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MAURITIUS

TRANSPORT SECTOR MEMORANDUM

November 18, 1985

Transportation Division
Eastern and Southern African Regional Office

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

CURRENCY EQUIVALENTS

Currency Unit	=	Mauritian Rupee (MR)
US$1.00	=	MR 14.96
MR 1.00	=	US$0.067

WEIGHTS AND MEASURES

1 meter (m)	=	3.28 feet (ft)
1 kilometer (km)	=	0.62 mile (mi)
1 sq. kilometer (km2)	=	0.386 square miles (sq mi)
1 hectare (ha)	=	2.47 acres (ac)
1 metric ton (m ton)	=	2,204 pounds (lbs)

ABBREVIATIONS

AfDF	=	African Development Fund
AM	=	Air Mauritius
BCEOM	=	Bureau Central d'Etudes pour les Equipments d'Outre Mer, France
CAD	=	Civil Aviation Department
CHC	=	Cargo Handling Corporation
EDF	=	European Development Fund
FAC	=	Fonds d'Aide et de Cooperation
MEPD	=	Ministry of Economic Planning and Development
MOE	=	Ministry of Employment
MOF	=	Ministry of Finance
MMA	=	Mauritius Marine Authority
MGTO	=	Mauritius Government Tourist Office
MOW	=	Ministry of Works
NTA	=	National Transport Authority
NTC	=	National Transport Corporation
PMO	=	Prime Minister's Office
PSIP	=	Public Sector Investment Program
PU	=	Planning Unit in MOW
TD	=	Technical Division in MOW
TMU	=	Traffic Management Unit in MOW
UNDP	=	United Nations Development Program
VOC	=	Vehicles Operating Costs
VPD	=	Vehicles Per day

FISCAL YEAR

July 1 - June 30

TRANSPORT SECTOR MEMORANDUM 1/

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IBRD 16945
IBRD 10827 (PCR)

1/ The TSM was prepared by D. Jovanovic, Sr. Economist EAPTR following his missions to Mauritius in August 1984 and in May 1985. The Government comments received on the Green Cover TSM were taken into account.

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SUMMARY

(i) Mauritius (see Map IBRD 16945) is situated in the Indian Ocean about 2,400 km from the African mainland. In addition to the main island, Mauritius, there are a few smaller islands scattered in the Indian Ocean the most important of which is Rodrigues. The main island has about 2,000 km^2, just over half of which is arable land; the rest is made up of rocks and mountainous slopes, too steep for cultivation. With the exception of a few rocky areas, mostly along the sea coast, the terrain does not pose much difficulty for land transport.

(ii) The road network consists of 1,787 km of classified roads. All roads are bituminized except for 176 km of rural roads, which have a gravel surface. The roads are classified into four categories: motorways, main roads, urban roads, and rural roads. Most of Mauritius' roads, with the exception of motorways, originated as agricultural tracks which were progressively improved but without proper studies for their layout or design. Due to the progressive improvements done, the road pavements are heterogeneous and structurally weak, and are in need of strengthening. There is also a lack of adequate drainage along most roads. Ministry of Works (MOW) is in charge of road construction and maintenance of main roads and its present organization and staffing is adequate.

(iii) Port Louis, the country's only deep-water port, has four berths, two of which are for container traffic. The port has also separate terminals for sugar export and for import of fuel. Under a Bank-financed project the port was expanded and modernized and its capacity has been significantly increased and is expected to be adequate to meet the country's needs in the foreseeable future. The Mauritius Maritime Authority (MMA) operates the port with administrative and financial authority under Prime Minister's Office. Cargo handling in the port is done by a newly established company — Cargo Handling Corporation (CHC) under the auspices of the Mauritius Marine Authority (MMA). The management of the port is satisfactory.

(iv) In view of Mauritius' long distance to the African mainland and the rest of the world, air transport has particular importance for international communication. Mauritius is served by ten airlines providing 26 scheduled flights per week to and from Africa, Asia, Australia and Europe. In addition to the international airport at Plaisance, capable of accommodating Boeing 747 aircraft, there is a small airport on Rodrigues island served by Air Mauritius a few times per week. The Civil Aviation Depart-

ment (CAD) is responsible for air transport operations in the country. The Government-controlled national airline Air Mauritius (AM) is financially and administratively autonomous; it has been well-managed and steadily growing.

(v) The cost recovery in the transport sector has been generally satisfactory. MMA and AM operate with rising profit, while CAD makes an operational profit in running the airport. On the other hand, in road transport the Government-owned bus company, NTC, is struggling between small profits or losses, while the privately-owned companies have been facing increasing financial difficulties, which were more pronounced in 1983 and 1984. This stems partly from internal weaknesses of the carriers on the one hand and the inadequate role of the National Transport Authority in regulating the industry and insufficient support of the Government through tariff, credit and fiscal policies on the other.

