of the WB financed projects</i>” and confirms that “<i>the system of public procurement [...] has reached an acceptable level</i>”, and mentions that “<i>Mauritius has made a credible effort to provide a framework of great transparency and accountability. It has strong institutional capacity. A checks and balances system is in place. Its audit system is working and the country is firmly committed to provision of a transparent climate where the general public can see and understand how public money is spent.</i>”</p> <p>Before actually launching the tenders for the performance-based contracts, it is envisaged to organize a workshop to present to consulting firms and above all contractors the rationale behind these contracts and similar experiences abroad, to demystify the concept and raise interest from the construction companies before issuing the bidding documents.</p>	<p>M</p> <p>M</p>
Social and environmental safeguards	The only works envisaged under this loan are related to road maintenance, rehabilitation and/or upgrading. Provision has also been made, bearing in mind stakeholder concerns, for the	L	In keeping with the World Bank’s Safeguard Policies, the Road Development Authority (RDA) prepared an Environmental Impact Assessment (EIA) for the Upgrade of Quartier Militaire Road in 2002, and is preparing an Environmental Management Plan (EMP) based on questions submitted by the Ministry of Environment and National Development Unit on 28 August 2008. The	L

<i>Risk factors</i>	<i>Description of risk</i>	<i>Rating of risk</i>	<i>Mitigation measures</i>	<i>Rating of residual risk</i>
	<p>construction of two bypasses: at Valetta (1.5 Km) and Quartier Militaire (2.5 Km). With the exception of the bypasses, none of the proposed road works will require opening of new rights-of-way, except minor realignments in sparsely populated areas to extend the width of the road by up to 2 meters on either side. The bypasses traverse sugar cane fields, so there will be no loss of critical habitat. While there will be land acquisition, there is no physical displacement of persons or loss of livelihood.</p>		<p>Ministry determined that no EIA license would be required.</p> <p>A Resettlement Action Plan (titled “Land Acquisition Plan”) has also been prepared for Quartier Militaire and will be finalized when the exact area of land acquisition is ascertained (at which point valuation and compensation will be undertaken). A preliminary census and notification of land acquisition procedures and compensation of PAPs in the bypass areas took place before appraisal, and findings are reflected in the RAP.</p> <p>The RDA also prepared an EMP for the road works on the Terre Rouge – Pamplemousses section on M2.</p> <p>The GoM’s institutional capacity for safeguard policies is high. Tourism and fishing are key sectors of the Mauritian economy and both depend on sound environmental management for long-run sustainability.</p> <p>Mauritius’ environmental agencies have more than adequate capacity and experience in commissioning and following through on environmental impact assessments and for monitoring compliance with the country’s environmental and social protection laws. The government is responsive to the desires of the public, and has many times in the past postponed or altered public projects that faced strong opposition from those who would be negatively affected and/or NGOs (the Southeastern Highway is an example).</p> <p>The project will provide for training for appropriate RDA staff in environmental and social management of the road sector.</p>	
Energy	TA activity may not culminate in investments in renewable energy projects	M	the GoM has set up a fund in support of an innovative and visionary concept – Maurice Ile Durable (MID) – to increase the proportion of renewable energy (RE) in the energy mix, and to promote energy efficiency	L
Overall Risk (including Reputational Risks)				
		M		L

F. Loan conditions and covenants

64. Effectiveness **condition:** submission to the Bank of the Project chart of accounts.

Disbursement conditions: (i) the consulting services for the setting up of the new Land Transport Authority (LTA) for an estimated amount of USD600,000 and part of the training and assistance, strictly related to the creation of the LTA and estimated at USD150,000, to the agencies in charge of Land Transport, is contingent upon the passage of the LTA bill in Parliament, and (ii) the commencement of the upgrading works on Quartier Militaire Road is contingent upon the completion of a survey and valuation of the land proposed for compulsory acquisition at replacement cost (as deemed satisfactory to the Bank), the establishment of a separate ledger account maintained by the Ministry of Housing and Lands (MoHL) for the purpose of recording the counterpart financing equivalent to the value of the land to be acquired, and the recordation in the account of such amount allocated to the MoHL.

IV. APPRAISAL SUMMARY

A. Economic and financial analyses

65. The RDA performed the economic analysis of the upgrading of the Quartier Militaire Road for an amount of USD21.6 million.

66. The RDA collected detailed road characteristics and traffic data and performed a Project level economic evaluation with the objective of: (i) identifying sections to receive periodic maintenance over the project implementation period; (ii) computing the net benefits of possible project alternatives; (iii) ensuring that all investments yield a rate of return higher than 12 percent. Net benefits were evaluated using the Highway Development and Management Model (HDM-III), which simulates life cycle conditions and costs and provides economic decision criteria for multiple road design and maintenance alternatives.

67. The economic analysis of the upgrade of Quartier Militaire Road yields a net present value (NPV), at 10 percent discount rate, of USD98 million and an economic rate of return (ERR) of 51 percent.

B. Technical

68. The technical design of the periodic maintenance solutions adopted for the highway network to be financed under the proposed project was generally carried out using the latest American Association of State Highway and Transportation Officials Guide for overlay design, adapted to suit local conditions. By and large, the overlay designs finally retained are both technically sound and economically acceptable as they represent levels of investments that generate positive net benefits to the community, while providing over a reasonable period of time acceptable levels of service on the roads. On the other hand, the unit costs of investments and recurrent maintenance taken into account reflect current local market prices. Allowances made for physical contingencies have been estimated on the basis of the lessons learnt from recent road works contracts and factor in the price volatility of the main inputs for road works,

such as diesel and bitumen. Considering that the major capital investments in this Project will occur during the first year of implementation when most of the rehabilitation works will have been substantially completed, the price contingency was set at a nominal value of 5 percent. Contingencies are minimal for performance-based contracts as this system is a lump-sum contract in which variations in works quantities are only recognized in the case of force-majeure events.

C. Fiduciary

Project oversight

69. Policy guidance and overall project oversight will be the responsibility of a Project Plan Committee (PPC) established within MoPILTS and chaired by MoPILTS with representatives from the Ministry of Finance and Economic Empowerment, Ministry of Renewable Energy and Public Utilities (MoREPU), the Ministry of Environment and National Development Unit, the Road Development Authority and any other Borrower agency that will be involved in major aspects of the project. The PPC will have the role of: (i) providing strategic guidance and oversight of the preparation and implementation of the PSIP undertaken by the government under this Project, (ii) approving annual work programs and budgets; (iii) reviewing progress reports prepared by the sector Ministries/agencies, clearing and forwarding periodic reports to IBRD; (iv) proactively addressing any major problems affecting Project implementation; and (v) reviewing key reports including the audit, mid-term review and implementation completion reports.

Project coordination and implementation

70. The overall coordination and implementation of the project will be also provided by PPC. PPC additional responsibilities include the following: (i) preparation/consolidation of the work programs and budgets; (ii) preparation and production of consolidated annual financial statements and quarterly Interim Financial Reports (IFRs) in close collaboration with MoFEE and the Treasury Department; (iv) monitoring and evaluation of the various activities supported under the project. The Treasury Department will be in charge of cash management and replenishment applications for the Designated Account. MoREPU, MoPILTS, MoFEE, MoENDU and RDA will be fully in charge of the technical aspects and responsible for contracting, maintaining records and accounts for all transactions related to them, and preparing financial and other basic information on project management/monitoring as required.

Procurement

71. It was agreed that procurement aspects of the proposed project will be under the responsibility of RDA for road components, MoPILTS for land transport components (other than roads), Ministry of the Environment for the drainage component, MoFEE for the Rodrigues Airport study, and MoREPU for water, wastewater and energy components. In view of this institutional arrangement, the team has undertaken the Procurement Capacity Assessment Reviews (PCAR) for RDA and MoREPU. Since all Ministries have practically the same organization chart, the team considered that the PCAR for MoPILTS would reach the same conclusion. The team has concluded that the risk is moderate for these institutions. During the meeting with the Procurement Office, the question of alignment of Mauritian procurement laws and Bank's Procurement Guidelines has been raised. It has been agreed that Bank's Guidelines

will apply for the proposed project and the Mauritian government will discuss the implication of such arrangement with the Central procurement Board, focusing mainly on the dispute resolution mechanism during contract award. The team has also examined the indicative procurement plan presented by the Borrower on January 13, 2009 and found it acceptable.

Financial Management

72. The financial management arrangements of MoFEE (Ministry of Finance and Economic Empowerment), MoREPU (Ministry of Renewable Energy and Public Utilities), MoPILTS (Ministry of Public Infrastructure, Land Transport & Shipping, RDA (Road Development Authority) and the Treasury Department responsible for the fiduciary aspect of the Mauritius Infrastructure Project have been reviewed to determine whether they are acceptable to the Bank. The overall conclusion of the FM assessment carried out during the pre-appraisal mission is that the financial management arrangements in place satisfy globally the Bank's financial management requirements. The financial management risk is assessed as being moderate. However, to strengthen the FM systems in place and build their capacity to produce IFRs of high quality, an agreed action plan with the borrower has been developed. The main measures are the following: (i) review of the Treasury Department Chart of accounts to ensure that it reflects categories of expenditures and components/activities to be financed under this loan in order to satisfy reporting requirements; (ii) organization of a training session by the Bank staff to familiarize the sector ministries and RDA accounting staff with the preparation of IFRs; (iii) submission to the Bank of the models of IFRs agreed upon at negotiations; (iv) recruitment by RDA of an accountant to handle the FM aspect of the component to be implemented by this entity. The review of the Chart of accounts is presently underway and is an effectiveness condition. The training session for the project staff on the preparation of IFRs was completed during the appraisal mission. The recruitment of the RDA accountant was also completed in April 2009.

73. The project financial statements will be audited annually by the Mauritius Audit Department, the Supreme Audit Institution in the country, in accordance with International Standards of Auditing. The terms of reference have already been finalized after IBRD review to ensure the adequacy of the audit scope, and submitted to the Auditor general for the inclusion of this assignment in its work plan. The auditors will be required to: (i) express an opinion on the project financial statements; (ii) carry out a comprehensive review of the internal control procedures and provide a management report outlining any recommendations for their improvement. The audit reports will be submitted to IBRD no later than six months after the end of each fiscal year.

74. The Loan will provide retroactive financing of up to USD2 million equivalent for eligible expenditures incurred by GoM between December 1, 2008 and Loan signing. The retro-financing clause is expected to be used to fund consulting services for (i) the setting up of the LTA, (ii) the BRT Implementation Study, (iii) the design of the PBCs (see IV, G, Project Readiness) and capacity building.

75. A Project Preparation Facility Advance (PPF) of USD2 million was provided in January, 2005 and extended until December 31, 2008, for an urban transport project which was replaced by the proposed Mauritius Infrastructure Project. Only USD74,507 was disbursed under this PPF and the Borrower has requested the Bank to cancel the remaining amount of the PPF since the government's funds will be drawn upon to pre-finance any study expenditures that may fall due before loan effectiveness. Expenditures incurred as per the above paragraph will be retroactively financed under the loan. The cancellation notice of the undisbursed PPF balance and the advance repayment notice for the disbursed PPF amount were sent to the Borrower on January 13, 2009.

D. Social

76. The Quartier Militaire project will improve the quality of life of the general population, through reducing travel time and increasing safety of transit between the East and West of the island. The improvement in traffic flow will increase productive person hours and leisure time, as less time will be spent in transit between work and home.

77. The population living alongside the road or in the vicinity will particularly benefit as works will include the construction of pedestrian pavements, guardrails, speed breaks and pedestrian crossings, all of which will enhance safety and enable ease of transit for pedestrians traversing the route. Street lighting will be provided along the new alignment and at all roundabouts to increase visibility for drivers, and reduce the risk of accidents. Bus shelters will be constructed, providing additional comfort and security to commuters.

78. The construction of an adequate drainage system channeling runoff to natural drainage courses will ensure that flooding, particularly at the Couacaud Bridge, and at other flood-prone areas along the alignment, will be reduced. This will reduce damage to cars, houses and structures, and will also enhance safety along the route.

79. The main social issue arising from project implementation is the need to extend the width of the road by up to two meters on either side in lightly populated areas. It will therefore be necessary in such areas, to ensure that Project Affected Persons (PAPs)¹ (persons occupying this privately owned land-used for residential and commercial purpose and in some cases for sugarcane cultivation) are adequately compensated or provided assistance, as the case may be.

80. Given that the road widening will be universally beneficial (it will make it easier and faster to transport people and goods, and will reduce traffic accidents on a highly transited road), there has been no opposition to the road widening in principle. No residential dwellings or

¹ "Project Affected Persons" means persons who, solely on account of the execution of the activities under the Quartier Militaire project have or would have their: (a) standard of living adversely affected; or (b) right, title, or interest in any house, land (including premises, agricultural and grazing land) or any other fixed or movable asset acquired or possessed, temporarily or permanently; or (c) business, occupation, work or place of residence or habitat adversely affected. In the case of PAPs in the Project area who do not have legal right or title to land that they are occupying, assistance will be given to replace non-land assets lost (defined as fixed immovable structures and crop or agricultural produce losses in the land acquired for the project).

commercial or agricultural establishments (whether legally owned and operated or otherwise) will be demolished or relocated in the area to be widened.

81. Inhabited areas are concentrated at Quartier Militaire and Valletta. In these areas, road widening will be restricted to 7.5 meters although pavements will be built to enhance safety for pedestrians. Generally, the services available within the areas will not be affected except during the construction period, when traffic will be delayed, affecting public transport. There is a school at Quartier Militaire. However, it is expected that the effect on bus services for schoolchildren will be minimally affected since the school mostly caters for students from the Eastern region and the school bus routes are generally off the project road.

82. Provision has also been made, bearing in mind stakeholder concerns, for the construction of two bypasses: at Valetta (1.5 Km) and Quartier Militaire (2.5 Km). These deviations will reduce the major portion of the traffic in the villages (which is through traffic). Noise pollution, dust and accidents will be reduced thereby providing a safer and better environment for the inhabitants. The sections of the existing road through these two villages will be overlaid together with some other minor improvements (footpaths, handrails, street lighting). Provision of these amenities will greatly decrease the risks of accidents in the inhabited areas. The recommended alignment was found to be the optimum option from the economic, geometrical and road traffic safety point of view. This alternative includes the improvement of the existing horizontal and vertical alignments outside the residential areas and provision of bypasses at Valetta and Vuillemin (before the A7 road). The two bypasses will reduce through traffic in heavily populated areas, thereby reducing localized pollution and enhancing safety, in addition to easing traffic flow. These two bypasses will traverse uninhabited sugar-cane fields.

83. The EA, EMP, and the abbreviated Resettlement Action Plan (RAP) (titled “Land Acquisition Plan”) have been made available in the InfoShop and in publicly accessible locations in Mauritius since December 2008. A preliminary census and notification of land acquisition procedures and compensation of PAPs in the bypass areas was undertaken before appraisal, and findings were added to the RAP. A subsequent revision of the RAP (dated May 13, 2009) has also been disclosed in country by the Borrower and at the InfoShop.

E. Environment

84. The project is not expected to have adverse environmental impacts on human populations or environmentally important areas.

85. **Quartier Militaire.** It is estimated that it will be necessary to fell 323 trees along the route. Four trees will be planted for every felled tree: at least 1,300 trees of the same native species will be planted to compensate for the loss of those listed in the EIA. (It is possible the number of trees along the route may have increased or decreased since 2002, but this will be assessed by the Conservator of Forests and the National Parks and Conservation Services). The location and types of trees to be planted will be determined in consultation with the Conservator of Forests, who will continue to monitor the tree plantings over the lifetime of the project.

86. In the construction phase, adverse effects on the environment will include increased noise, vibration, and pollution levels due to construction and equipment, traffic restrictions due to lane closings, possible public utility interruptions in built-up areas, and to a lesser extent, slopes erosion, water flows obstruction, impairment of non-critical natural habitat, and minimal water pollution due to construction-related activities. No major contamination of soil or surface water is envisaged.

87. **Periodic maintenance of three highway sections**, which will complement the ongoing works on the Terre Rouge – Pamplémousses section on M2.

88. For both transport project components, an Environmental Management Plan (EMP) has been established and measures required to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance will be included in the bidding and contract documents to ensure that good engineering practices will be applied during construction. The contractors will be made aware of this obligation and their safeguard performance during construction will be closely supervised and monitored by the Project Engineers with close supervision of the Project Supervision Consultants.

F. Safeguard policies

Safeguard Policies Triggered by the Project	Yes	No
<u>Environmental Assessment (OP/BP 4.01)</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Natural Habitats (<u>OP/BP 4.04</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pest Management (<u>OP 4.09</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Physical Cultural Resources (<u>OP/BP 4.11</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Involuntary Resettlement (<u>OP/BP 4.12</u>)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Indigenous Peoples (<u>OP/BP 4.10</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Forests (<u>OP/BP 4.36</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Safety of Dams (<u>OP/BP 4.37</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects in Disputed Areas (<u>OP/BP 7.60</u>)*	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects on International Waterways (<u>OP/BP 7.50</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Screening Category of the Project: B – Partial Assessment.

89. **EA/EMP.** In keeping with the World Bank’s Safeguard Policies, the Road Development Authority (RDA) prepared an Environmental Impact Assessment (EIA) for the Upgrade of Quartier Militaire Road in 2002, and prepared an Environmental Management Plan (EMP) based on questions submitted by the Ministry of Environment and National Development Unit on August 28, 2008. The Ministry determined that no EIA license would be required. The potential environmental impacts of the bypasses were assessed as part of the EIA. Since the bypasses traverse cultivated sugar cane fields, there is no loss of critical natural habitat.

90. Any activity such as demolition and reconstruction of boundary walls and gates will be carried out under the project, in accordance with an established calendar which will involve

* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

liaison with PAPs. The RDA also prepared an EMP for the road works on the Terre Rouge – Pamplémousses section on M2.

91. The EMP specifies the mitigation measures to be implemented by the contractor. In addition, all contractors are required to obtain and abide by relevant GoM licenses for extraction of material from quarries and borrow sites, as well as licenses for the use of disposal sites, crusher and asphalt plant sites, etc. The Project Plan Committee and supervision consultants are required to monitor compliance of license conditions and the implementation of the EMP. In support of this, the project will provide for training for appropriate RDA staff in environmental and social management of the road sector.

92. **RAP.** The Quartier Militaire project will necessitate minor realignments in lightly populated areas to extend the width of the road by up to 2 meters on either side. It will therefore be necessary in such areas, to ensure that PAPs (owners of this privately owned land-used for residential and commercial purposes, and in some cases for sugarcane cultivation) are adequately compensated.

93. A RAP (titled “Land Acquisition Plan”) has been prepared for the Project, was initially approved by the World Bank on 12/02/08, and first disclosed on 12/03/08. A final and updated version was approved on 05/13/09. Compensation will be given to PAPs with legal right or title to land, and in the case of PAPs without legal title or right to land as of the cut-off dates defined in footnote 3 ²(should any such PAPs exist) assistance will be given to replace non-land assets lost (defined as fixed immovable structures and crop or agricultural produce losses in the land acquired for the Project). Such compensation or assistance, as the case may be, will be assessed as from the date of government having completed an investigation, a precise survey and a valuation of all land and replacement cost value in the project areas proposed for acquisition. Once the RDA identifies precisely the extent of land affected in each individual instance, a list will be prepared providing all details on ownership and the area required for the Project. The list will be sent to the Ministry of Housing and Lands (MoHL). Before any land is compulsorily acquired, the RDA will carry out and complete the abovementioned investigation and precise survey of all land concerned, and the Valuation Department will carry out a valuation of all such land, which will determine the land and replacement cost value in accordance with the GoM’s valuation method, as summarized in paragraph 97 below and detailed in the RAP. The MoHL will offer each PAP with legal right or title to land, the land and replacement cost value determined for the respective land proposed for acquisition.³ Land Acquisition procedures are explained in detail in the RAP and in Annex 10.

² The cut-off date for the purpose of identifying current occupants of the affected area along the existing road alignment (e.g. excluding the by passes) so as to establish a basis for implementation of the RAP and to exclude subsequent inflows of people from eligibility for compensation and resettlement assistance is determined to be October 8 2008, the date the preliminary census survey of stakeholders was finalized.

The cut-off date for the purpose of identifying current occupants in the bypass areas, so as to establish a basis for implementation of the RAP and to exclude subsequent inflows of people from eligibility for compensation and resettlement assistance is determined to be December 5 2008, the date the notification letters were dispatched.