(vi) The Ministry of Economic Planning and Development (MEPD) overviews the development in the transport sector through its section for infrastructure. However, responsibility for the management of the sector is divided among various ministries/departments. MOW is responsible for development and maintenance of motorways and main roads, while the upkeep of rural and urban roads is the responsibility of local authorities; NTA is in charge of the road transport industry; MMA handles port operations while CAD is responsible for planning, regulation and operation of air transport. At present there is no integrated economic plan for the country and none for the transport sector.

(vii) There are no essential problems with the basic transport infrastructure, which is generally adequate to serve the needs of the main island of Mauritius. Some improvements/modernization of the infrastructure is, however, warranted. Three principal issues for which there are no quick solutions emerge in the sector: (i) public passenger transport; (ii) air access policy; and (iii) cargo handling in the port. Problems in the public transport have been mounting for many years. There are three types of carriers in Mauritius which are generally sharing the market close to one third each: individual operators, four privately owned bus companies, and the Government-controlled company NTC. The situation for the four remaining privately owned companies has been deteriorating. Main problems facing the passenger transport are two-fold — inadequate transport service and deteriorating positions of privately owned companies; specifically, they could be summarized as follows: aging busing fleet, lack of fleet standardization, low tariffs, major increase in various duties and taxes on bus imports, failure of individual carriers to stick to official schedules; inadequate management and low operational efficiency in some of the companies; inadequate criteria for issuance of route licenses to carriers and difficulties in obtaining loans or bank guarantees from commercial banks for purchase of new buses.

(viii) Determination of an appropriate air access policy for Mauritius is directly related to its tourism development. The problem of Mauritius accessibility to foreign tourists became more pronounced in 1983/84 after

three airline companies with scheduled flights to Mauritius pulled out. The Government's air access policy so far has been restrictive for internal security reasons and also in order to protect the only domestic airline (Air Mauritius). Consequently, no initiative has been shown so far to develop charter flights and to make a more attractive access policy for airlines with scheduled flights to Mauritius. Inefficient use of available hotel capacity, particularly in the off-season period (April till November) and upcoming additional capacity under construction call for urgent review of Government air access policy. In regard to cargo handling in the port, there has been inefficiency in operations coupled with surplus labor.

(ix) The transport sector strategy has not yet been clearly established. However, following Government's priorities listed in the Public Sector Investment Program, indications are that its general approach is to assign priority to completion of ongoing projects and to rehabilitation/improvement of existing infrastructure. Such an approach appears reasonable. In the latest PISP (1984/85-1986/87) the share of transport investments is 16.7 percent with total investments in the three-year period of MR 727.0 million (about US$49 million equivalent). The earmarked investments would amount to 48 percent for roads, 37 percent for civil aviation and 15 percent for the port. The share of the transport investments is about average for the countries of the region.

(x) The Government's strategy in regard to the two major issues in the sector — public passenger transport and air access policy — remains to be fully defined. Concerning the passenger transport, the recently completed Public Transport Study fell short in addressing all relevant issues; further work is therefore required. In civil aviation, the Government is undoubtedly committed to development of international tourism on the one hand and to the support of the development of its airline (AM). However, continuation of the present (restrictive) air access policy vis-a-vis foreign carriers may lead to drawbacks in tourism development in the first place and in turn to a slow down in aggregate foreign exchange earnings.

(xi) Principal policy measures needed in the sector could be summarized as follows:

Improvement of passenger transport. This needs to be approached from two aspects: (i) reorganization of public transport service through a new routing and licensing system which will provide more rational and reliable service based on economic criteria; and (ii) reassessment of the policy toward privately-owned bus companies with regard to facilitating their position.

Air Access Policy: Gradual liberalization of air access policy is needed. In a cautious approach and on a trial basis one or two charter companies could be engaged on routes which are not presently served by scheduled flights, preferably to open up new markets. The study on Air Travel Marketing Strategies (included in the Bank's Technical Assistance Project) should start as soon as possible.

Cargo handling in the port. Present disincentives in the system of remuneration for CHC staff need to be replaced with a bonus system which should provide adequate incentive for the increase of workers' output; furthermore, work discipline could also be improved by establishing a code of conduct for workers which, once accepted by the unions, should be enforced.