³ PAPs without legal right or title to such land that they are occupying, if any such exist, will be provided assistance to replace non-land assets (comprising fixed immovable structures and crop or agricultural produce lost solely on account of the execution of the Project activities)

94. Notwithstanding any provision of the Land Acquisition Act of the GoM to the contrary, the GoM shall acquire land for the purposes of the Quartier Militaire Project, and shall commence works on the same, only after offering and, as the case may be, making payments to, or setting aside funds for the purpose of making payments to, the PAPs in a manner consistent with the provisions of the RAP (also detailed in Annex 10).

95. **Compensation and or/assistance for land acquisition.** Where markets are active, as in Mauritius, replacement cost of affected land, in either rural or urban areas, is based on fair market value (plus transaction costs and, in rural areas, any preparation costs). The Chief Government Valuer in the Valuation Department of the Ministry of Finance and Economic Empowerment will undertake the assets valuation work, utilizing a very thorough valuation process which follows international accounting and valuation methods, (the internationally recognized Modern Methods of Valuation, primarily the comparative method). The valuation method to be used qualifies as replacement cost, as required by the Bank's Operational Policy OP 4.12.⁴ "Replacement cost" is the method of valuation of assets that helps determine the amount sufficient to replace lost assets and cover transaction costs (as detailed in the RAP and in Annex 10).

96. The Ministry of Housing and Lands (MoHL) is responsible for advertising the land acquisition process and effecting payment of compensation and/or assistance, in the manner detailed in the RAP and in Annex 10). Should the PAP wish to contest the offer, detailed procedures for counterclaims and appeals are in place under Mauritius law to enable this. (See Annex 10 and the RAP for details of such procedures).

97. **Consultations on the RAP.** The RDA is working closely with the Citizens Advice Bureau and the local MP and community leaders, for public consultation and public information dissemination on both environmental, safety, and land acquisition aspects of the project. Consultations and public participation have already been and will continue to be carried out as an ongoing and regular process throughout project planning, design and implementation stages. Preparation of appropriate documents and planning and implementation for the acquisition of land and other assets will be carried out in consultation with the PAPs and the PAPs will receive prior information of the compensation, relocation and other assistance available to them.

98. **Borrower's capacity to implement safeguards.** The GoM's institutional capacity for safeguard policies is high. Tourism and fishing are key sectors of the Mauritian economy and both depend on sound environmental management for long-run sustainability.

99. Mauritius' environmental agencies have more than adequate capacity and experience in commissioning and following through on environmental impact assessments and for monitoring

⁴The valuation method to be used adequately reflects two principles which are reflective of OP 4.12: (a) Acquisition of land wherever possible takes place through negotiated settlement, even if the government has the right to gain access to the land without the agreement of the landowner. (b) The procedure provides a clear description of the scope of the power of eminent domain and the nature of compensation associated with it, both the procedures for assessing compensation values at replacement cost ("fair market value"), and mechanisms for recourse for those landowners who cannot reach a negotiated settlement.

compliance with the country's environmental and social protection laws. The government is responsive to the desires of the public, and has many times in the past postponed or altered public projects that faced strong opposition from those who would be negatively affected and/or NGOs (the Southeastern Highway project is an example).

100. For environmental issues, the RDA under the Ministry of Public Infrastructure, works closely with the Department of Environment within the Ministry of Environment and National Development to validate EIAs, and in the case of particularly sensitive projects, a staff member from the Ministry of Environment is assigned to the supervision of the works from an environmental perspective. The Department of Environment's staff is adequately trained and experienced.

101. **Date of disclosure in InfoShop and cooperating country.** The EA, EMP, and the RAP have been made available in the InfoShop and in publicly accessible locations in Mauritius since December 2008; a subsequent revision of the RAP (dated May 13, 2009) have also been disclosed in country by the Borrower and at the InfoShop.

G. Policy Exceptions and Readiness

102. The project does not require any exception from Bank policies. Assessments and preparation of fiduciary arrangements, staff and consultant selection, monitoring and evaluation systems and implementation and procurement plans meet the regional criteria for readiness of implementation. Project implementation staff is already in place and will provide core functions such as financial management, procurement and monitoring and evaluation for the Project.

103. **Transport:**

- LTA Implementation Study: Consultants have been selected and are expected to initiate their work in July 2009.
- Tendering of Consulting Services for the implementation of a Road Management System was initiated in late January 2009. Evaluation of Proposals was completed in July 2009.
- Evaluation of the technical proposals for the BRT Implementation Study is completed and cleared by the Bank.
- Detailed engineering design for the Quartier Militaire Road is completed and the bidding documents are being elaborated.
- Bidding documents for periodic maintenance contracts are being elaborated and are expected to be ready by mid 2009.
- Terms of Reference to select consultants who will draft the bidding documents for the performance-based routine maintenance contracts (which are expected to start in 2010) are completed.

104. **Water – Wastewater:**

- Terms of reference are being drafted by WMA and WRU.
- Request for Expressions of Interest related to the Water Resources Study was duly advertised in January 2009 and the short list was established in April 2009. Request for Proposal is completed and cleared by the Bank team.

105. **Energy:**

- Request for Proposals for a Renewable Energy Development Strategy is ready, and request for Expressions of Interest was duly advertised in January 2009.

Annex 1: Country and Sector Background
MAURITIUS: Infrastructure Project

THE NEED FOR MORE INFRASTRUCTURE ASSETS IN MAURITIUS

1. Among the obstacles to further growth is the erosion of Mauritius' competitiveness due to increasing cost of export products caused by a combination of factors including emerging infrastructure bottlenecks. Inadequate and unstable power supply, inefficient transport systems, poor-quality roads and unreliable communication systems tend to raise transaction costs, curtail productivity growth and reduce the viability of investment. Indeed, a close relationship can be observed between infrastructure development (e.g. quality of road, port and electricity supply) and the competitiveness of the economy.

2. There is consensus on the need to develop a strategic and coherent plan for public sector investment that aligns government economic vision with sector policies, corresponding infrastructure needs and the required funding arrangements. Most of the infrastructure investment used to be financed by the public sector. Although this is set to continue with the assistance of development partners, the private sector would increasingly be participating in infrastructure development to assist government in achieving its economic vision.

3. Based on an initial assessment from existing sector forecast, the expansion of the airport and port infrastructure, the bus modernization program, the expansion of the road network and infrastructure development in the utility and ICT sector would necessitate an investment of around USD4.3 billion equivalent to MUR 125 billion over the next ten years. The projects are expected to be funded through public-private partnership. The table below provides an indication of the investment by major sector that might be required over the next ten years.

Major Sectors	Estimated Investment	
	MUR	USD
Port	5,000,000,000	172,000,000
Airport	9,000,000,000	310,000,000
Land Transport	20,000,000,000	690,000,000
Energy Sector*	60,000,000,000	2,100,000,000
Water Sector	3,000,000,000	103,000,000
Wastewater Sector	9,000,000,000	310,000,000
Others (including ICT Sector)	19,000,000,000	646,000,000
Total	125,000,000,000	4,331,000,000

Public Sector Investment in the Energy Sector is estimated at MUR 28 billion and Private Sector Investment would be around MUR 31.5 billion

GENERAL TRANSPORT

4. In line with fast growing incomes has come equally high demand for automobiles and transport services. Since 1988 the number of cars and dual-purpose vehicles has grown steadily at about seven percent per year. Mauritius now has about 300 motorized vehicles per 1,000 inhabitants, which is fairly typical for upper-middle income countries. The overall transport infrastructure has not been upgraded at the same pace and is lagging behind in terms of development. This shows both in the most densely populated area, the Port-Louis – Curepipe corridor and on the national road network, two areas where the government has identified a series of priority transport infrastructure investments which are at different stages of project preparation including mainly: (i) road maintenance program for the national road network, including pilot performance-based contracts, (ii) ring road in Port Louis and Harbour Bridge, (iii) Bus Rapid Transit (BRT) from Port Louis to Curepipe: there is a strong need to improve bus service quality significantly, and especially to reduce bus travel times.

5. **Urban Transport in the Port-Louis – Curepipe corridor:** Current bus services are unattractive, especially to those with access to a car alternative because of: (i) severe congestion; (ii) resultant extended travel times; (iii) the need for often extensive walking at either end of the bus trip; (iv) a lack of air conditioning on most buses; and (v) inconvenient access requiring entrance through one narrow door and climbing several steps, a procedure which in itself inflicts delays on operations. At the same time, a large part of the population throughout Mauritius lacks access to cars and depends on bus service for both work and leisure travel purposes. While the Mauritius economy has been expanding, those compelled to use bus service are offered a product that is well below the standard expected in a mid-income country.

6. **Existing Bus Services:** the bus industry, which operates more than 250 routes throughout the main island, is characterized by fragmentation. Much of the current route system has grown historically in response to a system of applications, reviews, and granting of licenses. Routes have frequently been extended by this process to serve new developments or for other purposes. The result has been an incrementally derived system of more than 250 routes, rather than one designed to optimally meet actual needs. The National Transport Corporation (NTC) is a state-owned parastatal enterprise which operates approximately one-third of the bus routes in Mauritius. The company has to abide by regulatory requirements, and bureaucratic and labor practices which inhibit innovation. The other main operators are three mid-size private companies, United Bus Service, Rose Hill Transport Ltd., and Triolet Bus Services Ltd., who provide public transport services in regions of Mauritius on approximately one third of the total bus routes on the main island. In addition, some 658 individual operators also offer services, operating the remaining third of routes with eight hundred buses. This service is generally characterized by a lack of coordination, planning or discipline, and is often erratic and poorly-managed. The individual operators mostly purchase very basic Japanese-made buses, in view of their low cost and easy maintenance. The above-outlined problems are particularly severe to the heavily populated suburbs to the south of Port Louis with travel times to complete the 25km between Curepipe and Port Louis being as long as two hours. This requires a special focus on improving service in the corridor to the south, with the development of rapid bus services.

7. **The Local Consensus Process:** a consensus process was conducted during September 2006 bringing together a number of forums involving twenty major transport sector stakeholders to consider a range of transport policy options. At the conclusion of the process, a set of 18 measures were endorsed and presented to the Cabinet for action. The consensus process focused on the need for high-speed public transport services in the Port Louis – Curepipe corridor, and opted for a bus system providing exclusive bus lanes under controlled operation, which is likely to reduce the journey time between Curepipe and Port Louis to 35-45 minutes, over today's congested conditions which can take up to two hours. The proposed concept includes innovative features such as signaling and a centralized control center to control access and use to increase reliability and maintain quality standards. Proper operating procedures, scheduling, and terms and conditions imposed on operators, such as requirements to use low-floor multiple-door buses to permit reduced dwell times at stations, are also to be developed to ensure a high-level of system performance. The proposed system, being a hybrid of open and closed system concepts, may be termed a "controlled multiple access point open busway". The World Bank technical assistance is required to facilitate the materialization of this concept under the proposed operation, through financing the Bus Rapid Transit Implementation Study.

8. **Overall Road Network:** The Road Development Authority (RDA), a corporate body established by Act No. 6 of 1998, operating under the aegis of the MoPILTS (Public Infrastructure Division) is responsible for the provision and maintenance of roads classified under the Roads Act as motorways and main roads and this includes bridges and other structures found therein. The road network under the jurisdiction of the RDA consists of 55 km of motorways (dual carriageway) and 1,019 km of main roads. Some key segments of the road networks are currently saturated and/or not optimally maintained.

9. Presently, maintenance, rehabilitation and reconstruction budgets are based on one or a combination of the following techniques:

- Based on the previous year's budget possibly with an arbitrary increase or decrease;
- Periodic maintenance schedule such as surfacing or overlays every seven to ten years, whether the road needs it or not;
- Fire fighting approach i.e. to attend to complaints from public;
- Political imperative; and
- Experience and knowledge.

10. However, this is not a satisfactory approach since scarce resources may end up being used only on roads which are in bad shape. This would neglect the roads in good condition which nevertheless need to be subject to preventive maintenance to avoid deterioration which could prove costlier in the long term. Otherwise roads which do not require expensive interventions are being provided with costly treatments.

11. **Road Maintenance:** There is a division at the RDA assigned with maintenance of the existing network. Routine maintenance such as patching, repairs, cleaning etc. is carried out in house by direct labor. Periodic Maintenance such as provision of overlays, major repair works, construction of footpaths and drains etc. and road safety measures are carried out by district contractors appointed on a yearly basis by the RDA through competitive bidding. Inspection,

scheduling of works, supervision and project management is done by the staff of the Maintenance Division.

12. However, the maintenance division is grossly understaffed with the result that routine maintenance is not being carried out with due regularity. The dearth of maintenance is clearly visible. Entrusting the routine works such as cleaning of drains and furniture etc. to the district contractors has proven extremely expensive. It is essential to explore other means such as performance based contracting. However, although the system may have been successful in other countries, it is important that a system applicable to the local context be devised and tested, appropriate performance indicators set, the type of service to be covered whether single or comprehensive determined. A consultant, to be appointed under the proposed loan, will look into the feasibility of such a maintenance system and advise the RDA on the way forward, prepare the appropriate bid documents for a pilot project and train the RDA staff in the management of this type of contract.

13. **Upgrading:** Although the motorways and some single carriageways are designed roads (i.e. constructed in accordance with the state of the art), other roads have evolved from the gradual improvements and upgrading of water bound roads and sugar cane tracks. With the sustained economic development of the last thirty years, many of the Mauritian roads are carrying traffic volumes and weights which they can barely sustain. There are major structural damages which need to be addressed. Other defects are inappropriate widths, bad or hazardous longitudinal and vertical profiles, absence of footpaths and drains in built up areas and so on. The government, through the Ministry of Public Infrastructure, had in the past implemented upgrading projects such as the First, Second and Third Highway Projects which were rehabilitation, strengthening and upgrading of roads within the existing network. The First and Second Highway Projects were financed by the World Bank. The last project was completed in 1997.

14. **A 10 year maintenance program (2009-2018)** has been prepared in-house on the basis of visual inspections, taking on board the state of the existing network based on the RDA's knowledge of the condition of the roads under their responsibilities as well as the projected traffic levels which would be plying on Mauritian roads in 2015/20 (obtained using the VISUM modeling software). This has enabled identification of roads in the network which would need upgrading as opposed to others which will be provided with overlays, local interventions only and implementation of Road Safety measures.

WATER – WASTEWATER

15. **Water Sector:** Mauritius has a tropical maritime climate with two seasons, winter prevailing from May to October and summer from November to April. The average annual precipitation over the island is 2000 mm varying from 1500 mm on the east coast to 4000 mm on the central plateau and 900 mm on the west coast. The replenishment of the water resources systems occurs during the summer season when two thirds of the mean rainfall is harvested out of which some 65 percent yield from tropical storms/cyclones. Mauritius also experiences extreme rainfall events during the cyclonic seasons.

16. Some 30 years back, the water distribution systems were limited to a low coverage throughout the island. With time, massive investments have been made in the water sector as a result of which about 99 percent of the population have access to safe water supply. The present domestic water demand is met from groundwater (55 percent), four impounding reservoirs and river off-takes (45 percent).

17. Although Mauritius receives abundant rainfall during the wet season, supply deficiencies are still experienced during the dry period due to the lack of water resources and water infrastructures (e.g. dams and feeder canals) and the uneven distribution of rain both spatially and temporally. Access to water supply is therefore limited at 6 to 10 hours per day in some regions (center, north, south, Port-Louis). Taking into consideration the future development of Mauritius and thus the increase in demand for water, there is a need to identify projects for the mobilisation of additional water for demand satisfaction for the different sectors of the economy comprising the future demand in the irrigation sector so that food security is ensured and also the effects on climate change on the water resources are attenuated.

18. The legal and institutional framework governing the water sector will need to be reviewed and reinforced to cater for the new challenges. At present there are a number of legislations that deal with 'water'. Some of the legislations are Rivers and Canals Act, Groundwater Act, Forests and Reserves Act, Environment Protection Act etc. These legislations need to be harmonised and a new Water Act need to be drafted to cater for future challenges in the water sector. The growing scarcity of the water resources calls for a revisiting of the existing riparian rights for irrigation purpose. Some of these rights date back to more than two centuries ago and are still in existence although the land use patterns and climate scenarios have evolved. There is a need to review and rationalise these water rights taking due consideration of growing water demand, changes in land use and impact of climate change

19. Many projects have already been identified for the water resources mobilisation and are at different stages of implementation (Bagatelle Dam Project, South Mauritius Water Supply Project, North Water Supply and Calebasses Dam). In addition, the government through the Central Water Authority (CWA) has embarked on the ambitious project for the reduction of non-revenue water from the present 45 percent level to about 30 percent over the next five years, with support from the European Investment Bank through a loan effective since 2005. A project is ongoing where pilot schemes for assessing the effectiveness of the proposed measures have been identified. Same will be replicated to other supply systems on successful completion of the pilot schemes. However, this project would require renewal of old pipelines and will require a heavy capital investment.

20. **Wastewater sector:** in the mid-1990s, expansion of the high-end tourist industry which contributed 5.7 percent of GDP, rapid growth of residential and industrial development in Port Louis and other agglomerations have resulted in noticeable pollution of rivers and land as well as coastal pollution by untreated sewage discharged to the sea through short sea outfalls built in the 1970s. Mauritius now has a population of 1.2 million with 45 percent concentrated in urban areas. There is a public sewer network which currently serves 25 percent of the population. The remaining 75 percent uses on site waste water disposal systems. These on site systems are either septic tanks with absorption pits, cesspits or communal sewer networks followed by large

leaching fields. It is a fact that some of these disposal facilities have not been designed properly and they constitute a serious threat to the aquifers apart from representing a health hazard due to leaching/overflowing cesspits/leaching fields. The textile sector makes use of ground and surface waters for their processes and disposes of its waste waters into rivers and sea.

21. Since the early 1990's, the Government of Mauritius (GoM) has undertaken a clear environmental policy to protect, restore and manage the country's environment assets. The National Environmental Action Plan (NEAP), published in 1990, identified inadequate disposal of urban waste water as a growing threat to the quality of groundwater and pointed out the irreversible damage which may be caused to the marine and coastal zone ecosystem. As a follow up to the NEAP recommendations, the GoM launched the Sewerage Master Plan study for the comprehensive development of the waste water infrastructure and also provided an orderly guide for the implementation of the plan over a period of 20 years. The Sewerage Master Plan, completed in 1994, provides for a global framework and long term commitment to establish and maintain water quality goals. Within the framework of the Master Plan, the National Sewerage Program (NSP) was developed. The key objectives of the NSP were to: (i) increase coverage of the sewerage infrastructure so that 50 percent of the population have access to the public sewer by 2010 with the completion of about 108,000 connections, and (ii) provide adequate waste water treatment facilities through the construction of new Wastewater Treatment Plants (WWTP).

22. Recognizing the financial, technical, and institutional challenges of implementing the 20-year national sewerage program, the authorities sought advice and financial assistance from development partners—including the World Bank, the European Investment Bank (EIB), the European Commission (EC), the African Development Bank (AfDB), French Development Cooperation (FDC), Kreditanstalt für Wiederaufbau (KfW), and the Arab Bank for Economic Development in Africa (BADEA)—in establishing financially-sustainable wastewater services. At present the government has already committed MUR 13.6 billion to implementing the priority projects identified under the Master Plan which were considered for implementation under the NSP (Montagne Jacquot Sewerage Project, Plaine Wilhems Sewerage Project, Baie du Tombeau Sewerage Project, Grand Baie Sewerage Project, Rehabilitation of Sewerage Infrastructure on Low Cost Housing Estates, West Coast Sewerage Project, Pailles-Guibies Sewerage Project).

23. In parallel, different activities which form part of the wastewater development program continued to be undertaken with noticeable progress, in particular: (i) the institutional strengthening of the Wastewater Management Authority (WMA) with adequate legal status, human resources and tariff structure with a view to full cost recovery of O&M expenditures. The WMA is presently responsible for both managing the implementation of large wastewater sewerage projects on behalf of the government and for O&M of sewer networks and wastewater treatment plants; (ii) the Regulation of the Waste Water Sector by appropriate legislations to control the quality of effluents discharged into public sewer and the environment, (iii) environmental monitoring to provide a quality analytical service for the monitoring and control of wastewater discharges to the WMA sewer system, effluent quality of industries, hotels and Wastewater Treatment Plants; (iv) implementation of industrial pollution control program, and (v) improvement of access of the poor to suitable sanitation.

24. **Energy:** in 2006, the Central Electricity Board (CEB) produced about 1,106 GWh of energy (in Mauritius & Rodrigues), representing 52 percent of the country's requirements, from its 6 thermal power stations, 8 hydroelectric plants and 1 wind farm, with a combined installed capacity of 442 MW and an effective capacity of 386 MW. The remaining 48 percent of energy requirement was purchased from Independent Power Producers. With a workforce of 1,715 persons, the CEB delivers electricity to over 375,000 customers through some 8,100 km of distribution network.

25. CEB forecasts indicate that in 2013 approximately 3,092 GWh of energy would have to be generated to meet demand, with a peak power demand of more than 500 MW, compared to 2,224 GWh and 389 MW in 2008. Additional generating capacity is therefore critical to meet demand in the medium term, and support the projected economic development of the island.

26. Since 2005, the GoM has advocated private sector participation toward the *optimal use of bagasse for cogeneration*, linking bagasse energy projects with sugar factory modernization. Total electricity purchase from Independent Power Producers (IPPs) reached 1,015 GWh at year-end 2006, representing 48.5 percent of total generation. While 71 percent of the IPPs' production was derived from coal, the share of production from bagasse reached 29 percent. Today, bagasse, along with hydro, meets over 20 per cent of current electricity requirements. However, due to production of sugarcane (and hence bagasse) having reached a plateau, and hydro power potential almost fully used up, dependence on imported fuels is expected to increase unless proactive measures to develop renewable energy sources are taken.

27. Increased energy demand in the short to medium term has been partially met by the Compagnie Thermique Savannah (CTSAV) project, which operates, next to the Savannah sugar mill, a dual bagasse/coal power plant consisting of 87 MW (2 x 43.5 MW) turbo-generating sets.

28. However, since all bagasse currently produced in Mauritius is already used in energy production; the only way to increase electricity production from bagasse would be through the use of higher efficiency boilers, or to increase the total amount of bagasse by using newer types of cane with higher fibre content. Moreover, the current acreage used for cane production in Mauritius is expected to decrease by more than 10 percent over the next decade.

29. Cost and efficiency are also key factors. Recent investment cost data from Mauritius shows that the capital cost of establishing a bagasse-coal cogeneration plant amounts to USD 1.6 million per MW installed, whereas that of a coal power plant is USD 1.2 million per MW installed.⁵ Power plants related to the sugar sector need a technology that can burn bagasse, which is typically based on grate fired boilers and steam turbines. During the crop season these boilers use bagasse and during the intercrop season they can use coal for producing electricity. However, the efficiency of such a plant is lower than that of a dedicated coal fired plant that can be equipped with more advanced boiler technology (pulverized coal). The fossil fuel use in dedicated plants is therefore lower, and less greenhouse gas emissions are emitted.

⁵ Mr. Shamshir Mukoon, CEB. Quoted in Clean Development Mechanism Project Design Document: Compagnie Thermique de Savannah Limitee (CTSAV) Bagasse-Fuelled Cogeneration Project, January 2008.

30. In 2007, letters of intent were issued by the Board of Investment to CT Power Ltd for a new coal-based plant and to Gamma Covanta Energy Ltd for an incineration plant. Power Purchase Agreement (PPA) negotiations have been concluded with CT Power Ltd for the setting up of two units of 55 MW pulverized coal-fired units at Pointes aux Caves. The first unit is due to come on grid by April 2011 while the second unit is scheduled for September 2011. The CEB is an equity partner in the project. PPA negotiations are also underway with Gamma Energy for a municipal waste incinerator located at *La Chaumière*. The aim is to incinerate about 300,000 tons of municipal solid wastes annually to produce about 150 GWh of electrical energy. The plant is expected to be commissioned by 2010.

31. Increased fossil fuel-based development comes with negative environmental implications which could affect tourism, (the island's economic base) and has global implications – an increase in greenhouse gas emissions. Recognizing this, the GoM has set up a fund in support of an innovative and visionary concept – *Maurice Ile Durable* (MID) – to increase the proportion of renewable energy (RE) in the energy mix, and to promote energy efficiency. Key opportunities for renewable energy development must therefore focus on solar (thermal, photovoltaic, and Concentrated Solar Power), wind, tidal wave, Ocean Thermal Temperature Conversion (OTEC), geothermal and biomass (cane trash, coconut husks, etc).

32. Mauritius also has very substantial and mostly neglected potential to use energy efficiency and behavioural change to lower overall energy demand. Increased support for energy efficiency measures will also go some way to addressing this issue. Mauritius introduced daylight savings time in October 2008. The GoM, in its last budget, approved a subsidy of MUR 10,000 for solar water heaters, (out of a total cost of MUR 25,000). The CEB has already distributed 200,000 Compact Fluorescent Light (CFL) bulbs, and ultimately plans to distribute 1,000,000 bulbs.

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies
MAURITIUS: Infrastructure Project

1. **Transport:** the Bank supported the road sector in Mauritius through two Highway Projects which closed respectively in 1995 and 1999, the main objective of which was to protect the capital investment in selected main roads and increase their service life. Since then, the World Bank has not been engaged in the road sector in Mauritius. Other donors currently active in the road sector include Exxim Bank of China, who will be financing the first section (MUR 1,550 million) of the Terre Rouge – Verdun – Trianon road, and BADEA+ OPEC who will finance the second section (MUR 625 million). The African Development Bank (AfDB) and the *Agence Française de Développement* (AFD) have expressed interest in co-financing the Bus Rapid Transit Project for the Port-Louis Curepipe corridor. In the port sector, the World Bank has been involved through the Port Development and Environment Protection Project, approved in 1995 and closed in 2002. Its objective was to increase the port productivity, efficiency and capacity to meet the demand of port users in an environmentally sustainable way. Project outcome is highly satisfactory; overall Bank performance is highly satisfactory; and overall Borrower performance is highly satisfactory.

2. **Water - Wastewater:** the World Bank Environmental Sewerage and Sanitation Project (USD 12.4 million) were approved in February 1998 and became effective on February 3, 1999. The closing date after being extended twice is December 31, 2006 instead of June 30, 2003 originally planned. The development objectives of the project are to: (i) improve the health and sanitary conditions of the population of the heavily urbanized areas of Port-Louis and affected coastal zones, (ii) reverse the current trend of environmental pollution in the Borrower's territories and in the coastal zones, and (iii) support to Borrower's effort to implement priority institutional and technical measures identified in its sewerage master plan. The project performance is satisfactory in terms of achievements of development objectives and moderately satisfactory in terms of implementation.

3. Several other donors are also assisting the GoM in the sector: the AFD (Grand Baie Sewage Project), the BADEA and OPEC (construction of trunk sewers, pumping stations, house connections and connections of existing and future industries), the European Union (rehabilitation of sewerage infrastructure in low cost housing estates, extension of the existing St Martin Sewage Treatment Plant), JBIC (construction of rising main, sewerage networks, pumping stations and wastewater treatment plant in Port Louis South, Lower Beau Bassin and Coromandel in addition to 1,500 house connection in the region of Port Louis and Plaine Wilhems), the EIB and Exim China Bank (Plaines Wilhems Sewerage Project) and the Nordic Investment Bank (construction/ rehabilitation in Plaines Wilhems, Port Louis South and Beau Bassin).

4. **Energy:** At present, there are several donors assisting the GoM with the MID Programme. The United Nations Development Programme (UNDP) and the European Union (EU) funded the Energy Policy for the Republic of Mauritius. The AFD funded a study to identify potential private sector projects in Mauritius in the fields of sustainable energy and environmental performance.

Annex 3: Results Framework and Monitoring

MAURITIUS: Infrastructure Project

Table 1: Results Framework

PDO	Project Outcome Indicators	Use of Project Outcome Information
<u>To assist the Borrower to improve the national infrastructure with an emphasis on the transport, energy, and water sectors</u>	Disbursement ratio of annual capital budgets related to PSIP	Assess readiness of the infrastructure projects
	Number (and value) of projects in the infrastructure sector implemented, being implemented, or ready for implementation as defined in the PSIP	Evaluate MU-Infra Project success and assess effectiveness of the PSIP
	Travel times (minutes) Number of accidents per year on Quartier Militaire Road.	Assess impact of upgrading works on Quartier Militaire Road
Intermediate Outcomes	Intermediate Outcome Indicators	Use of Intermediate Outcome Monitoring
Transport		
Improved condition of the road network	<p>Number of km upgraded as per defined standards on targeted roads.</p> <p>Number of km maintained as per defined standards on targeted roads annually.</p> <p>Number of Performance Based contracts being implemented for routine maintenance.</p>	<p>Assess the impacts of efficient use of public resources and result-oriented management on improving cost-efficiency in the road sector</p> <p>NB: defined standards means zero potholes, no edge break between the pavement and the shoulders and all horizontal marking and vertical signs restored</p>

Sector	Outputs	Use of Output Monitoring
All sectors	<ul style="list-style-type: none"> • Preparation of a PSIP that meets the criteria defined in Annex 4. 	<ul style="list-style-type: none"> • Monitor the establishment of an overall framework for infrastructure investments
Transport	<ul style="list-style-type: none"> • LTA is fully operational, i.e. performs its role effectively as determined by its ability to (i) formulate policies, (ii) manage, plan and implement land transport projects, (iii) manage transport systems. • Number of completed feasibility / detailed engineering studies in the transport sector which relate to transport projects identified as priorities under the PSIP 	<ul style="list-style-type: none"> • Monitoring of LTA's capacity building • Monitor the readiness of transport projects included in the PSIP
Water	<ul style="list-style-type: none"> • Master Plan for Water Resources completed and adopted. • Number of completed feasibility / detailed engineering studies in the water sector which relate to water projects identified as priorities under the PSIP • Pollution Control Laboratory is fully operational, i.e. performs its role effectively as determined by its ability to monitor more frequently and more reliably the quality of the water resources. 	<ul style="list-style-type: none"> • Make sure proposed water supply investments are framed into a sensible long term plan. • Monitor the readiness of transport projects included in the PSIP • Monitor the environmental surveillance capacity
Wastewater	<ul style="list-style-type: none"> • Detailed engineering studies completed for the Baie de Tombeau Phase III project 	<ul style="list-style-type: none"> • Monitor commitment to the improvement and coverage of sewerage services
Energy	<ul style="list-style-type: none"> • Renewable Energy development strategy and implementation plan prepared, including selection of appropriate projects (from economic, technological, and site specific perspectives) for feasibility studies. 	<ul style="list-style-type: none"> • Confirm existence of a framework for selection of economically viable clean energy development, and thereby to increase the proportion of renewable energy in the energy mix.

Table 2: Arrangements for results monitoring

Project Outcome Indicators	Baseline	Target Values					Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Disbursement ratio of annual capital budgets related to PSIP	43% overall	50%	65%	80%	80%	80%	Annual	Annual budget report	MoPILTS with inputs from MoFEE
Number (and value) of projects in the infrastructure sector implemented, being implemented, or ready for implementation as defined in the PSIP	0	0					Annual	PSIP progress report	MoPILTS
Travel times (minutes) Number of accidents per year on Quartier Militaire Road.	10 11 (yearly average)	11	11.5	5.5	5.5	5.5	Annual	Road Surveys	RDA
Intermediate Outcome Indicators									
Number of km upgraded as per defined standards on targeted roads.	0	0	0	7.5	7.5	7.5	Annual	RDA activity report	MoPILTS through RDA
Number of km maintained as per defined standards on targeted roads annually	0	0	0	17	17	17			
Number of Performance Based contracts being implemented for routine maintenance.	0	0	4	4	4	4			
Output indicators									
Preparation of a PSIP that meets the	Not	Being	Complete	-	-	-	Annual	PSIP	MoFEE

Project Outcome Indicators	Baseline	Target Values					Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
criteria defined in Annex 4.	prepared	prepared	d					Progress Report	
LTA is fully operational	LTA is being set up	LTA is being set up	Yes	Yes	Yes	Yes			MoPLITS
Number of completed feasibility / detailed engineering studies in the transport sector which relate to transport projects identified as priorities under the PSIP	0	2	4	4	4	4			Project Plan Committee within MoPLITS
Master Plan for Water Resources completed and adopted.	Not prepared	Being prepared	Completed & adopted				Annual	WRU activity report	WRU with MoREPU
Number of completed feasibility / detailed engineering studies in the water sector which relate to water projects identified as priorities under the PSIP	0	0	2	2	2	2	Annual	WRU activity report	WRU with MoREPU
Pollution Control Laboratory is fully operational	Lab. is being set up	Lab. is being set up	Yes	Yes	Yes	Yes	Annual	WRU activity report	WRU with MoREPU
Detailed engineering studies completed for the Baie de Tombeau Phase III project	Not prepared	Being prepared	Completed & being implemented				Annual	WMA activity report	WMA with MoREPU
Renewable Energy development strategy and implementation plan prepared	Not prepared	Being prepared	Completed & being implemented				Annual	CEB activity report	CEB with MoREPU

Annex 4: Detailed Project Description

MAURITIUS: Infrastructure Project

1. COMPONENT 1 - ROAD INVESTMENTS (USD36.1 million out of which USD1.1 million will be financed by the Borrower):

1.1 Upgrading of Belle Rive - Quartier Militaire Road (USD22.7 million out of which USD1.1 million will be financed by the Borrower):

1. Belle Rive - Quartier Militaire Road is a 5.5-to-6.5 meter road, the main link between the East and the West of Mauritius, The B6 road from Wooton Roundabout to Quartier Militaire is an important link between Upper Plaines Wilhems and the eastern region of the country including the airport. The road crosses three important villages: (i) Belle Rive where SSR Medical College is found, (ii) Valetta, and (ii) Quartier Militaire where the District Council and the Shrimati Indira Gandhi State Secondary School are situated.

2. The Quartier Militaire (B6) Road does not adhere to geometric standards resulting in poor safety conditions besides being a source of discomfort to drivers on account of its sharp bends, inadequate visibility and poor pavement condition with cracks and potholes. Essential amenities such as footpaths, handrails and pedestrian crossing facilities are lacking in built up areas. These low standard geometrics coupled with the limited road width and other safety hazards have marked effects on the occurrence of high number of accidents along the road.

3. Reconnaissance pavement survey and results of deflection test carried out during feasibility stage showed that the pavement is in a very advanced state of deformation and cracking. The damages to the pavement structure are both of a structural nature (deformation, rutting, cracking, crazing) as well as non structural (pot holes, bleeding and stripping).

4. In this context, the RDA intends to upgrade the existing Quartier Militaire Road since it serves as an important link between the Upper Plaines Wilhems and the eastern region of the country including the airport area. The road will be rehabilitated and widened to up to 7.5 meters, under the proposed project, to alleviate congestion and above all to improve road safety on this axis, largely used by trucks and buses. Works will include slight modifications to the alignment to smoothen the sharpest curves so as to abide by the geometrical standards for a design speed of 100 km/hr, the construction of a round-about in Belle Rive and the widening of culverts in areas that get partially flooded during heavy rains. Provision is also made for the construction of three bypasses at Valetta and Quartier Militaire and one linking Quartier Militaire to Providence Junction. These deviations will reduce the major portion of the traffic in the villages which is through traffic. Noise pollution, dust and accidents will be reduced thereby providing a safer and better environment for the inhabitants.

5. The sections of the existing road through these two villages will be overlaid together with some other minor improvements (footpaths, handrails, street lighting). Provision of these amenities will greatly decrease the risks of accidents in the inhabited areas. The following safety measures will be taken:

- Due to the climatic conditions prevailing in that area where presence of mist is frequent, street lighting has been provided along the new alignment and at all roundabouts to increase visibility for the drivers.

- Guardrails will be installed in sections of deep cut.
- Provision of pedestrian crossings, speed breakers, bus shelters and bus layby, footpath will be made particularly in the vicinity of the schools. Suitable warnings signals and speed limits will be required to be displayed prominently at regular intervals.
- A landscaping plan has also been proposed consisting of selective plantation of trees on both sides of the road to enhance the scenic beauty.

6. The recommended alignment was found to be the optimum option from the economic, geometrical and road traffic safety point of view. This alternative includes the improvement of the existing horizontal and vertical alignments outside the residential areas and provision of bypasses at Valetta and Vuillemin (before the A7 road).

7. Extensive traffic surveys were carried out on the study road network to study the traffic, travel and speed characteristics. At the time of traffic counts, the traffic on the project road was observed to be in the range of 4,900-6,200 vehicles per day.

The following composite structure has been approved:

- 5 cm Asphaltic concrete
- 11 cm Bituminous road base
- 28 cm Cement Bound Material (CBM) at four percent cement
- 15 cm Crusher run 0/31.5

8. At the time of traffic counts, the traffic on the project road was observed to be in the range of 4,900-6,200 vehicles per day.

1.2 Periodic Maintenance (USD10.4 million)⁶ for three highway sections: (i) Terre Rouge – Quay D on M2 (5 km of dual carriageway), (ii) Nouvelle France – La Vigie on M1 (8 km of single carriageway) and (iii) parts of Pamplémousses-Grand Baie on A13 (4 km of single carriageway).

1.3 Performance-based routine maintenance contracts (USD3 million) for the three highway sections mentioned above. Another performance based maintenance contract will be executed to test the concept on lower-volume roads, possibly B20 (Old Flacq Road).

9. Such contracts will be designed with the following objectives in mind: (i) require the contractor to ensure the road network meets agreed performance criteria; (ii) leave the decision as to the work required to the contractor, thus promoting innovation; (iii) give the contractor a long term contract for a fixed lump sum, so that it is in the contractors' interest to provide quality work at optimal cost; and (iv) give the contractor responsibility for all assets in the road corridor, so that the client has one single point of contact for quality on the network. This avoids situations where a client, who might have various different contractors operating on the network, is unable to clearly allocate responsibility for defective work on the network.

⁶ Periodic maintenance refers to significant activities carried out regularly (every 5 to 10 years, according to predetermined schedule) to maintain the condition of roads, while routine maintenance refers to simple, small-scale activities (usually requiring only minimal skills or training) associated with regular (monthly, yearly, etc.) and general upkeep of a road against normal wear and tear.

10. During project implementation, a comparative analysis will be conducted to assess whether cost-efficiency of maintenance works are better achieved through PBCs or through ad-measurement type contracts. Such analysis will concentrate on relevant aspects during the procurement and execution phases that determine final costs of civil work contracts. A review of the extent of competition during the bidding process will aim at identifying different practices and behaviors among competing firms under different types of contracts (PBCs/ ad-measurement works) and its effects on bidding prices as compared to official budgets. Competition is essential to bring about the anticipated cost-efficiency benefits associated with performance-based contracts. A benchmarking exercise will be conducted in-house by the RDA to identify if cost levels are in line with best practice cases, and to determine how they compare to similar civil works contracts in Mauritius.

2. COMPONENT 2 - TECHNICAL ASSISTANCE AND INSTITUTIONAL DEVELOPMENT IN THE TRANSPORT – WATER/WASTEWATER - ENERGY SUBSECTORS (USD 14,875 MILLION):

2.1: Support to the preparation of the Public Sector Investment Program (USD500,000):

11. The government has embarked on a comprehensive reform program to enable the transformation of the economy to a well-diversified, high growth economy. The provision of modern and quality infrastructure facilities is critical to consolidate existing sectors, support the development of emerging sectors like ICT, Knowledge Industries, Seafood, Land Based Oceanic Industries and Financial Services, stimulate private investment and hence GDP growth. It is in this context that the government intends to articulate its Economic Vision, identify infrastructure gaps and prepare a comprehensive Public Sector Investment Program.

12. There is consensus to develop a strategic and coherent plan for public sector investment that aligns government economic vision with sector policies, corresponding infrastructure needs and the required funding arrangements. So far, most of the infrastructure investment has been financed by the public sector. Although this is set to continue with the assistance of development partners, the private sector would increasingly be participating in infrastructure development to assist the government in achieving its economic vision.

13. The Public Sector Investment Program (PSIP) is intended to provide a useful guide to policymakers, development partners, line ministries/public enterprises and the private partners for informed decisions on those investment projects that can be funded partly or wholly through public funds, foreign loans/grants and private capital. The PSIP would present a set of investment projects on a sector basis for implementation over the next ten years. The projects would be categorized into ongoing and pipeline investment projects, each of which is further divided into capital investment and technical assistance. Details on each investment project would be provided on basis of its justification, description, size, time frame, cost estimates and financing.

14. The PSIP aims at charting out a path for the public investment to cater for infrastructure needs in the public sector that best meet the government's overall objectives in conformity with the sector policies taking into account resource availability based on macro-economic projections.