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

I. ECONOMIC BACKGROUND AND THE ROLE OF TRANSPORT

1.01 Mauritius (see Map IBRD 16945) is situated in the Indian Ocean about 2,400 km from the African mainland. In addition to the main island, Mauritius, there are a few smaller islands scattered in the Indian Ocean the most important of which is Rodrigues. The main island has about 2,000 km^2, just over half of which is arable land; the rest is made up of rocks and mountainous slopes, too steep for cultivation. With the exception of a few rocky areas, mostly along the seacoast, the terrain does not pose much difficulty for land transport. The country is, however, subject to cyclones between December and March which sometimes cause severe damage to the infrastructure and the whole economy.

1.02 The population of about one million on the main island (1983), with the highest density in Africa of about 500 inhabitants per km^2, grew at about 1.6% per annum over the period 1977-83. In addition, about 35,000 people live on the other small islands. Due to the high density and close proximity of urban areas to one another, it is difficult to make a distinction on the main island between urban and rural areas. This is also reflected in the road traffic patterns on the island. Being away from mainland, external communications play a vital role in Mauritius' economic development, i.e. both air and ocean transport. On the other hand, road transport is the dominant transport mode on Mauritius, while inter-island communication is generally light and irregular.

1.03 Mauritius basically has a monostructural economy with about 90 percent of arable land under sugar cane crop; sugar accounts for about 60 percent of export earnings. The economy is therefore extremely sensitive to fluctuations in both sugar production and its world market price. Gross national product (GNP) per capita was about US$1,150 in 1983, placing Mauritius in the moderate income group of developing countries. An unprecedented increase in sugar prices in the early seventies helped Mauritius' GNP grow at a high rate of 8.3 percent per year in the period 1970-78. However, in the late seventies the country's economic situation started to deteriorate markedly following the decline in sugar prices, increase in petroleum prices and two successive bad sugar crops (1980/81 and 1981/82). This was further aggravated by an expansionary fiscal policy which continued after the sugar-boom period. As a result, in the period 1978-83 GNP grew only at 0.7 percent per year.

1.04 In 1979 Mauritius embarked on a stabilization program working closely with the IMF and the World Bank which led to a reduction of the overall fiscal deficit, significant reduction of the domestic inflation rate (about 6 percent in 1983) and an increase in export growth. Consequently, in the period 1982-84 GNP in constant prices increased at 1.8 percent per annum. As the economy showed signs of recovery in 1984 and following the favorable impact of domestic economic policies to stabilize the economy and encourage its diversification and export-led industrialization and tourism, there are indications that in the period 1985-90 the economy will return to an increased growth of GNP to about 5 percent per annum. Transport as a service sector is expected to play an instrumental role in this recovery; in particular, in the field of air access policy, the civil aviation sector could play a major role in the development of tourism and thus of the economy as a whole.

1.05 In the absence of a national transport study, the Bank Group's knowledge of the transport sector in Mauritius is fragmentary. A TSM was prepared in 1979 and issued in Grey Cover in 1980 (Report No. 2962-MAS). More recent information is based on our experience in the road subsector due to the Highways Project (Ln. 2737-MAS) and in the port subsector, for which a PCR for the Bank-financed port project (Lns. 976 and 1330-T) was completed in 1984. Information on road transport recently became available after a Public Transport Study was completed in December 1984.

II. TRANSPORT INFRASTRUCTURE

2.01 The transport system of the main island of Mauritius is simple; it comprises about 1,800 km of roads, of which 90 percent are bituminized, one deep-water port at Port Louis, and an international airport at Plaisance. There are no railways, pipelines, coastal shipping or inland waterways. As the port and the airport are for external communications only, road transport is the only means of internal communication. Roads, however, with a few exceptions, have low geometric design standards, but the accessibility is very good. Transport communication with the other sparsely populated islands is irregular except for the island of Rodrigues, to which Air Mauritius provides service with small aircraft.

A. The Transport System

(a) Road Subsector

(i) Road Network and Administration

2.02 The road network consists of 1,787 km of roads which are classified into four categories: motorways, main roads, urban roads, and rural roads (Annex I, Table 1). Motorways and main roads combined constitute about 43 percent of the network, while the balance is made up of urban and rural roads. All roads are bituminized except for 176 km of rural roads, which have a gravel surface.

2.03 The motorways comprise the Port Louis-Phoenix link (15 km) and the Port Louis-Pamplemousse link (11 km), which serve to relieve traffic congestion in and around Port Louis. The main roads constitute principal links of the country's road network and connect district headquarters and main population centers with one another and with Port Louis, the capital. The urban roads are defined as those roads other than motorways and main roads lying within the boundaries of proclaimed municipalities, and the rural roads as being roads other than motorways and main roads lying outside municipal areas. The latter form the tertiary network serving local population centers and agricultural areas. The diagonal road link between Port Louis in the North and Mahebourg in the South forms the principal route connecting the towns of Beau-Bassin, Rose-Hill, Quatre Bornes, Vacoas Phoenix, and Curepipe to the Plaisance Airport. The density of the road network (0.9 km per km ^{2}) is the highest in the Eastern and Southern African Region; accessibility is good and almost every village on the island is served by an all-weather road.