15. The main objectives of having an Investment Program are as follows: (i) provide estimated annual cash flow for investment projects over the medium term, (ii) facilitate the preparation of sectoral expenditure ceiling to ensure that they fit the aggregate expenditure

consistent with the macroeconomic framework, (iii) provide a pipeline of projects useful for seeking financial and technical assistance from bilateral, multilateral and other funding agencies, (iv) identify possible areas for private investment, (v) identify infrastructure development strategies, (vi) identify the institutional changes required to support the identified strategies.

16. The plan would be prepared through participatory process where stakeholders would be consulted to provide their views and necessary input to facilitate assessment of project proposals. The preparation of the plan would be coordinated by the PSIP Unit at the MoPILTS and the loan will provide technical assistance and capacity building to assist in the elaboration and finalization of the PSIP.

2.2: Transport sector (USD5.175 million):

- 2.2.1 Assistance for the setting up of the Land Transport Authority (USD600,000): The government is hiring a consulting firm to help with: i) planning and designing the new LTA organizational structure; and (ii) ensuring that the LTA is fully established and operational. Proposals for this assignment have been evaluated and consultants are expected to start their work in March 2009.

- 2.2.2 Assistance to the agencies in charge of Land Transport (USD550,000):

(i) Specific Planning Training.

There will be a big new Transport Planning Department which will need technical training, still to be determined, but which may encompass traffic forecast modeling, public transport regulation, transport economics, land use – urban transport nexus, road safety, contract management, environmental and social management, supervision of works, especially performance-based road maintenance contracts etc.

(ii) Management training.

There will be an increased emphasis on good management, and more employees will have managerial roles for at least a part of their mandate. As a consequence, a variety of programs in management, including project and program management, finance, budgeting and organizational development will be helpful.

(iii) Ethics/ Anti-corruption Development.

It is envisaged to develop procedures for maintaining ethical standards and preventing corruption in the newly-created LTA. Ethics officers are likely to be appointed. In addition, employee handouts will be developed and the staff will be provided with training sessions on anti-corruption practices.

(iv) Management of Social and Environmental Issues: to ensure effective implementation of safeguards, technical assistance will be provided to strengthen: (a) supervision and monitoring of safeguard compliance, including reporting; (b) safeguard training, including consultation with local agencies and communities; and (c) mainstreaming of safeguard requirements into RDA operations for road maintenance.

- 2.2.3 Assistance Strictly related to the creation of the Land Transport Authority (USD150,000):

(i) Career Development.

This will include training for the new Human Resources Department: many employees will be introduced to new tasks, while a new program to target career development for staff as a

whole will be initiated. The Human Resources Department will itself develop training programs, and financial support to get those underway will be helpful.

(ii) Recruiting support.

It is likely that management will need to recruit internationally, and assistance in this area may be requested.

- 2.2.4 Supervision and Monitoring of the Quartier Militaire Road upgrading works contract (USD425,000): Supervision of such works will mostly be done in-house by the Road Development Authority but the participation of a consulting firm/specialist will also be needed and financed by the loan.

- 2.2.5 Other transport studies, both in the urban transport and road transport sub-sectors (USD2,300,000)

- (i) completion of the Bus Rapid Transit (BRT) and Bus Reform Implementation Study: the objective of the BRT project is to substantially modernize the bus transport system and deliver improved conditions for commuters in a sustainable way. The Implementation Study will (i) develop an institutional and organizational framework for the urban transport sector, (ii) identify funding options for the BRT project, (iii) carry out traffic forecasts, (iv) define the bus routes and the operation plan, (v) do the financial and economic analysis of the project and (vi) elaborate the final engineering designs and propose an implementation plan.

- (ii) study on taxi industry reform and removal of illegal taxi / van operators.

- (iii) definition of a parking policy (including partial removal of on-street Parking in Port Louis.

- (iv) traffic Management Plan for Port Louis to cater for a more appropriate entry into and exit from Port Louis as well as the circulation within Port Louis, with the objective of relieving to a certain measure traffic congestion on the main accesses to Port Louis. Such plan may also lead to engineering studies for works to enhance the pedestrian environment in Port Louis.

- (v) analysis of tolling options for road projects such as the Port-Louis by-pass.

- (vi) technical assistance for the setting up and purchase of a Road Management System.

- (vii) consulting services for the design and evaluation of Performance-Based Contracts, etc.

- 2.2.6 Feasibility, Detailed Design, EIAs, Tender Documents and whenever needed, Resettlement Action Plans (USD1,150,000) for:

- (i) roads such as, but not necessarily limited to, Old Flacq Road (from its junction with A2 at Khoyratty through d'Epina and Camp Créole to its junction with A2 at Grande Rosalie), a 6-km road segment / Terre Rouge – Triolet – Grand Baie Road (14 km from its junction with M2 at Terre Rouge through Saint Joseph, Arsenal, Solitude, Triolet, Chemin Vingt Pieds to its junction with B13 at Grand Baie) / Pailles Branch Road (2.4 km from its junction with M1 at Grewals Underpass through Pailles to its junction with A1 at Grand River North West / B6 to assess the need (and optimal timing) for a dual carriageway, (ii) round-about replacement projects, road extension program, pavement projects, and (iii) Rodrigues airport (construction of a new runway of 2,100m).

2.3 Water Sector (USD5.2 million):

- 2.3.1 Development of a Master Plan for Water Resources, Rationalization of Water Rights and capacity building (USD2,000,000). Taking into consideration the future development of Mauritius and thus the increase in demand for water, there is a need to carry out a Master Plan Study so as to identify projects for the mobilization of additional water for demand satisfaction of the different sectors of the economy. The master plan will also consider the future demand in the irrigation sector so that food security is ensured and also the effects on climate change on the water resources are attenuated. The duration for the preparation of this master plan is expected to be about two years (ending 2011).

17. The growing scarcity of water resources calls for a revisiting of the existing riparian rights for irrigation purpose. Some of these rights date back to more than two centuries ago and are still in existence although the land use patterns and climate scenarios have evolved. There is a need to review and rationalize these water rights taking due consideration of growing water demand, changes in land use and impact of climate change. This study will be carried as part of the master plan.

- 2.3.2 Feasibility/ detailed studies and/or EIAs for future investments projects (USD2,500,000). At this time a few projects have already been identified but need to be prepared. In terms of the water resources mobilization, studies to be undertaken are related to:

(i) South Mauritius Water Supply Project: this project involves the mobilization of water resources for the South, South West part of the island as at present there is no impounding reservoir to ensure supply security during the dry period to the population and the different development projects. Detailed engineering studies will be undertaken including for the construction of a new dam on River des Anguilles.

(ii) North Water Supply and Calebasses Dam: Following the construction of Midlands Dam a number of new development projects have been identified in the northern region. (e.g. Tianli Industrial zone). With the present system there is an allocation problem for the different sectors especially irrigation. It has also been found that there is potential for further mobilization of resources by increasing the storage capacity of La Nicolière reservoir and/or the construction of Calebasses dam. A feasibility study to identify the most appropriate option for water mobilization needs to be carried out.

- 2.3.3 Reorganization of Pollution Control Laboratory (USD500,000), which will include supply of equipment, training of Laboratory staff and building up of enforcement capacity will be also part of capacity building activities as far as the water lab needs to be modernized so that the quality of the water resources can be monitored for its conservation and use for future generations.

- 2.3.4 Update of Study on Mauritius Drainage System (USD200,000): The government requested the World Bank to finance the update of a 2003 study on the land drainage system of Mauritius. During these recent years, dramatic downpours, possibly due to climate change, have led to unusual flashfloods and this new context needs to be taken into account before implementing remedial works to alleviate flood problems. The objectives of the study will be to (i) identify flood prone areas, (ii) examine the catchment hydrology and watershed management, (iii) review and adapt the solutions proposed in 2003 to the problems of flooding, and (iv) update the scope and cost estimates of the recommended remedial works.

2.4 Wastewater Sector (USD2 million):

- 2.4.1 Feasibility and detailed engineering studies (USD2,000,000): In terms of wastewater, the project proposed for future investment relates to the Baie de Tombeau Sewerage Project Phase III which aims at connecting an additional 7,800 households to the sewerage network in Le Hochet, Riche Terre, Terre Rouge and adjoining areas. The area being considered is densely populated and the provision of proper sewage disposal facilities will contribute to abate the sewage pollution problems being encountered there. This will in turn result in reduced health hazards to the inhabitants, especially with regards to waterborne diseases. The proposed project will also contribute to stop further environmental degradation of the lagoons and aquifer. Based on an estimated number of 7,800 houses to be connected and the upgrading/enlargement of the existing WWTP at Baie du Tombeau, it is estimated that the above project may cost around MUR 950 Million. Feasibility study and detailed design needs to be carried out and the total cost for consultancy services, comprising supervision may cost around MUR 65 Million.

2.5 Energy Sector (USD2 million):

- 2.5.1 A Renewable Energy Development Study (USD1,800,000) will be undertaken, resulting in a development strategy and implementation plan. The goal of the study is to provide an analytical assessment and recommendations, to assist the GoM in identifying priorities and strategies mainly for power-related renewable energy development, but also for primary renewable energy applications. The study will include: (a) an assessment of the economic viability of renewable energy technologies compared with competing conventional technologies for power; (b) a review of issues and policy barriers affecting public and private sector development of these technologies; and (c) preparation of a Renewable Energy Development Strategy and a Policy Matrix and Implementation Plan for the period 2009-2028. The Renewable Energy study will assess the economic viability of power-related and primary energy application renewable energy technologies, and identify barriers and policy impediments to their development by both the public and private sectors. It will then make recommendations on renewable energy development priorities and strategies. It will also identify two renewable energy projects or programs to be taken to feasibility level. The scope of work will comprise: (a) technologies to be included; (b) economic analysis of viability and potential of technologies; (c) issues and policy barriers to be addressed; and (d) an implementation Plan for 2009-2028.

- 2.5.2 Capacity Building (USD200,000): it will benefit MoREPU and CEB staff and will include but may not be limited to: renewable energy technology application; and/or maintenance of separate distribution, transmission, and generation accounts.

Annex 5: Project Costs
MAURITIUS: Infrastructure Project

Component 1: Road Investments	36.10
Upgrading of Belle Rive - Quartier Militaire Road: works	21.60
Upgrading of Belle Rive - Quartier Militaire Road: land acquisition	1.10
Periodic Maintenance	10.40
PBCs	3.00
Component 2 - Technical Assistance and Institutional Development in the Infrastructure sector	14.875
Support to the preparation of the Public Sector Investment Program	0.50
Transport	5.175
Assistance for the setting up of the Land Transport Authority	0.60
Assistance to the agencies in charge of Land Transport	0.55
Assistance strictly related to the creation of the Land Transport Authority	0.15
Supervision and Monitoring of the QM upgrading works contract	0.425
Studies / Technical Support	2.30
Feasibility, Detailed Design, EIAs, Tender Documents and whenever needed, Resettlement Action Plans	1.15
Water	5.20
Master Plan for the Water Resources, Rationalization of Water Rights, Capacity Building	2.00
Feasibility/ detailed studies	2.50
Reorganization of Pollution Control Laboratory	0.50
Update of Study on Mauritius Drainage System	0.20
Wastewater	2.00
Feasibility and detailed engineering studies	2.00
Energy	2.00
Renewable Energy Development Study	1.80
Capacity Building	0.20
TOTAL	50.975
Front End Fee	0.125
Total Project costs	51.10
Out of which Loan Amount	50.00

Annex 6: Implementation Arrangements

MAURITIUS: Infrastructure Project

1. The implementation arrangements were selected based on the need to ensure effective execution of the core project management functions balanced with ensuring ownership by and capacity building for the beneficiaries of the various project components. By having implementation responsibility in the hands of designated persons in the beneficiary agencies, it is expected that this will result in more ownership of the project at the local level and sustainable results at the end of the project.

PROJECT PLAN COMMITTEE (PPC)

2. The overall leadership, coordination and monitoring in the implementation of the project will be provided by the Project Plan Committee (PPC) under the MoPILTS in consultation with the PSIP Unit at MOFEE. PPC responsibilities are the following:

- (i) Clearance/consolidation of the work programs and budgets for the overall Mauritius Infrastructure Program (MIP) as well as for each of the Projects being financed by development partners;
- (ii) Maintenance of records and accounts for all transactions related to activities under the MoPILTS responsibility;
- (iii) Preparation and production of consolidated annual financial statements and quarterly IFRs in close collaboration with MOFEE and the Treasury Department for all development partners including the World Bank and for the overall PSIP;
- (iv) Monitoring and evaluation of the various activities under the PSIP, particularly the capacity building components, including those elements supported under the World Bank project and projects financed by other Development Partners.

3. More specifically, the PPC, to be chaired by the Director (Technical Services) at MPILTS would administer the MIP and would have the following major responsibilities:

- (i) Provide strategic guidance and oversight of the implementation of the MIP undertaken;
- (ii) Review progress reports prepared by the sector Ministries/agencies, clearing and forwarding periodic reports to IBRD;
- (iii) Proactively addressing any major problems affecting Project implementation;
- (iv) Reviewing key reports including the audit, mid-term review and implementation completion reports; and ensure that all these above tasks relative to the World Bank project are well integrated with similar arrangements for other Development Partners and with the overall PSIP process;
- (v) Ensuring effective coordination with Agencies /Institutions responsible for the implementation of program components as well as coordinate communication with the World Bank;
- (vi) Coordinating the preparation of (i) the annual work program and budget; (ii) the design and implementation of monitoring and evaluation studies, and (iii) on technical issues arising in its oversight of implementation of program components and subcomponents;
- (vii) Preparing annual procurements plan and cash flow projections. As necessary, the PPC will review in consultation with IBRD, the allocation of funds in the project categories and recommend revisions in the allocation of proceeds of the IBRD loan;

- (viii) Providing technical input to strategic documents, analytical work, initiatives geared to improve the business environment and increase enterprise growth in close collaboration with the implementing agencies;
- (ix) Coordinate with responsible agencies for the preparation, in a timely manner, accurate project implementation progress reports which indicate both the technical and financial statement;
- (x) Fostering a team environment, mentor staff, and ensure that capacity building is integrated into all project activities;
- (xi) Maintaining quality assurance and facilitate effective project monitoring and evaluation;
- (xii) Working closely and support the Internal and External Auditors on financial reviews.

4. The Treasury Department will be in charge of cash management and replenishment applications for the Designated Account under the MIP project. MoREPU, MoPILTS (LT) , RDA and MoFEE will be fully in charge of the technical aspects and responsible for contracting, maintaining records and accounts for all transactions related to them, and preparing financial and other basic information on the infrastructure program and project management/monitoring as required.

5. The PPC would be supported by specialists in accounting and procurement as well as other support staff.

6. The PPC will be assisted by a Program Manager with the following terms of reference:

- (i) Assistance in project management: securing that the MIP activities will be implemented on time, in compliance with the IBRD guidelines and national laws, and in a manner that will ensure reaching of overall and specific objectives of each activity;
- (ii) Assistance in financial management: monitoring of the project expenditures and costs (local and foreign), preparation of applications for disbursement in collaboration with the activities' Financial Managers and tracking disbursements;
- (iii) Assistance in maintaining records and accounts: proper filing, safekeeping and archiving of all paper and electronic documents;
- (iv) Assistance in each step of the procurement/selection of consultants and contractors and coordination of preparation of related documents, including and not limited to Terms of References, requests for proposals (RFP), requests for expressions of interest (REoI), evaluation reports, draft contracts, etc.
- (v) Progress monitoring and reporting: ensure preparation and distribution of reports related to the Project implementation to the relevant local and international institutions and/or to the Bank;
- (vi) Appraisal: ensuring the movement of official documents and contracts through the usual appraisal processes and undertaking measures to expedite their release;
- (vii) Coordination: coordinating activities within the MIP project and with other relevant activities of the MoREPU, MoPILTS (LT), RDA, MoFEE and other stakeholders;
- (viii) Support to any committees, working groups or similar bodies established for the preparation, implementation and/or supervision of the MIP projects and/or specific activities; and
- (ix) Interaction with the IBRD team on the above issues on behalf of the MIP project management team as necessary.

7. The project will be implemented over a period of five years (July 2009 to June 2014).

RESPONSIBILITIES OF THE EXECUTING AGENCY

The Component Executing Agencies

8. Management and implementation of individual project subcomponents will be mainstreamed to the following agencies with the following focal points which have been agreed with the GoM:

(i) Component One: Road Investments:

The RDA will, in particular: (i) prepare engineering designs and bidding documents; and (ii) carry out the supervision of the contracts for execution of component 1 with support from consultants for the upgrading works of Quartier Militaire Road, measuring progress in the execution of works for the purpose of issuing certifications and (being responsible for the technical quality control and compliance with the technical specifications of the contract. The RDA will also be properly represented on the Evaluation Committee in charge of the bidding process for each of the road works contracts to be carried out under this Project.

(ii) Component Two - Technical Assistance and Institutional Development in the Transport, Water/Wastewater, Energy and Land Drainage sub-sectors

a. **Preparation of the Public Sector Investment Programme [2.1 as referred to in Annex 4]:** The Ministry of Finance will be responsible for the formulation and coordination of the PSIP.

b. **Transport [2.2 to the exception of 2.2.6 (iii)]:** The MoPILTS (Land Transport) will be responsible for the management of the technical assistance related to the setting up of the Land Transport Authority [2.2.1, 2.2.2 and 2.2.3], the Implementation Study for the Bus Rapid Transit [2.2.5 (i)] and other transport studies, (2.2.5 (ii) to (v) as referred to in annex 4). The RDA will be responsible for the other studies such as engineering studies, feasibility studies of roads, etc. [2.2.4, 2.2.5 (vi) and (vii), 2.2.6 (i) and (ii)] under this component.

c. **Water-Wastewater [2.3 to the exception of 2.3.3, and 2.4]:** The MoREPU will be responsible for the overall oversight of program activities with inputs from the Water Resources Unit (WRU) for water resources management related activities and the Wastewater Management Authority (WMA) for sewerage related activities. The implementation of water resources activities including establishing of RFPs, study review and monitoring of progress will be entrusted to the WRU with support from other operating units such the Irrigation Authority (IR) for irrigation sector issues, the Central Water Authority (CWA) for water supply related issues, and the Central Electricity Board (CEB) for energy sector issues particularly during the preparation of the master plan for water resources. The wastewater program activities will be managed by the WMA.

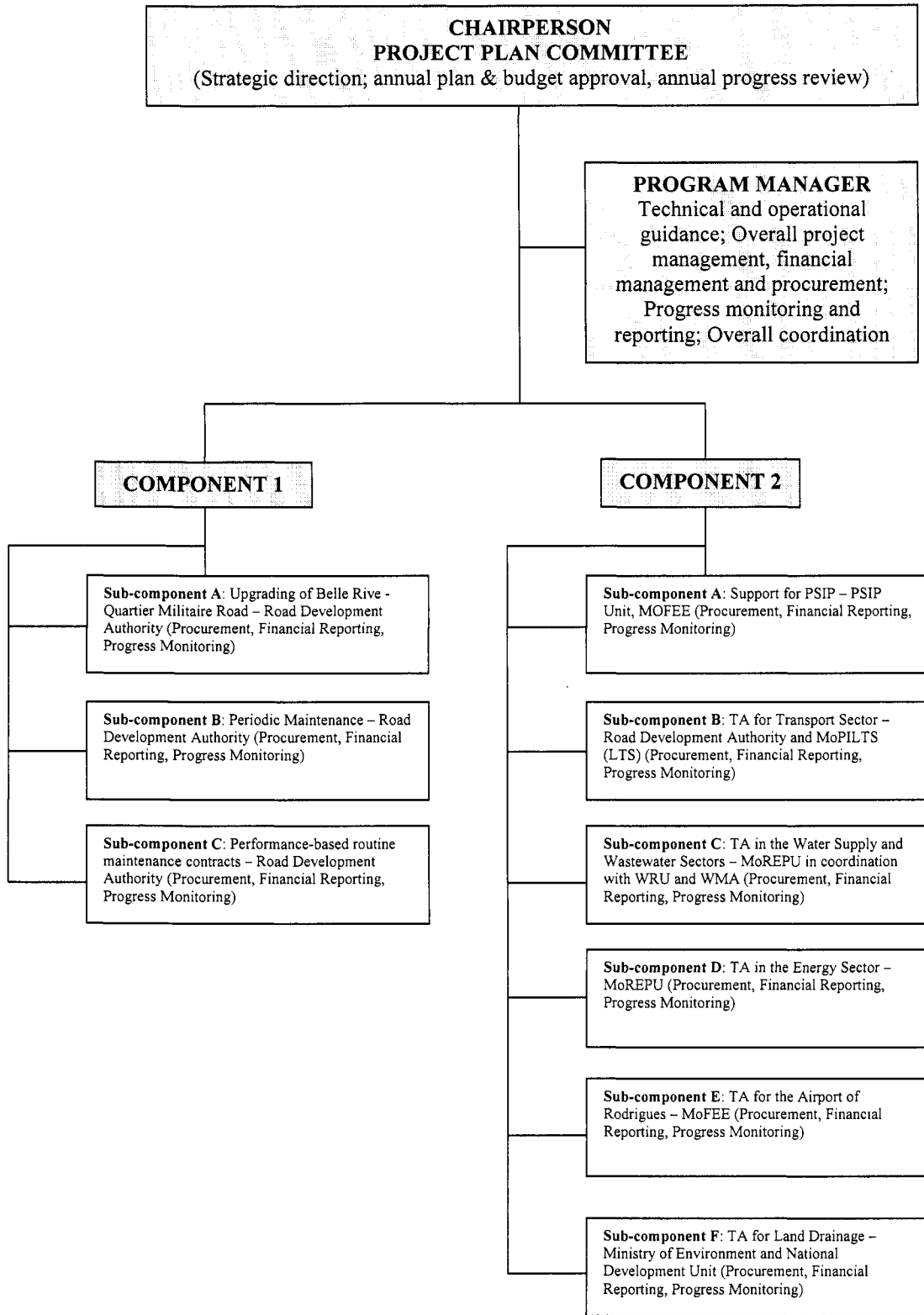
d. **Energy [2.5]**: the technical study will be conducted under the responsibility of the Ministry of Renewable Energy and Public Utilities (MoREPU) with inputs from the CEB. It is possible that if requested, funds could be added for capacity building at the Ministry and the CEB, including but not limited to: renewable energy technology application; and/or maintenance of separate distribution, transmission, and generation accounts.

e. **Land Drainage [2.2.3]**: The Ministry of Environment and National Development Unit (MoENDU) will lead and supervise the study and would be responsible for the technical management of the study.

f. **Airport of Rodrigues [2.2.6 (iii)]**: The Ministry of Finance and Economic Empowerment will have the responsibility of managing the proposed feasibility study of the new runway at Rodrigues Airport. The Rodrigues Regional Assembly will support the Ministry.

9. Focal points from the executing agencies will be formally designated by responsible heads of the Executing Agencies. Focal points will be responsible for day-to-day implementation of the activities under respective subcomponents in line with the annual work plans and budgets approved by the PPC; programming of annual plans and budgets; monitoring, public relations and reporting. They will manage all the technical aspects (with assistance from long term advisors where applicable); they will prepare all terms of reference and manage the supervision of consultants. They will be responsible for preparing all reports required under the project for their respective project components. In addition to overseeing the implementation of the individual subcomponents, they will also ensure the necessary cooperation across government.

Figure 1. MIP Main Implementation Structure



Annex 7: Financial Management and Disbursement Arrangements

MAURITIUS: Infrastructure Project

Introduction

1. In accordance with Bank policy and procedures, the financial management arrangements of MoFEE MoREPU, MoPILTS, RDA and the Treasury Department responsible for the implementation of the Mauritius Infrastructure Project have been reviewed to determine whether they are acceptable to the Bank. The main conclusion of this review is presented below and reported in the section “**Fiduciary**” of the PAD.

2. The overall conclusion of the FM assessment is that the MoFEE, MoREPU, MoPILTS and the Treasury Department satisfy the Bank’s minimum financial management requirements specified in OP/BP 10.02. However, some improvements will be needed to further strengthen the financial management system. The main measures to be taken are the following i) review of the Treasury Department Chart of accounts to ensure that it reflects categories of expenditures and components/activities to be financed under this loan in order to satisfy reporting requirements; ii) organization of a training session by the Bank staff to familiarize the sector ministries and RDA accounting staff with the preparation of IFRs; iii) submission to the Bank of the models of IFRs agreed upon at negotiations; iv) recruitment by RDA of an accountant to handle the FM aspect of the component to be implemented by this entity. The review of the Chart of accounts is presently underway and is an effectiveness condition. The training session for the project staff on the preparation of IFRs was completed during the appraisal mission. The recruitment of the RDA accountant was also completed in April 2009.

Summary Project Description

3. The objective of the Project is to assist the Borrower to improve the national infrastructure, with an emphasis on the transport, energy and water sectors. Specifically, it aims at preparing and beginning implementation of the Public Sector Investment Program. The proposed Infrastructure Project includes the following components which are described in more details in the paragraph D3 of the PAD: (i) Road Investments; (ii) Technical Assistance and Institutional Strengthening in the Transport – Water/Wastewater -Energy subsectors.

4. The project will be supported by a Sector Investment and Maintenance Loan (SIM) in the amount of USD50 million from International Bank for Reconstruction and Development (IBRD) resources. The project will provide the necessary financing for activities which have been identified through extensive policy dialogue with the government, as well as through consultations with other development partners. The Project will be implemented over a period of five years, mainly to allow for multi-year performance based road maintenance contracts.

Country Issues

5. No Country Financial Accountability Assessment has been conducted yet in Mauritius but based on the results of the Public Expenditures and Financial Accountability (PEFA) review carried out recently and in light of our knowledge of its PFM system described in details in the government financial management manual, we are confident that there is no significant risk to entrust the implementation of this project to the Ministry of Finance and Economic Empowerment.

FM Risk Analysis

Risks	Risk Rating	Risk Mitigation Measures	Effectiveness Condition (Yes/No)	Residual Risk Rating
<u>1- INHERENT RISK</u>				
<p>Country level</p> <p>Project accounts may not be audited on time in compliance with IBRD requirements.</p>	Moderate	<p>The TORs for this audit will be finalized, approved by the Bank and submitted to the Auditor General prior to negotiations to ensure the inclusion of this assignment in its annual work plan and allow for an adequate planning of audit process and timely production of annual audit report.</p>	<p>No: The TORs have been finalized, approved and submitted to the Auditor general</p>	Low
<p>Implementing Entity</p> <p>The RDA FM system and the PFM system used by the Treasury Department and line ministries are working reasonably well. Performance in core aspects of accounting, financial reporting and auditing is satisfactory. There is also a sound framework for legislative oversight.</p>	Low			Low
<p>Project level</p> <p>RDA accounting staff and the two sector ministries are not familiar with the Bank FM procedures including the preparation of IFRs and disbursement.</p>	Moderate			<p>Disbursement aspects will be handled by the Treasury staff within the MoFEE.</p> <p>During appraisal, a training session has been organized by the Bank to familiarize RDA, MoREPU, MoPILTS and MoENDU accounting staff with the Bank procedures and disbursements.</p>	No: the training was completed during appraisal	Low
<i>Overall Inherent Risk</i>	Moderate			Low
<u>2- CONTROL RISK</u>				
Budgeting: Budget preparation	Low			Low

Risks	Risk Rating	Risk Mitigation Measures	Effectiveness Condition (Yes/No)	Residual Risk Rating
is clearly defined in the accounting procedures manual and variances are monitored closely				
Accounting: Transactions related to component 1 may not be accounted for in a timely manner due to deficiency of accountants within RDA	Low	Recruitment by RDA of an accountant to handle the FM aspect of the component to be implemented by this entity.	No: the recruitment was completed in April 2009	Low
Internal control: Existence of an adequate internal control system properly documented. Existence of an efficient internal audit Department.	Low			Low
Funds Flow: Funds flow arrangements are relatively simple. Adequate procedures have been issued for making available and accounting of the government counterpart contribution to the Project, and ensuring prompt payment of PAPs	Low			Low
Financial Reporting Financial reporting including IFRs may not be presented in conformity with Bank requirements	Moderate	Review of the Project chart of accounts to ensure that it properly reflects components and activities to be financed under the loan to satisfy reporting requirements.	Yes: The review of the Chart of accounts is underway and is an effectiveness condition.	Low
		Familiarization of the RDA, MoREPU and MoPILTS accounting staff with the preparation of IFRs. The form and content of IFRs and annual financial statements have been determined during appraisal and agreed upon at negotiations	No: The training on the preparation of IFR has been completed during appraisal. The models of IFRs have been defined during appraisal and agreed upon at negotiations.	

Risks	Risk Rating	Risk Mitigation Measures	Effectiveness Condition (Yes/No)	Residual Risk Rating
External Audit The project financial statements may not be audited in conformity with Terms of reference acceptable to IDA.	Moderate	The TORs for this audit will be finalized, submitted to the Bank for review and sent to the Auditor General prior to negotiations, to ensure the inclusion of this assignment in its annual work plan and allow for an adequate planning of audit process and timely production of annual audit report.	No: The TORs have been finalized, approved and submitted to the Auditor general.	Low
Overall Control Risk	Moderate			Low
OVERALL RISK RATING	Moderate			Low

Strengths and weaknesses

6. The effectiveness of the budgeting system, the appropriate segregation of duties and responsibilities, the existence of an Internal Control Unit responsible for carrying out internal audit, the existence of government financial management manual describing the framework and procedures to be followed in Financial Management (FM) area, the use of an Integrated Financial Management Information System facilitating budget monitoring, record-keeping and preparation of project financial statements, and the implementation of the Audit Department (Auditor General) in charge of the audit of public accounts show that the government is attempting to develop a strong financial management system. The issue still to be addressed is the review of the Treasury Department Chart of accounts to ensure that it properly reflects categories/components/activities to be supported under this loan and satisfies reporting requirements. The following table provides relevant measures to address deficiencies identified in the system:

Significant Weaknesses	Resolution	Date due by	Responsible
<ul style="list-style-type: none"> The project Chart of accounts within the Treasury Department has not been reviewed yet to ensure proper record of expenditures by categories, components, activities and timely production of financial reports required for managing and monitoring project activities. 	Furnish to the Bank the project chart of accounts which will ensure during project implementation (i) proper record of transactions (sources and expenditures) by categories, components/activities and (ii) timely production of project financial statements, including IFR.	Effectiveness condition.	MoFEE and Treasury Department accounting staff
<ul style="list-style-type: none"> RDA, MoREPU and MoPILTS accounting staff is not familiar with Bank FM procedures including preparation of IFRs and disbursement 	Organization of a training session to familiarize the RDA, MoREPU and MoPILTS accounting staff with Bank FM procedures and disbursement.	Completed during the appraisal mission.	Bank staff
<ul style="list-style-type: none"> Lack of accountants within RDA 	Recruitment of an accountant by RDA to handle the FM aspect of the component to be implemented by this entity.	Completed	RDA
<ul style="list-style-type: none"> The TORs for the audit of project accounts had to be prepared to satisfy Bank requirements. 	Finalization of the terms of reference of the audit by the Coordination Unit (MoPILTS) after IBRD review and submission of the agreed TORs to the Auditor general to ensure the inclusion of this assignment in its annual work plan and allow for an adequate planning of audit process and timely production of annual audit report.	Completed	MoPILTS and Treasury Department

Implementing entity

7. The project will be implemented by RDA, MoREPU, MoENDU, MoFEE and MoPILTS under the coordination of MoPILTS. The organizational structure actually in place is appropriate for planning, directing and controlling operations. Authority and responsibility assignments within the structure are clearly defined and an appropriate segregation of duties was noticed.

8. The Project Plan Committee (PPC) established within the MoPILTS will be responsible for policy guidance and overall project oversight, and will ensure communication and cooperation among stakeholders. The overall leadership, coordination and monitoring in the implementation of the project will be provided by PPC. PPC responsibilities are the following: (i) clearance/consolidation of the work programs and budgets; (ii) maintenance of records and

accounts for all transactions related to activities under its responsibility; (iii) preparation and production of consolidated annual financial statements and quarterly IFRs in close collaboration with the Treasury Department;(iv) monitoring and evaluation of the various activities supported under the project. The Treasury Department will be in charge of cash management and replenishment applications for the Designated Account. The Line Ministries / sector agencies (MoREPU, MoPILTS, MoFEE, Ministry of the Environment and RDA) would be fully in charge of the technical aspects and responsible for contracting, maintaining records and accounts for all transactions related to them, and preparing financial and other basic information on project management/monitoring as required by the Project Plan Committee. Each executing agency will be headed by a Project Coordinator and will include specialists in accounting and procurement.

Budgeting

9. Budgeting arrangements are described clearly in the government accounting manual of procedures. The existing accounting software within the Treasury Department is appropriate and capable of dealing properly with budgeting, including tracking variances between actual and planned cost and activities and providing.

Staffing

10. The accounting officers in MoFEE, MoREPU and MoPILTS are qualified and have relevant experience in accounting. To help its Financial manager to handle the FM aspect of the component to be implemented by RDA, this entity recruited upon request from the Bank's team a qualified and skilled accountant in April 2009. As the RDA and the sector ministries accounting staff is not quite familiar with the Bank FM procedures and disbursement, the management of disbursement will be handled by the Treasury Department. Specific training has been provided by the WB FM specialist during the appraisal mission to enable them to prepare prior to negotiations the models of IFRs that comply with Bank guidelines and to familiarize them with Bank FM procedures including disbursement.

Accounting system

11. In close collaboration with the Treasury Department and MoFEE, the RDA and the sector ministries (MoREPU, MoPILTS, MoFEE and Ministry of Environment) will be responsible for the following aspects: budgeting, record keeping and production of financial reports related to activities under their respective responsibility. The administration of the designated account will be handled by the Treasury Department. The project annual financial statements will be prepared on a cash basis. To ensure preparation of reliable financial reports required by the Bank, the executing agencies and the Treasury Department use general and subsidiary deposit ledgers for posting all transactions eligible under the loan. The system operates on a double entry cash basis and follows internationally accepted accounting standards acceptable to the Bank. To satisfy reporting requirements including timely production of reliable IFRs, the mission recommends the review of the Chart of accounts by the Treasury Department to ensure proper capture of sources and uses of funds. For this purpose the project's expenditure should be classified by useful categories/components and activities needed to carry out the project as reflected in the PAD. The models of the financial statements and IFRs have been determined during appraisal and agreed upon by negotiations.

12. RDA, MoREPU, MoPILTS, Ministry of Environment, MoFEE and the Treasury Department have a good internal control system: proper authorization, adequate separation of duties, budgeting system, adequate measures for safeguarding assets. In addition a financial management manual is also available describing for each of the main sequences of operations, the tasks to be performed by each member of staff, the documentation to be used, the records to

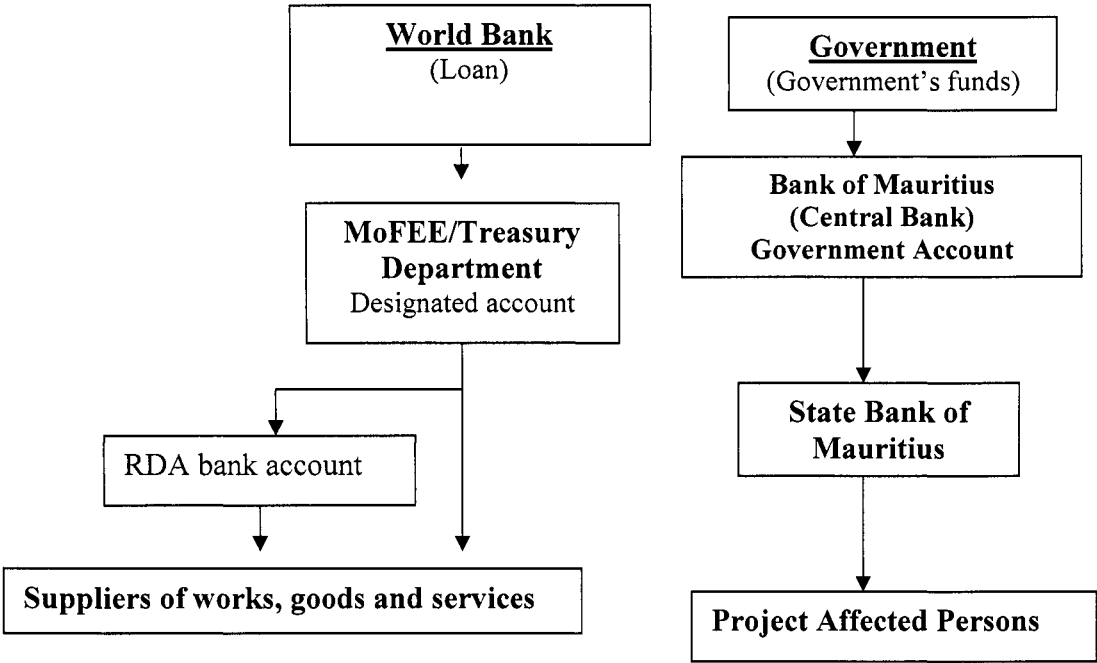
be completed and the controls to be applied. This manual provides also a detailed description of: i) the design and configuration of the financial management and accounting system; ii) the budgetary procedures and process (preparation, monitoring); iii) and the relevant accounting controls to be applied regarding purchasing procedures and the management of the funds. The manual of procedures contains all relevant information to facilitate sound accounting practices and to ensure that assets are properly controlled.

Internal Audit

13. To obtain assurances as to the proper functioning of internal control system, an Internal Control Unit has been established within both RDA and the sector ministries. The responsibility of this Unit is to give assurance and report to the Accounting Officer and the Head of the Internal Control Cadre on the extent to which reliance can be placed on the internal control system. The nature, extent and strength of controls depend on factors such as the nature of operation, the importance of the system and the degree of risk.

Funds Flow and disbursement arrangements

14. The flow of funds from the loan and Government’s money is presented as follows:



15. While disbursing proceeds from loan accounts, the following methods may be used: i) advance loan proceeds into a Designated account opened in the Central Bank (Bank of Mauritius); ii) direct payment to a third party; (iii) reimbursements disbursement method and (iv) special commitments in writing to pay amounts to a third party in respect of expenditures to be financed out of the loan proceeds, upon the borrower’s request and under terms and conditions agreed the Bank and the borrower. The accounting manual of procedures describes in details the application steps and requirements for these disbursement methods.

16. For the implementation of this project, a designated account bank account denominated in USD and to be managed by the Treasury Department (MOFEE) will be opened in the Central

Bank (Bank of Mauritius). Disbursements from the IBRD loan will be deposited on this account to finance goods /services eligible under the loan as indicated in the Loan Agreement.

17. To ensure prompt payment of contractors/consultants/suppliers working under component 1 (Road investment), RDA will use a bank account opened in a local commercial bank to be managed by itself. Denominated in local currency, disbursements from the Designated Account would be deposited on this account to finance 100 percent of expenditures agreed with the Bank and indicated clearly in the Annual Work Programs, Budgets, and Procurement Plans for Bank-funded activities in the component 1 (Road investment). The initial advance transferred to the RDA bank account would represent funds covering two months estimated expenditures based upon submission of satisfactory budgeted work plans. Subsequent payments will be based on SOEs submitted monthly by RDA after appropriate authorization and approval by the Treasury Department. RDA would also submit to PPC monthly expenditure reports indicating sources and uses of funds and justifying the use of funds, and accompanied by reconciled bank statements. The Treasury Department will be responsible for preparing disbursement requests. All supporting documents related to component 1 will be retained by RDA and made available for review by periodic Bank supervision missions, internal and external auditors. The accounting manual, which is part of the implementation manual, describes in details all procedural aspects regarding financial management (payments, replenishment, accounting, reporting and internal controls).

18. **Ledger Account at the Ministry of Housing and Lands:** For the purposes of making available its counterpart contribution to the Project, i.e. financing of the land acquisition payments, effecting full and prompt payment to Project Affected Persons (PAPs), the Borrower will allocate to the Ministry of Housing and Lands an amount equivalent to the aggregate value of the land that the Borrower proposes to acquire prior to the commencement of works on Quartier Militaire Road. Such amount is voted and approved by the Parliament and will be recorded by the Ministry of Housing and Lands in a separate ledger account until all PAPs concerned have been paid in full. For each land acquisition, where the PAP accepts the Borrower's offer or the parties agree on a counteroffer, and that is duly supported by a deed of acquittance (signed by the PAP, the MoHL representative and the Notary), the Finance Department within MoHL prepares a payment voucher indicating all information required for the payment (the name and full residential address of the PAP, the name of his/her bank with the account number, the budget item to be used etc...). The voucher is then verified by another officer and submitted to the Head of the MoHL Finance Department for signature. The signature of the payment voucher by the Head of the Finance Department, or an officer to sign on his behalf, certifies to the accuracy of the voucher as well as the adequacy of the amount to be paid indicated in the deed of acquaintance. The payment voucher is then recorded by MoHL in the government accounting system leading to the reduction of the amount allocated to the related budget item, and sent to the Treasury Department (TD) for final control and payment. The amount due shall be promptly paid to the PAP, and such payment shall in any event be made no later than 60 calendar days from the date of the Borrower's receipt of the PAP's notice of acceptance. Government funds are operated locally through the Central Bank (Bank of Mauritius) and the State Bank of Mauritius. Drawings are made periodically on the Central Bank by the Accountant General to populate an account held at the State Bank of Mauritius to allow issue of checks for enabling payment to be made to government suppliers and to PAPs. A check in the name of the PAP is prepared by the Treasury Department, submitted for signature to the Accountant general or to the officer authorized to sign on his behalf, and sent directly to the Notary in charge of its transfer to the PAPs.

19. In cases where the Board of Assessment makes an award for a PAP, or the Supreme Court or the Privy Council enters a judgment for a PAP, the Borrower, through the process set out above, will send a check in the name of the PAP for the amount awarded by the Board of Assessment, or for the amount of the Supreme Court judgment or of the Privy Council judgment, to the Registry of the Supreme Court for release to the PAP.

20. The payment made is then recorded by the Treasury Department in the government accounting system and the voucher must be clearly marked as paid.

21. **Disbursement Conditions:** there are two disbursement conditions, one on (i) the consulting services for the setting up of the new Land Transport Authority and part of the training and assistance, strictly related to the creation of the LTA, to the agencies in charge of Land Transport, which is contingent upon the passage of the LTA bill in Parliament (expected during the third trimester of 2009), and one on (ii) the commencement of the upgrading works on *Quartier Militaire* Road, which is contingent upon the completion of a survey and valuation of the land proposed for compulsory acquisition at replacement cost (as deemed satisfactory to the Bank), the establishment of a separate ledger account maintained by the Ministry of Housing and Lands for the purpose of recording the counterpart financing equivalent to the value of the land to be acquired, and the recordation in the account of such amount allocated to the MoHL (expected during the fourth trimester of 2009).

22. **Disbursement procedures:** During the first year of project implementation, the Project would follow the transaction-based disbursements procedures (traditional mode) outlined in the Bank's Disbursement Handbook. It is envisaged that the project would move to report-based disbursements when the following criteria are met: i) the FM rating was maintained at satisfactory level; ii) the submission of at least two satisfactory IFRs that could be relied upon for purposes of disbursement; iii) the submission of acceptable audit report.

23. The borrower provides supporting documentation to IBRD to show that loan proceeds are being or have been used to finance eligible expenditures. The Annex to the existing accounting manual of procedures describes the types of supporting documentation to be provided based on disbursement method used (reimbursement, advance, special commitment and direct payment). For special commitment, the commercial bank provides its confirmation directly to the Bank that conditions for release of payments committed for withdrawal have been met. For direct payments, supporting documentation is submitted with the withdrawal application before disbursement is made.

24. **Use of Statements of Expenditures (SOEs):** Disbursements will be made against Statement of Expenditures (SOEs) certified by the loan department of the Ministry of Finance for contracts and other expenditures not requiring the Bank's prior review. All SOE supporting documentation will be kept by each executing agency and made available for review by Bank supervision missions and internal and external auditors.

25. **Minimum of Application Size:** The minimum application size for direct payments, to be withdrawn directly from the Loan Account, and special commitments is 20 percent of the amount advanced to the Designated Account.

26. **Designated Account:** Payments from the loan will be administered by Treasury from a Designated Account which will be opened in the Central Bank. The PPC will be responsible for preparing disbursement requests. Further deposits by the Bank into the designated account will

be made against withdrawal applications supported by appropriate documents. The Designated Account ceiling amount is USD 3,000,000.

27. Detailed disbursement procedures are described in the project accounting manual of procedures and in the Disbursement Letter.

External Audit

28. The project's financial statements will be audited by the Mauritius Audit Department, the Supreme Audit Institution in the country. It is an independent public Office whose status is clearly defined in the Constitution and is staffed with personnel who collectively have the necessary skills and experience in auditing. This audit will also cover the review of the ledger account on which will be deposited at the beginning of the project the aggregate amount of the value of the land to be acquired (Government funds) for the purpose of the widening of Quartier Militaire Road, with the objective of ensuring that government funds have been provided and used in accordance with the relevant Loan agreement and only for the purposes for which they were provided. The Audit Department will carry out the review in accordance with international auditing standards and will express an opinion on the audited project financial statements. The auditor will be also required to carry out a comprehensive review of the internal control procedures and communicate in the audit report, especially in the section Management letter, significant deficiencies in the design or operation of internal control, the proposed recommendations for strengthening the internal control system, and the management response to the auditors management letter. The audit report resulting from this review will be submitted to IBRD no later than six months after the end of the project's fiscal year.

29. The terms of reference of the audit have been prepared by the project and submitted to IBRD for review to ensure the adequacy of the audit scope, drawing special attention to particular risk areas identified during project preparation that may not be emphasized under a normal audit. The agreed TORs have already been sent to the Auditor general to ensure the inclusion of this assignment in its annual work plan and allow for an adequate planning of audit process and timely production of annual audit report.

Reporting and Monitoring

30. To allow for adequate monitoring of project implementation, the Project Plan Committee in close collaboration with the Treasury Department and other line Ministries / sector agencies (RDA, MoREPU, Ministry of Environment) will produce the following reports that should be prepared in compliance with international accounting standards.

- **The consolidated project financial statements:** (i) Summary of Sources and Uses of Funds (by component/activities/loan category and showing all sources of funds); (ii) the Accounting Policies Adopted and Explanatory Notes; (iii) a Management Assertion;
- **Consolidated IFRs:** The IFRs will be prepared on a quarterly basis. The project IFRs should be submitted to IBRD within 45 days of the end of the reporting period.

31. The RDA, as an entity, should also submit its own **annual financial statements** comprising: (i) balance sheet; (ii) statements of income, retained earnings, and change in

financial position; (iii) the accounting policies adopted and explanatory notes; (iv) a management assertion;

32. The form and content of IFRs and annual financial statements have been determined during appraisal and have been agreed upon during technical discussions held in January 2009. Models of these reports will be presented in the Annex of the existing accounting manuals of procedures.

Information Systems

33. To ensure timely production of financial information required for managing and monitoring project activities, the Treasury Department is using an integrated computerized system (Integrated Financial Management Information System) which in particular facilitates annual programming of activities and project resources, record-keeping (general accounting and cost accounting), financial and budgetary management and preparation of project financial statements including quarterly IFRs.

Supervision

34. When project expenditures begin, a supervision mission will be conducted every year based on the risk assessment of the project. The mission's objectives will include that of ensuring that strong financial management systems are maintained for the project throughout its life. A review will be carried out if deemed needed to ensure that expenditures incurred by the project remain eligible for the loan. The Implementation Status Report (ISR) will include a financial management rating for the component. The FMS will also review quarterly IFRs, the audit reports and follow-up on timely implementation of recommendations from auditors.

Governance and accountability

In Mauritius, the legal framework for financial management, within which the public service must operate, is set out in the Constitution, the Finance and Audit Act, and the Loans Act. The two main aspects to the Government's accountability framework include: i) the methods by which public funds are made available and; ii) the ways in which control is exercised over the use of these funds. The existing FM manual provides the framework for effective financial management in the public service. It is designed to improve the quality of service provided by enhancing the ability of the public service to achieve its objectives of implementing Government policies and programmes economically, efficiently and effectively. Accountability in the public sector means that those responsible for implementing policy are required to account for their actions to the nation, through the Legislative Assembly and specifically through scrutiny by the Public Accounts Committee. The existence and implementation of this manual shows clearly that the government is attempting to develop a strong financial management system to promote and implement good governance.

Use of Funds

35. Loan proceeds would be disbursed against the following expenditure categories:

Disbursements per Expenditure Category

Category	Amount of the Loan Allocated (expressed in USD)	Percentage of Expenditures to be financed (inclusive of Taxes)
(1) Goods, works, consultants' services and training for the Project, except Parts 1.1, 2.2(a) and 2.2(c)	27,525,000	100%
(2) Goods, works, consultants' services for Part 1.1 of the Project	21,600,000	100%
(3) Goods, consultants' services and training for Parts 2.2(a) and 2.2(c)	750,000	100%
(4) Front-end Fee	125,000	100%
TOTAL AMOUNT	50,000,000	

Annex 8: Procurement Arrangements
MAURITIUS: Infrastructure Project

A. General

1. Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated May 2004, revised October 2006; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, revised October 2006, and the provisions stipulated in the Legal Agreement. The various items under different expenditure categories are described in general below. For each contract to be financed by the Loan/Credit, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame are agreed between the Borrower and the Bank in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

2. No special exceptions, permits, or licenses need to be specified in the Loan Documents for International Competitive Bidding (ICB), since Mauritius procurement practices allow IBRD procedures to take precedence over any contrary provisions in local regulations. At time of negotiations, the team has been reminded that: (i) the use of Bank Standard Bidding Documents is mandatory; (ii) there shall be no application of Domestic Preference for domestic contractors, since Mauritius Gross National Product is higher than the required threshold; (iii) Regional preference is not allowed; and (iv) Domestic Preference is applicable for the procurement of Goods only when conditions of origin are fulfilled in accordance with the Guidelines, Appendix II, paragraph 2 (a).

3. For civil works, periodic maintenance contracts and goods below the ICB threshold, being procured under National Competitive Procedures (NCB), the following provisions shall apply: (i) foreign bidders shall be allowed to participate in NCB procedures without restrictions of any kind; (ii) bidders shall be given at least one month to submit bids from the date of the invitation to bid or the date of availability of bidding documents, whichever is later; (iii) no domestic preference shall be given for domestic bidders and for domestically manufactured goods; (iv) in accordance with para.1.14 (v) of the Procurement Guidelines, each bidding document and contract financed out of the proceeds of the Loan shall provide that: (i) the bidders, suppliers, contractors and subcontractors shall permit the Bank, at its request, to inspect their accounts and records relating to the bid submission and performance of the contract, and to have said accounts and records audited by auditors appointed by the Bank; and (ii) the deliberate and material violation by the bidder, supplier, contractor or subcontractor of such provision may account to an obstructive practice as defined in paragraph 1.14(a)(v) of the Procurement Guidelines.

4. The Borrower has also been reminded, at time of negotiations, that eligible expenditures incurred by GoM between December 1, 2008, and Loan signing must be procured in accordance with Bank's Guidelines.

5. **Procurement of Works:** Works procured under this project would include: upgrading of Quartier Militaire Road, periodic maintenance of highway sections, and pilot performance-based maintenance contracts. The procurement will be done using the Bank's Standard Bidding

Documents (SBD) for pre-qualification, all ICB and National SBD agreed with or satisfactory to the Bank. Direct contracting (DC) may be employed with prior approval of the Bank and in accordance with paragraphs 3.6 and 3.7 of the Procurement Guidelines.

6. Performance-based contracts shall require prequalification as well as prior review by the Bank due to the critical nature of these contracts.

7. **Procurement of Goods:** Goods procured under this project would include computer hardware, equipments deemed necessary to improve water data collection, water quality monitoring and/or water conservation monitoring and software as well as office equipment and furniture. The procurement will be done using the Bank's SBD for all ICB and National SBD agreed with or satisfactory to the Bank. For contracts estimated to cost less than USD500,000, procurement of goods may be carried out through NCB procedures and purchase of small furniture to cost less than USD50,000 will be conducted through prudent shopping procedures. Direct contracting (DC) may be employed with prior approval of the Bank and in accordance with paragraphs 3.6 and 3.7 of the Procurement Guidelines.

8. **Selection of Consultants :** Main consultant services required under the project include: prefeasibility and engineering studies, technical assistance to prepare and implement performance-based routine maintenance contracts, to improve and modernize Operation & Maintenance (O&M) practices for sewerage treatments plants, development of Master plans for water and energy, and training. All consulting services contracts costing more than USD100,000 equivalent for firms will be awarded through Quality and Cost Based Selection (QCBS) method. Contract for specialized assignments to cost less than USD100,000 equivalent may be contracted through Consultant's Qualifications (CQ) method. Contracts for simple assignments may be contracted through Selection under Fixed-Budget (FBS) and Least-Cost Selection (LCS). Single Source Selection (SSS) may be employed with prior approval of the Bank and will be in accordance with paragraphs 3.9 to 3.12 of consultant Guidelines. All services of individual consultants will be procured under individual contracts in accordance with the provisions of paragraphs 5.1 to 5.4 of Consultant Guidelines. Short lists of consultants for services estimated to cost less than USD100,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

9. The procurement procedures and SBDs to be used for each procurement method, as well as model contracts for works and goods procured have been shared with the Borrower and are referenced in the Project Implementation and Operation Manual.

B. Advertising

10. A General Procurement Notice (GPN) would be prepared and published in the United Nations Development Business to advertise for major consulting assignments (above USD200,000 equivalent) and any ICB. Specific procurement notices for goods would be advertised in the national press of wide distribution and internationally for ICB contracts. Request for expression of interest would be published in local newspapers. Answers to these expressions would be used to establish short lists. Sufficient time would be allowed (minimum of 15 days) before preparing the short list.

C. Assessment of the agency's capacity to implement procurement

11. Procurement activities will be carried out by respective procuring units for MoREPU, MoPILTS, MoFEE, Ministry of Environment and RDA. Each Units handling procurement is staffed by a Senior Purchasing Supply officer, with support of Secretary of Departmental Tender Committee, one or two High Purchasing Supply Officers and a Purchasing Supply officer. Since the Procuring units' staff has limited experience in managing Bank-funded projects, to ensure effective project implementation, it is expected to hold specific procurement training at project effectiveness.

12. An assessment of the capacity of the Implementing Agency to implement procurement actions for the project has been carried out by Sylvain RAMBELOSON, Senior Procurement Specialist in September 2008. The assessment reviewed the organizational structure for implementing the project and the interaction between the project's staff responsible for procurement Officer and the Ministry's relevant central unit for administration and finance.

13. The key issues and risks concerning procurement for implementation of the project have been identified and include the limited experience of staff in managing Bank-funded Projects. The corrective measures which have been agreed is to provide appropriate training to designated staff before the project becomes effective and as described in the table below.

Designation of risks	Mitigation measures	Schedule/responsible
Lack of knowledge of Bank procurement procedures	The Agencies' Procurement Specialists will receive appropriate procurement training on WB procedures, tailored according to their current skills in this area.	Before project effectiveness Responsible : MoPILTS/WB

14. The overall project risk for procurement is MODERATE. We can consider that GOM staff has procurement expertise in country system for procurement and in managing contracts. However and due to the lack of knowledge in Bank's procurement procedure, the overall project risk for procurement is rated Moderate. To take this risk into account, Banks standard level for prior thresholds will be lowered/or by conducting Prior review for the first on or two contracts.

Thresholds for Procurement Methods and Prior Review ¹

Expenditure Category	Contract Value Threshold (USD thousands)	Procurement Method	Contracts Subject to Prior Review (USD millions)
1. Works	> \$5,000,000	ICB	USD35 million Yes
	<\$5,000,000	NCB	The first 3 contracts + PBCs
	All amounts	Direct Contracting	All
1. Goods	>\$500,000	ICB	Yes if such case were to arise
	<\$500,000	NCB	No
	<50,000	Shopping	No
	All amounts	Direct Contracting	All
2. Services and Training	>\$200,000	QCBS	USD14,5million Yes
	<\$200,000	QCBS, FBS, CQS, LCS	No
	All amounts	SSS	All
	>\$50,000	ICS	To be identified

Total value of contracts subject to prior review: USD49.5 million

Frequency of procurement supervision missions proposed: Once every twelve months (includes special procurement supervision for post-review/audits).

D. Procurement Plan

15. The Borrower, at appraisal, developed a procurement plan for project implementation which provides the basis for the procurement methods. This plan has been agreed between the Borrower and the Project Team on June 16, 2009 and is available at MoFEE. It will also be available in the project's database and on the Bank's external website. The Procurement Plan will be updated in agreement with the Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

16. Readiness for project implementation: see IV G, in the main text.

E. Frequency of Procurement Supervision

17. In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the Implementing Agency has recommended annual supervision missions to visit the field to carry out post review of procurement actions.

F. Details of the Procurement Arrangements Involving International Competition

1. Goods, Works, and Non Consulting Services

(a) List of work contract packages to be procured:

1	2	3	4	5	6	7	8	9
Ref. No.	Contract (Description)	Estimated Cost	Procurement Method	P-Q	Domestic Preference (yes/no)	Review by Bank (Prior / Post)	Expected Bid-Opening Date	Comments
1.	Widening of QM road	21,600,000	ICB	Yes	No	Prior	Sept 2009	
2.1	Periodic maintenance (i) Terre Rouge – Quay D on M2	4,640,000	NCB	No	No	Prior	Sept 2009	If not launched in the same time the first one would be prior-reviewed
2.2	Periodic maintenance (ii) Nouvelle France – La Vigie on M1	3,330,000	NCB	No	No	Prior	Oct 2009	
2.3	Periodic maintenance (iii) Pamplémousses-Grand Baie on M2.	2,430,000	NCB	No	No	Prior	Nov 2009	
3.	Performance-based contracts (3 to 4 small contracts)	3,000,000	NCB	PQ	No	Prior	Early 2010	
	TOTAL for road works	35,000,000						

(b) Contracts estimated to cost above USD5,000,000 for works and USD500,000 for goods per contract, and all direct contracting, if any, will be subject to prior review by the Bank. Exceptionally, due to their critical nature, performance-based contracts (item 3 above) will also be subject to prior review, as well as the first three contracts for works below US\$5,000,000.

2. Consulting Services

(a) List of consulting assignments with short-list of international firms.

1	2	3	4	5	6	7	8	9
Ref No.	Description*	Estimated Amount S '000	Selection Method	Prior and Post Review	Submission and Opening Date (T)	Financial Proposal Opening Date	Contract Signature Date	Comments
All sectors								
1.	Support to the preparation of the Public Sector Investment Program	500,000	QCBS	Prior	Oct 2009	Oct 2009	Nov 2009	MoPIL TS /MoFEE
								MoPIL TS
								MoPIL TS
								MoPIL TS
								RDA
	consulting services for RMS and PBCs							RDA
7.	BRT Implementation Study	1,600,000	QCBS	Prior	May 2009	July 2009	August 2009	MoPIL TS
8.	Feasibility, Detailed Design, EIAs, Tender Documents and whenever needed, Resettlement Action Plans	1,150,000	QCBS	Prior	n/a (several studies)			RDA, MoFEE for Rodrigues airport
Water Sector								
9.	Preparation of Master Plan for Water Resources Development & Rationalisation of Water Rights,	2,000,000	QCBS	Prior	July 2009	Oct 2009	Nov 2009	MoREPU

1	2	3	4	5	6	7	8	9
Ref No.	Description*	Estimated Amount \$ '000	Selection Method	Prior and Post Review	Submission and Opening Date (T)	Financial Opening Date	Contract Signature Date	Comments
	All sectors							
	including Capacity Building							
10.	Feasibility detailed study of projects for the South Mauritius Water Supply project, and the North Water Supply and Calebasses Dam	2,500,000	QCBS	Prior	n/a (several studies)	Jan 2010	March 2010	MoREP U
11	Study on Mauritius Drainage System	200,000	QCBS	Prior	July 2009	August 2009	September 2009	MoEND U
12.	Reorganization of Pollution Control Laboratory	500,000	QCBS	Prior	To be determined after consulting with all sectors involved			MoREP U
	Wastewater Sector							
13.	Detailed engineering studies for the upgrading Baie du Tombeau Treatment Plant	2,000,000	QCBS	Prior	Aug 2009	Nov 2009	Dec 2009	MoREP U
	Energy Sector							
14.	Master plan for the development of renewable energy	1,800,000	QCBS	Prior	Aug 2009	Oct 2009	Nov 2009	MoREP U
15.	Capacity Building	200,000	CQS/ICS	Prior	n/a several activities	n/a	n/a	MoREP U
	TOTAL	14,875,000						

(b) Consultancy services estimated to cost above USD200,000 per contract and single source selection of consultants (firms) for assignments estimated to cost above USD5,000 will be subject to prior review by the Bank.

(c) Short lists composed entirely of national consultants: Short lists of consultants for services estimated to cost less than USD100,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

Annex 9: Economic and Financial Analysis

MAURITIUS: Infrastructure Project

1. The RDA has performed an economic evaluation of the upgrading of the Quartier Militaire Road and (ii) periodic maintenance works. The evaluation was done using the Highway Design and Maintenance Standards Model (HDM), which simulates life cycle conditions and costs and provides economic decision criteria for road construction and maintenance activities. HDM was used for estimating the net benefits of each project in terms of reductions in vehicle operating costs, passenger travel time, and road maintenance expenditures. At the time of appraisal, the projects were analyzed using updated traffic estimations and road network conditions.

2. The economic evaluation of all road projects yields a positive economic return. The upgrading of the Quartier Militaire Road yields a Net Present Value (NPV), at 10 percent discount rate, of USD98 million and an Economic Rate of Return (ERR) of 51 percent, showing the high economic return that this type of projects yields. Under a worst-case scenario consisting of an increase of 20 percent in costs and a decrease of 20 percent in benefits, the project still yields benefits, represented by an ERR of 37.2 percent, which indicates that there is limited risk of it being uneconomical.

Economic Analysis

Project Objectives and Main Benefits

3. The expected outcome of the proposed road works is to reduce road transport costs and preserve the transport infrastructure in an efficient and sustainable manner. The proposed investment in upgrading, periodic and routine maintenance would: (i) reduce road-user transport costs by lowering vehicle operating, accident and travel time costs; (ii) remove physical constraints to road transport of goods and people; and (iii) allow for the provision of more reliable and safer transport services. Net benefits were evaluated using the Highway Design and Maintenance Standard Model (HDM) which simulates life cycle conditions and costs and provides economic decision criteria for multiple road design and alternatives.

Main Assumptions and Methodology

4. Economic costs are free of duties, royalties and indirect taxes. Wherever determination of duties and/or indirect taxes is difficult or impossible, a default value of 10 percent of the financial cost has been applied.

5. The RDA estimated maintenance and rehabilitation costs in financial and economic terms (net of taxes), economic costs being on average 90 percent of financial costs; and defined vehicle fleet characteristics and unit costs for six vehicle classes (cars, pick up trucks, 2-axle trucks, 3-axle trucks, small buses, large buses). Typical economic road user costs have been estimated as a function of roughness (IRI). Traffic composition is given below:

Table 1: Traffic Estimates for the Base Year –2008 – per day

Car/Jeep/Taxi	Vans/Pickups	Bus	Trucks	Multi-axle
4938	1822	372	912	117

6. The traffic growth rates are based on a study conducted in 2002 and updated in 2008. Traffic growth rates considered were for the entire evaluation period (25 years): 5-6 percent for light vehicles; 3-5 percent for medium, heavy, and articulated trucks; 1.5 percent for buses; 5 to 7 percent for pick-up trucks. This rate is based on the evolution of Gross Domestic Product (GDP) over the last ten years and it is commonly used for the economic evaluation of road projects.

7. The HDM-III model lays emphasis on three quality characteristics which are:

- surface type and roughness of surface (paved road or unpaved road and its roughness indicators)
- horizontal curvature (expressed in [degrees/km]) and
- average speed [km/h].

These factors are not independent from each other. The model is not as sensitive to other road quality characteristics.

8. The case with project takes into account asphaltic concrete with a very smooth surface expressed in terms of "Initial Roughness" = 2.5 IRI.

9. It has been assumed that average surface quality of the existing paved roads in the project zone is equal to an initial roughness of 7.0 IRI.

10. The discount rate used is 10 percent.

11. Road user savings: they constitute the most important part of total savings produced by a road improvement project. Only economic costs (economic purchase price, tires, lubricants, gas, labor costs of maintenance) excluding duties, royalties and indirect taxes have been taken into account.

12. Time Costs: only time costs of passengers have been taken into account neglecting goods time costs. The value of time for car passengers is 25 Mauritian rupees per hour and for bus passengers is 20 Mauritian Rupees per hour based on the consideration that 50 percent of saved time of passengers in cars and 40 percent of saved time of passengers in other vehicles may be used for other working activities or for recreation which can lead to higher productivity (average wages in Mauritius are estimated at 8,400 Mauritian Rupees per month, i.e. approximately USD280).

13. The evaluation was made to ensure that all proposed works are economically justified.

Overall Project Benefits

14. The total NPV of the upgrading of the Quartier Militaire Road adds to USD98 million. The table below presents a summary of the overall project benefits, including sensitivity tests, which indicates that there is limited risk of it being uneconomical.

	Multiplicative Factor for analysis					
Capital Investments	1	1.2	1	1.2	1.3	1.4
Recurrent Costs	1	1.2	1	1.2	1.3	1.4
Vehicle Operation	1	1	0.8	0.8	0.7	0.6
Travel Time	1	1	0.8	0.8	0.7	0.6
Exogenous Cst-Bnf	1	1	0.8	0.8	0.7	0.6
Net Present Value	2159.15	2062.25	1630.42	1533.52	1220.71	907.9
Rate of Return (%)	51	44.3	42.9	37.2	31.4	26

Annex 10: Safeguard Policy Issues
MAURITIUS: Infrastructure Project

Table 1: Safeguard Policies Triggered by the Project

Safeguard Policies Triggered by the Project	Yes	No
<u>Environmental Assessment (OP/BP 4.01)</u>	[X]	[]
Natural Habitats (<u>OP/BP 4.04</u>)	[]	[X]
Pest Management (<u>OP 4.09</u>)	[]	[X]
Physical Cultural Resources (<u>OP/BP 4.11</u>)	[]	[X]
Involuntary Resettlement (<u>OP/BP 4.12</u>)	[X]	[]
Indigenous Peoples (<u>OP/BP 4.10</u>)	[]	[X]
Forests (<u>OP/BP 4.36</u>)	[]	[X]
Safety of Dams (<u>OP/BP 4.37</u>)	[]	[X]
Projects in Disputed Areas (<u>OP/BP 7.60</u>)*	[]	[X]
Projects on International Waterways (<u>OP/BP 7.50</u>)	[]	[X]

Environmental Screening Category of the Project: B – Partial Assessment.

A. Environmental Impact Assessment and Environmental Management Plan

1. **Quartier Militaire.** In keeping with the World Bank’s Safeguard Policies, the Road Development Authority (RDA) prepared an Environmental Impact Assessment (EIA) for the Upgrade of Quartier Militaire Road in 2002, and prepared an Environmental Management Plan (EMP) based on questions submitted by the Ministry of Environment and National Development Unit on 28 August 2008. The ministry determined that no EIA license would be required. The potential environmental impacts of the bypasses were assessed as part of the EIA. Since the bypasses traverse cultivates sugar cane fields, there is no loss of critical natural habitat.

2. It is estimated that it will be necessary to fell 323 trees along the Quartier Militaire route. There are some matured trees on the first three km from Wooton roundabout. There are also some avenue trees on the approach to Belle Rive. A list of all trees to be felled is provided in the EA (Upgrading of Quartier Militaire Road –B6, dated July 2002). Four trees will be planted for every felled tree: at least 1300 trees of the same native species will be planted to compensate for the loss of those listed in the EIA. (It is possible the number of trees along the route may have increased or decreased since 2002, but this will be assessed by the Conservator of Forests and the National Parks and Conservation Services). The location and types of trees to be planted will be determined in consultation with the Conservator of Forests, who will continue to monitor the tree plantings over the lifetime of the project.

3. In the construction phase, adverse effects on the environment will include increased noise, vibration, and pollution levels due to construction and equipment, traffic restrictions due to lane closings, possible public utility interruptions in built-up areas, and to a lesser extent, slopes erosion, water flows obstruction, impairment of non-critical natural habitat, and minimal water pollution due to construction-related activities. No major contamination of soil or surface water is envisaged.

* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

4. Any activity such as demolition and reconstruction of boundary walls and gates will be carried out under the project, in accordance with an established calendar which will involve liaison with Project Affected Persons (PAPs)⁷.

5. The project also includes the **periodic maintenance of three highway sections**, which will complement the ongoing works on the Terre Rouge – Pamplémousses section on M2 (approx. 10 km of dual carriageway): (i) Terre Rouge – Quay D on M2 (5 km of dual carriageway), (ii) Nouvelle France – La Vigie on M1 (8 km of single carriageway) and (iii) parts of Pamplémousses-Grand Baie on A13 (4 km of single carriageway). Each of these three sections would be then maintained through one of the pilot performance-based routine maintenance contracts. The Road Development Authority (RDA) is the Executing Agency for the Project.

6. Road maintenance operations may potentially affect the environment in a number of ways. For example, environmental concerns can stem initially from poor road design and planning, mobilization of construction crews, construction camp maintenance, storage and handling of wastes and hazardous materials, location of borrow pits and quarry sites, associated earthworks, and drainage design. Poorly executed maintenance activities may create localized soil erosion problems affecting streams or other water bodies; lack of clear plans for environmental management will create opportunities for inappropriate disposal of solid waste materials and could lead to lack of controls of noise and dust which can create a nuisance for individuals and communities. Better maintained roads could lead to increased accessibility in remote areas thus increasing the potential for uncontrolled resource extraction and land conversion along the road sides. Concerns over such issues are heightened in areas where roads pass through protected areas or other sites of a sensitive ecological nature such as wetlands, streams or forest areas.

7. The RDA recognizes the importance of environmental protection and has made basic commitments to addressing environmental concerns. It is the responsibility of the RDA to ensure effective implementation of potential negative impacts at all stages (planning and pre-construction, construction, operations). To ensure effective implementation of safeguards for the RDA, technical assistance will be provided to the RDA to strengthen: (i) supervision and monitoring of safeguard compliance, including reporting; (ii) safeguard training, including consultation with local agencies and communities; and (iii) mainstreaming of safeguard requirements into RDA operations for road maintenance.

8. For both transport project components, an Environmental Management Plan (EMP) has been established and measures required to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance will be included in the bidding and contract documents to ensure that good engineering practices will be applied during construction. The contractors will be made aware of this obligation and their safeguard performance during construction will be closely supervised and monitored by the Project Engineers with close supervision of the Project Supervision Consultants.

⁷ “Project Affected Persons” means persons who, solely on account of the execution of the activities under the Quartier Militaire project have or would have their: (a) standard of living adversely affected; or (b) right, title, or interest in any house, land (including premises, agricultural and grazing land) or any other fixed or movable asset acquired or possessed, temporarily or permanently; or (c) business, occupation, work or place of residence or habitat adversely affected. In the case of PAPs in the Project area who do not have legal right or title to land that they are occupying, assistance will be given to replace non-land assets lost (defined as fixed immovable structures and crop or agricultural produce losses in the land acquired for the project).

B. Resettlement Action Plan (RAP).

9. The project will necessitate minor realignments in lightly populated areas to extend the width of the road by up to 2 meters on either side. It will therefore be necessary in such areas, to ensure that PAPs (owners of this privately owned land -used for residential and commercial purposes, and in some cases for sugarcane cultivation) are adequately compensated.

10. Given that the road widening will be universally beneficial (it will make it easier and faster to transport people and goods, and will reduce traffic accidents on a highly transited road), there has been no opposition to the road widening in principle. No residential dwellings or commercial or agricultural establishments (whether legally owned and operated or otherwise) will be demolished or relocated in the area to be widened.

11. Inhabited areas are concentrated at Quartier Militaire and Valetta. In these areas, road widening will be restricted to seven meters although pavements will be built to enhance safety for pedestrians. Generally, the services available within the areas will not be affected except during the construction period, when traffic will be delayed, affecting public transport. There is a school at Quartier Militaire. However, it is expected that the effect on bus services for schoolchildren will be minimally affected since the school mostly caters for students from the Eastern region and the school bus routes are generally off the project road.

12. Provision has also been made, bearing in mind stakeholder concerns, for the construction of two bypasses: at Valetta (1.5 Km) and Quartier Militaire (2.5 Km). These deviations will reduce the major portion of the traffic in the villages (which is through traffic). Noise pollution, dust and accidents will be reduced thereby providing a safer and better environment for the inhabitants. The sections of the existing road through these two villages will be overlaid together with some other minor improvements (footpaths, handrails, street lighting). Provision of these amenities will greatly decrease the risks of accidents in the inhabited areas. The recommended alignment was found to be the optimum option from the economic, geometrical and road traffic safety point of view. This alternative includes the improvement of the existing horizontal and vertical alignments outside the residential areas and provision of bypasses at Valetta and Vuillemin (before the A7 road).

13. **Stakeholder Consultations.** A preliminary census was undertaken by Mr. Rajendranath Khoobarry, sworn land surveyor and former Chief Surveyor in the Ministry of Housing and Lands. (A signed summary from Mr. Khoobarry is provided as Annex A in the RAP.) The preliminary survey of ownership in the bypass areas has also been completed. Title deed searches at the Registrar General's Office are underway to confirm the legal ownership of each plot. The Citizens Advice Bureau, Quartier Militaire, which falls under the Ministry of Environment and National Development, organized an informational meeting to which PAPs along the route were invited by letter. This meeting (in which the World Bank Social and Environmental Specialist participated) was attended by over 30 PAPs, a third of the affected PAPs living along the route. Within this group village community members were represented. The meeting was chaired by The Hon. Surendra Dayal, MP for the Project Area and Chief Government Whip, and Mr. Viswadeep Karamchand Koonjul, Regional Development Officer. Mr. Muhammad Sadruddin Diljore, Acting Deputy General Manager explained the proposed project (using detailed maps and engineering designs), provided a detailed explanation of the environmental management process, the compensation process, and the grievance process and answered all queries. (The owners of land in the bypass areas were notified by letter of the

intention to build a bypass and their rights for compensation, and were provided a number at the RDA to contact for queries and to voice any concerns about the Project. These letters were sent out by Friday December 5th 2008 and many queries have been received since then, to which the RDA has given a full and transparent response.)

14. **Replacement cost.** Where markets are active, as in Mauritius, replacement cost of affected land, in either rural or urban areas, is based on fair market value (plus transaction costs and, in rural areas, any preparation costs). The Chief Government Valuer in the Valuation Department of the Ministry of Finance and Economic Empowerment will undertake the assets valuation work, utilizing a very thorough valuation process which follows international accounting and valuation methods, (the internationally recognized Modern Methods of Valuation, primarily the comparative method). The valuation method to be used qualifies as replacement cost, as required by the Bank's Operational Policy OP 4.12.⁸ "Replacement cost" is the method of valuation of assets that helps determine the amount sufficient to replace lost assets and cover transaction costs (as detailed below). Should the PAP wish to contest the offer, detailed procedures for counterclaims and appeals are detailed in the RAP. (See Paragraphs 15-29 below for a summary of such procedures).

15. **Legal Framework for Land Valuation, Acquisition, and Compensation and/or Assistance.** The Roads Act authorizes the Road Development Authority (RDA) to reserve land for the purpose of road construction, for road widening as well as provision of footpaths and for dealing with objections. Under the provision of the Land Acquisition Act (the Act), the GoM can compulsorily acquire any land, provided that:

- (i) it is neither possible nor expedient to acquire the land by private agreement;
- (ii) the conditions of Section 8(i) (a) and (b) of the Constitution are fulfilled;
- (iii) adequate compensation is paid; and
- (iv) the land is required for public purpose.

In the case of this Project, notwithstanding any provision to the contrary in the Land Acquisition Act, before any land is compulsorily acquired, the GoM will apply the following procedure set out below.

16. The RDA shall first carry out and complete an investigation and a precise survey of all land proposed for acquisition, and the Valuation Department of the Ministry of Finance and Economic Empowerment shall carry out a valuation exercise of all land concerned to determine the replacement cost value as defined in Paragraph 19. Each PAP with legal right or title to land shall then be offered compensation, such compensation being the replacement cost value determined for the respective land proposed for acquisition as defined in Paragraph 19.⁹

⁸The valuation method to be used adequately reflects two principles which are reflective of OP 4.12: (a) Acquisition of land wherever possible takes place through negotiated settlement, even if the government has the right to gain access to the land without the agreement of the landowner. (b) The procedure provides a clear description of the scope of the power of eminent domain and the nature of compensation associated with it, both the procedures for assessing compensation values at replacement cost ("fair market value"), and mechanisms for recourse for those landowners who cannot reach a negotiated settlement.

⁹PAPs without legal right or title to such land that they are occupying, if any such exist, will be provided assistance to replace non-land assets (comprising fixed immovable structures and crop or agricultural produce lost solely on account of the execution of the Project activities). See also footnote 8.

17. In order to carry out the preliminary investigations and surveys and to prepare plans, a Notice under Section 6 of the Act will be published in two issues of the Government Gazette and two daily newspapers, there being in each case an interval of at least seven days between the first and second publications. On or about the day of the first publication of the Notice, a copy of the Notice is served by the Authorized Officer (any person designated as such under Section 25 of the Act) on the owner of the land likely to be acquired and on the owner of any other land that may be entered by the Authorized Officer. Officers of this Ministry may then enter the land for Survey and investigation purposes fourteen (14) days after the date of the last publication of the Notice.

18. The purpose of the Notice under Section 6 is to carry out preliminary investigations and works, to enter upon the premises and to notify the owner of Government's intention to acquire his land. The Land Surveyor of this Ministry carries out the Survey of the land and draws up the survey plan to be deposited under Section 8 of the Land Acquisition Act. This notice:

- Describes the plot of land to be acquired with precision, in words and by reference to a plan which shall be deposited at such place as may be specified in the notice and which shall be open to inspection by the public
- States the purpose for which the land is being acquired.

19. An extensive survey is conducted during the survey and valuation process. This survey will define:

- The exact area of land to be acquired based on the engineering estimates of the exact depth of road widening necessary (depending on gradient, curve of the road, etc. to be finalized in the engineering works, but in this instance it will never be more than 2 meters wide, and in no case in this instance will it exceed 10 percent of the PAP's property);
- Confirmation of exact ownership of title to the lands¹⁰;
- Assessed compensation for the land, using the internationally recognized Modern Methods of Valuation, primarily the comparative method: (no less than five comparisons with most recent title deeds of land sold in the same area prior to the Project cut-off date, which will be defined as the start of the survey undertaken by RDA);
- Assessed compensation for the loss of agricultural crops and produce, using income stream information for the past three years;
- The loss of parking space or commercial display area (for small businesses), based on valuation of loss of goodwill, customer base, etc;
- Felling of productive trees;
- Cost of re-siting, repair, or replacement of any outhouses or garden structures, fences, walls, etc...
- In cases where the PAP believes that the land remaining to him/her is no longer

¹⁰ Preliminary surveys indicate that there are no persons with no recognizable legal right or title to the land they are occupying in the project affected area as of the eligibility cut-off date established by the GoM. If the title deed survey does indeed confirm that there are PAPs in the Project area without legal right or title to land they are occupying, assistance will be given to replace non-land assets lost (defined as fixed immovable structures and crop or agricultural produce losses in the land acquired for the project). Since there is no physical resettlement or loss of livelihood, no such resettlement assistance will be provided.

viable (if the PAP is deemed to suffer injurious affection), he/she will be paid for the full plot of land, at a price that will reflect the market value of the land and any injurious affection.¹¹ Should a business owner have no option but to move (and if this fact is confirmed by the local municipal authority) he/she will be compensated for loss of goodwill, established customer base, etc. (detailed matrix of entitlements attached as Annex B in the RAP).

20. On completion of the survey of the plot of land to be required, a Notice under Section 8 of the Land Acquisition Act is published in two issues of the Government Gazette and two daily newspapers, there being in each case an interval of at least seven days between the first and second publications. In that Notice, any interested person is requested to submit within fourteen days of the second publication of the Notice, a written declaration of the nature of his interest in the land and of the amount and details of his claim for compensation. On or about the date of the first publication of the Notice, a copy of the Notice is served by the Authorised Officer on the owner of the land. The object of the Notice under Section 8 is to make a precise survey of the land to be registered, and to obtain title of ownership to the land by transcription of the Notice under Section 8. In the instance of this Project, an offer of the value of the land proposed for acquisition (such value determined based on the method discussed in paragraph 19 above) will be made to the PAPs with legal right or title to land proposed for acquisition. These PAPs will be given 21 days from the date of notice of the offer to consider the offer.

21. Under Section 10 of the Act, any interested person may challenge the legality of the compulsory acquisition within 21 days from the second publication of the Notice in the Gazette and appeal to the Supreme Court within the said period and in such manner as provided by the rules made by the Supreme Court for the purpose. If no challenge has been made, the Notice under Section 8 is transcribed under Section 11 of the Act by the Conservator of Mortgages and the transcription of the Notice shall constitute in favor of Government title to the land, free from all charges and encumbrances.

22. Under Section 12 of the Act, any interested person whose land has been compulsorily acquired shall be entitled to payment of compensation. As discussed above, in the instance of this Project, such compensation will be offered to the PAPs with legal right or title to land prior to the transfer of title to Government. If the legality of the compulsory acquisition is not challenged (as discussed in paragraph 21 above), after the 21 day period, the Government may transfer the title of ownership for the land concerned through compulsory acquisition; such land will thereafter be vested in the Ministry of Public Infrastructure, Land Transport and Shipping (for use by the RDA for the Project). If the offer of payment made by the Government is accepted by the PAP, upon the approval of the Minister of Housing and Lands, the Solicitor-General is requested to appoint a Notary Public (or a Notary Public chosen by the PAP) to draw up the deed of acquittance. The Government will draw a check for the accepted amount in the name of the PAP and send it to the Notary Public, with clear instructions to the Notary Public indicating that, upon signature of the deed of acquittance by the PAP, the Notary Public shall promptly present the payment to the PAP, which shall in any event be no later than 60 days of the date of the Ministry of Housing and Lands' receipt of the PAP's notice of acceptance, unless the payment is reasonably delayed due to the existence of one or more of the circumstances described in paragraphs 27 and 28 below.

23. If the initial offer is not accepted, the PAP and the Government may seek agreement on

¹¹ Alternately, the government may offer a comparable plot of land if available and pay compensation for moving.

another amount (“Counter Offer”). If the PAP submits a Counter Offer, the views of the Chief Government Valuer will be sought. Through meetings between parties concerned, an agreed price can be finally settled. Thereafter, following approval of the Minister of Housing and Lands, a new offer on the agreed price is made and upon acceptance, and through the procedure described in paragraph 22 above, the Government will draw a check for the agreed amount in the name of the PAP and deliver it to the Notary Public, with express instructions to promptly present payment to the PAP, which should be no later than 60 days from the PAP’s notice of acceptance of the offer¹² and once the deed of acquittance is signed by the PAP (unless the payment is reasonably delayed due to a circumstance described in paragraphs 27 and 28 below). Any delay of payment of compensation is compensated by granting interest at the legal rate as from date of acquisition to date of offer/award.

24. In case no agreed price is reached between the PAP and the Chief Government Valuer, the said claim is, after approval of the Minister of Housing and Lands, referred to a Board of Assessment having as Chairman, a person holding or having held judicial office in Mauritius, to be designated by the Chief Justice and two members appointed by the Minister of Housing and Lands. At the conclusion of the inquiry, under Section 17, the Board shall make an award on the claim for compensation. There may be one or several sittings of the Board prior to the delivery of the Award. The Government will promptly draw a check for the amount awarded by the Board of Assessment in the name of the PAP and deliver it to the Registry of the Supreme Court, and make best reasonable efforts to ensure that the funds are paid to the PAP within 60 days of the decision of the Board of Assessment, unless either the PAP or the Ministry of Housing and Lands files an appeal with the Supreme Court against the award within 21 days of the date of delivery of the award.

25. If an appeal is made to the Supreme Court, the Government will promptly draw a check for the amount of the Supreme Court judgment in the name of the PAP and deliver it to the Registry of the Supreme Court and make best reasonable efforts to ensure that the funds are paid to the PAP within 60 days of the judgment of the Supreme Court, unless either the PAP or the Government files an appeal with the Privy Council. If an appeal is made finally to the Privy Council, the Government will promptly draw a check for the amount of the Privy Council judgment in the name of the PAP and deliver it to the Registry of the Supreme Court and make best reasonable efforts to ensure that the funds are paid to the PAP within 60 days of the judgment of the Privy Council.

26. In the event that a PAP does not respond to the initial offer made by the Ministry of Housing and Lands the Ministry of Housing and Lands shall continue to hold the amount of the offer in the account set up in the Ministry of Housing and Lands, at least until the completion of this Project.

27. In the event that the ownership of land is in dispute, the Ministry of Housing and Lands shall continue to hold the amount of the offer in the account set up in the Ministry of Housing and Lands, until either the disputing parties come to a mutual agreement on the matter of ownership, or there is a final judicial settlement of the dispute and thereafter, the Ministry shall promptly implement the measures stipulated in paragraph 24.

28. In the event that compensation payments cannot be made because the PAP must take certain

¹² Proof of receipt is indicated by an official date stamp on the PAP’s notice of acceptance, stamped on the document by the Ministry of Housing and Lands upon the Ministry’s receipt of the document.

actions to: (i) resolve an encumbrance, such as a claim, lien, charge or other liability attached to the land concerned, or (ii) furnish appropriate evidence such as proof of identity or ownership of the land, or (iii) be present, or alternatively provide appropriate power of attorney, for the purposes of accepting payment and signing the deed of acquittance, the government shall provide instruction to the relevant authorities that such payment shall be promptly made to the PAP upon the PAP's resolution of such issue(s).

Table 2: Land Acquisition Schedule

Activities	Dates	Budget	Comments
Planning of census and surveys	9/2008		
Information to people affected	10/2008-		
Conduct census	10/2008-		
Valuation process			
Payment of compensation commences			
Follow-up Visit by Responsible Agency			

Budget. Source of Budget and Cost Estimate (to be completed after Project is approved, compensation funds earmarked, and valuation process commenced)

29. **Monitoring/Follow-up Activities.** For the duration of the Project, the GoM shall open and maintain a ledger account in the Ministry of Housing and Lands of an amount equivalent to the aggregate value of the land and replacement cost value, as defined above. Full and timely release of the funds recorded in this account shall be made to the PAPs, as detailed above. Any activity such as demolition and reconstruction of boundary walls and gates will be carried out under the project, in accordance with an established calendar which will involve liaison with PAPs. Grievances may be voiced to the local Citizens Advice Bureau, who will hold regular meetings on the project, and can also be voiced to the Contractor Engineer as well as directly to the RDA, which will ensure that necessary corrective measures are taken under the contract.

30. **Performance Monitoring Indicators.** Six months to one year after the completion of the project, the project authorities will contract an independent assessment to summarize PAP views of the acquisition process, and to provide a status report on any ongoing legal cases regarding land acquisition.

31. **Borrower's capacity to implement safeguards.** The GoM's institutional capacity for safeguard policies is high. Tourism and fishing are key sectors of the Mauritian economy and both depend on sound environmental management for long-run sustainability.

32. Mauritius' environmental agencies have more than adequate capacity and experience in commissioning and following through on environmental impact assessments and for monitoring compliance with the country's environmental and social protection laws. The government is responsive to the desires of the public, and has many times in the past postponed or altered public projects that faced strong opposition from those who would be negatively affected and/or NGOs (the Southeastern Highway project is an example).

33. For environmental issues, the RDA under the Ministry of Public Infrastructure, works closely with the Department of Environment within the Ministry of Environment and National Development to validate EIAs, and in the case of particularly sensitive projects, a staff member

from the Ministry of Environment is assigned to the supervision of the works from an environmental perspective. The Department of Environment's staff is adequately trained and experienced.

34. Date of disclosure in InfoShop and cooperating country. The EA, EMP, and RAP have been approved by the World Bank and made publicly accessible in Mauritius, and have been disclosed through the InfoShop in December 2008. Since then, the RAP has been updated in line with the discussion in this Annex. The revised RAP, dated May 13, 2009 has been disclosed in country and through the InfoShop on May 21, 2009.

Annex 11: Project Preparation and Supervision
MAURITIUS: Infrastructure Project

	Planned	Actual
PCN review	July 10, 2008	July 10, 2008
Initial PID to PIC	July 21, 2008	July 21, 2008
Initial ISDS to PIC	July 21, 2008	July 21, 2008
Appraisal	December 8, 2008	December 8, 2008
Negotiations	January 13, 2009	June 15, 2009
Board/RVP approval	March 12, 2009	
Planned date of effectiveness	June 10, 2009	
Planned date of mid-term review	November 2011	
Planned closing date	December 31, 2014	

Key institutions responsible for preparation of the project: Ministry of Finance and Economic Empowerment, Ministry of Renewable Energy and Public Utilities, Ministry of Public Infrastructure, Land Transport and Shipping

Bank staff and consultants who worked on the project included:

Name	Title	Unit
Pierre Graftieaux	Task Team Leader	AFTTR
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Nina Jones	Program Assistant	AFTTR
Mariella Beugue	Program Assistant	AFMMU

Annex 12: Documents in the Project File

MAURITIUS: Infrastructure Project

1. Mauritius Urban Infrastructure Project – Land Acquisition Plan, May 13, 2009.
2. Mauritius Urban Infrastructure Project – Project Implementation Manual, May 13, 2009.
3. Mauritius Urban Infrastructure Project – Environmental Management Plan for Road rehabilitation, October 2008.
4. Mauritius Urban Infrastructure Project – Environmental Impact Assessment Upgrading of Quartier Militaire Road B6 – Volume III – Final July 2002.
5. Mauritius Urban Infrastructure Project – Letter from Ministry of Environment and National Development Unit, GoM, requesting clarification on EIA, August 28, 2008; and response from Road Development Authority (undated).
6. Mauritius Urban Infrastructure Project – Preliminary survey of stakeholders residing or working along the Quartier Militaire Road, November 2008.
7. Mauritius Urban Infrastructure Project – List of stakeholders attending stakeholder meeting, Citizens Advice Bureau, Quartier Militaire, 23 October 2008.
8. Mauritius Urban Infrastructure Project – Agricultural Plots along Quartier Militaire Road, Mauritius Sugar Insurance Board, October 2008.
9. Land Acquisition Act, Mauritius.
10. Roads Act, Mauritius.
11. Draft Terms of Reference for Mauritius Renewable Energy Implementation Plan 2009 - 2025.
12. ICR for an Environmental Sewerage and Sanitation Project (loan 42830), June 27, 2007 (Report number: ICR0000547)
13. Special Report For Joint Donors Technical & Ministerial Meetings. Wastewater Sector Development in Mauritius up to December 2007
14. Wastewater Sector Policy Statement 2008-2013 -- February 4, 2008
15. Baie du Tombeau Sewerage Project Phase III - Wastewater Management Authority, Ministry of Public Utilities - May 2008
16. National Water Policy, final draft - Ministry of Public Utilities. August 2008
17. Procurement Assessments of RDA, MoPILT&S, and MoREPU
18. Procurement Plan – June 16, 2009.

Annex 13: Statement of Loans and Credits
MAURITIUS: Infrastructure Project

Project ID	FY	Purpose	Original Amount in US\$ Millions					Difference between expected and actual disbursements		
			IBRD	IDA	SF	GEF	Cancel.	Undisb.	Orig.	Frm. Rev'd
P105669	2009	MU-Economic Transition (TA) Project	18.00	0.00	0.00	0.00	0.00	17.96	0.13	0.00
P112369	2009	MU-Third Trade and Competitiveness DPL	100.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00
Total:			118.00	0.00	0.00	0.00	0.00	117.96	0.13	0.00

MAURITIUS
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

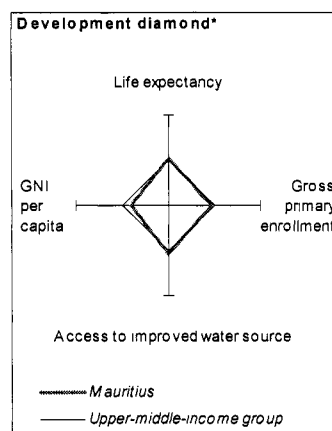
FY Approval	Company	Committed				Disbursed			
		IFC				IFC			
		Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
1996	MVCF	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00
Total portfolio:		0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00

FY Approval	Company	Approvals Pending Commitment			
		Loan	Equity	Quasi	Partic.
Total pending commitment:		0.00	0.00	0.00	0.00

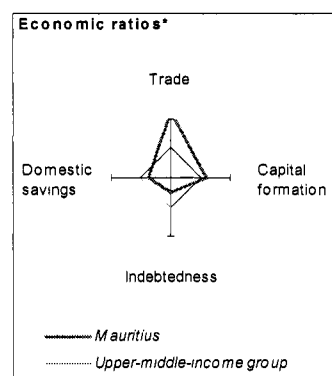
Annex 14: Country at a Glance

MAURITIUS: Infrastructure Project

POVERTY and SOCIAL	Mauritius	Sub-	Upper-
		Saharan	middle-
		Africa	income
2007			
Population, mid-year (millions)	13	800	823
GNI per capita (Atlas method, US\$)	5,570	952	6,987
GNI (Atlas method, US\$ billions)	7.0	762	5,750
Average annual growth, 2001-07			
Population (%)	0.9	2.5	0.7
Labor force (%)	14	2.6	13
Most recent estimate (latest year available, 2004-07)			
Poverty (% of population below national poverty line)	..	..	..
Urban population (% of total population)	42	36	75
Life expectancy at birth (years)	73	51	71
Infant mortality (per 1000 live births)	13	94	22
Child malnutrition (% of children under 5)	..	27	..
Access to an improved water source (% of population)	100	58	95
Literacy (% of population age 15+)	..	59	93
Gross primary enrollment (% of school-age population)	102	94	111
Male	102	99	112
Female	102	88	109

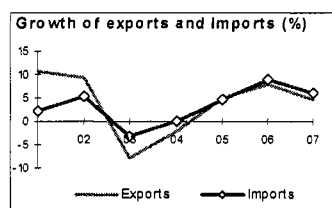
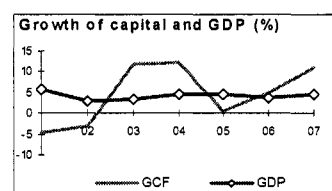


KEY ECONOMIC RATIOS and LONG-TERM TRENDS	1987		1997		2006		2007	
GDP (US\$ billions)	17	4.4	6.3	6.8				
Gross capital formation/GDP	23.7	27.2	24.6	26.8				
Exports of goods and services/GDP	62.2	62.5	60.1	61.8				
Gross domestic savings/GDP	27.8	24.3	17.5	17.5				
Gross national savings/GDP	28.2	26.0	19.1	19.9				
Current account balance/GDP	7.1	-0.5	-5.7	-8.0				
Interest payments/GDP	2.0	14	0.5	..				
Total debt/GDP	48.0	419	315	..				
Total debt service/exports	117	7.9	7.2	..				
Present value of debt/GDP	..	..	31.0	..				
Present value of debt/exports	..	..	46.0	..				
(average annual growth)								
GDP	5.4	4.3	3.6	4.7	5.8			
GDP per capita	4.3	3.3	2.8	3.9	4.8			
Exports of goods and services	6.1	3.0	8.0	4.7	7.5			



STRUCTURE of the ECONOMY

(% of GDP)	1987		1997		2006		2007	
Agriculture	15.8	9.7	5.6	5.3				
Industry	32.7	31.7	26.9	27.8				
Manufacturing	24.8	23.5	19.1	19.9				
Services	51.5	58.6	67.6	66.9				
Household final consumption expenditure	60.2	62.6	68.0	68.8				
General gov't final consumption expenditure	12.0	13.2	14.5	13.7				
Imports of goods and services	58.1	65.4	67.2	71.1				
(average annual growth)								
Agriculture	-0.4	-0.4	-3.9	-0.5				
Industry	6.2	2.8	-0.1	4.7				
Manufacturing	5.8	1.7	-0.8	3.1				
Services	6.6	6.0	6.0	5.9				
Household final consumption expenditure	5.1	4.4	3.8	3.9				
General gov't final consumption expenditure	5.1	4.7	5.0	2.3				
Gross capital formation	6.0	3.9	5.1	11.0				
Imports of goods and services	5.9	3.0	9.1	5.9				



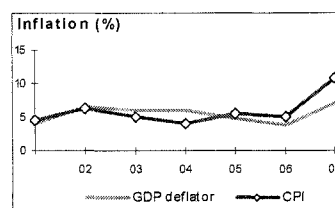
Note: 2007 data are preliminary estimates.

This table was produced from the Development Economics LDB database.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

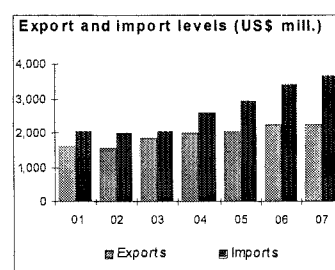
PRICES and GOVERNMENT FINANCE

	1987	1997	2006	2007
Domestic prices				
<i>(% change)</i>				
Consumer prices	0.7	7.9	5.1	10.8
Implicit GDP deflator	10.6	7.1	3.8	7.0
Government finance				
<i>(% of GDP, includes current grants)</i>				
Current revenue	23.1	19.7	19.9	19.2
Current budget balance	3.9	-14	-15	-0.9
Overall surplus/deficit	-13	-7.4	-5.3	-4.3



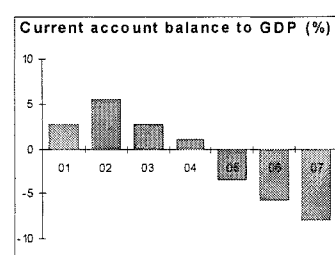
TRADE

	1987	1997	2006	2007
<i>(US\$ millions)</i>				
Total exports (fob)	806	1,727	2,261	2,245
Sugar	326	438	349	336
n.a.	..	..	..	..
Manufactures	436	1,098	997	1,137
Total imports (cif)	816	2,204	3,431	3,647
Food	22	350	511	579
Fuel and energy	61	169	570	642
Capital goods	140	493	1,019	997
Export price index (2000=100)	..	114	126	133
Import price index (2000=100)	..	110	155	169
Terms of trade (2000=100)	..	104	81	79



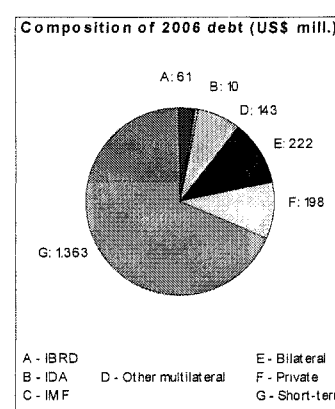
BALANCE of PAYMENTS

	1987	1997	2006	2007
<i>(US\$ millions)</i>				
Exports of goods and services	1,068	2,632	3,868	4,096
Imports of goods and services	953	2,732	4,325	4,835
Resource balance	115	-100	-457	-739
Net income	-46	-35	45	104
Net current transfers	52	12	54	93
Current account balance	121	-22	-358	-542
Financing items (net)	53	106	258	748
Changes in net reserves	-174	-84	100	-206
Memo:				
Reserves including gold (US\$ millions)	138	899	1,677	2,272
Conversion rate (DEC, local/US\$)	13.0	19.1	30.9	32.3



EXTERNAL DEBT and RESOURCE FLOWS





	1987	1997	2006	2007
<i>(US\$ millions)</i>				
Total debt outstanding and disbursed	818	1,836	1,997	..
IBRD	193	111	61	81
IDA	19	15	10	9
Total debt service	130	223	309	..
IBRD	26	29	11	15
IDA	0	1	1	1
Composition of net resource flows				
Official grants	18	15	18	..
Official creditors	57	-5	-88	..
Private creditors	20	60	-102	..
Foreign direct investment (net inflows)	17	55	107	..
Portfolio equity (net inflows)	0	31	32	..
World Bank program				
Commitments	25	0	30	0
Disbursements	22	17	1	31
Principal repayments	13	21	9	11
Net flows	8	-4	-8	19
Interest payments	14	8	3	4
Net transfers	-5	-12	-11	15

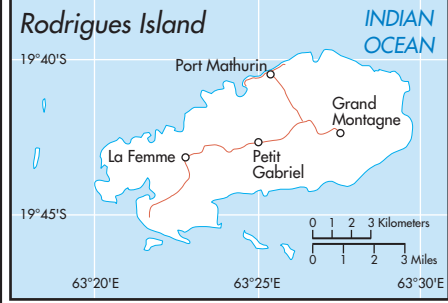


Note: This table was produced from the Development Economics LDB database.

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MAURITIUS INFRASTRUCTURE PROJECT

- MAIN CITIES AND TOWNS
- ⊙ DISTRICT CAPITALS
- ⊗ NATIONAL CAPITAL
-  RIVERS
-  ROADS TO BE REHABILITATED UNDER THE PROJECT
-  MOTORWAYS
-  MAIN ROADS
-  OTHER ROADS
-  DISTRICT BOUNDARIES
-  INTERNATIONAL BOUNDARIES



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