2.04 The organization of the roads sections of the Ministry of Works (MOW) is sound. The Technical Division (TD) under MOW is in charge of road maintenance in five regions (Chart I); the works are carried out under the supervision of an Inspector of Works who, in turn, is responsible to a Chief/Senior Inspector, under the overall control of the Principal Engineer (Roads) in MOW. Routine maintenance is done by force account with the help of road gangs, each covering an average of 5-10 km of road, while road

resurfacing is carried out by special gangs (one for nine districts each) using equipment-intensive methods.

(ii) Vehicle Fleet and Traffic

2.05 The motor vehicle fleet in 1984 totalled about 57,500 vehicles of which 2,700 were owned by the Government. The relative size of the fleet is one of the largest in Africa — 17 inhabitants per vehicle. Over the period 1978-84, the fleet was, however, stagnating and the average annual growth of the fleet was only about 2 percent. This was mainly due to the prevailing economic situation in the country on one hand, and the already big fleet size relative to the country's needs on the other. The highest growth recorded was for vans and pick-ups (4.9 percent). Composition of the fleet shows that it is dominated by light vehicles (85 percent), while trucks make up 7.8 percent and buses 2.5 percent; the balance is made up of other (special) vehicles (Annex I, Table 2).

2.06 Systematic traffic counts have been carried out on the main road network since 1976/77. Due to limited budget the traffic counts annually cover about one-third of the road network. The traffic volumes on the main roads are high — generally exceeding 1,000 vehicle per day (vpd); some road sections, particularly in urban locations, carry several thousand vpd causing occasional traffic congestions. Freight transport demand of agricultural sector is presented in Annex II.

2.07 The Traffic Management Unit (TMU) under MOW, is in charge of the counts, which are carried out mostly by automatic counters. TMU reports to the Permanent Secretary of MOW and is well-staffed: its staff of 25 people includes 2 civil engineers, 1 traffic engineer, 1 economist and 1 statistician; in addition to the traffic counts, TMU is also responsible for traffic signs and advises MOW on vehicle weight regulations and bus stop locations.

2.08 The road traffic accident rate has been on the decline since 1979 (Annex I, Table 5), but is still relatively high taking into account the size of the population. Vehicle technical inspection — fitness certificate — is issued by National Transport Authority and is obtained on the basis of an inspection in the vehicle examination center. For new commercial vehicles the certificate is issued for one year in the first instance and for three months to one year thereafter, depending on the state of the vehicle. For new private cars, there is one vehicle inspection in the first year, none for the following six years and annually thereafter. Road traffic regulations are enforced by police traffic units.

2.09 Under the Road Traffic Ordinance (1962), the Government is empowered to prescribe maximum laden weight and maximum axle-load of vehicles. According to the current regulations, no vehicle with a gross vehicle weight in excess of 22 tons is allowed to ply on public roads, except with the special permission of the Commissioner of Police and the Permanent Secretary of the MOW. However, no limit has been fixed for the axle-load. The Government is now preparing new legislation which is expected to retain the maximum gross vehicle weight limit of 24 tons and to make regulations fixing the maximum axle-load of vehicles; the maximum load for a single axle is proposed to be 10 tons which is appropriate. New regulations for

vehicle weight, axle-load and dimension were expected to be issued by the Government in 1985.

(iii) Fuel Consumption and Price

2.10 The consumption of gasoline has been declining since 1980 due to difficulties in the economy and shortage of foreign exchange which called for import restrictions. In the period 1980-84, the average annual increase in gasoline consumption (super) was about 1.5% (Annex I, Table 3). The consumption of diesel fuel decreased in the same period by an annual rate of 0.4%. In 1984 the Government with FAC assistance undertook a project to explore possible energy savings in freight transport. An analysis has been carried out to assess the use of alcohol (from biomass) for trucks; the results were expected by mid 1985.

2.11 The fuel pricing policy of the Government is reasonable; there are no subsidies. The retail price of gasoline (super) is US$0.55 per liter or US$2.08 per US gallon and of diesel fuel US$0.32 per liter or US$1.21 per US gallon (Annex I, Table 4). The import duties on fuel, about 36 percent of the retail price for gasoline and 10 percent of retail price for diesel fuel, are the major source of Government revenues from road users (Annex I, Table 6). About 50 percent of fuel imports is done by the State Trading Corporation, while the other half is made up by four private foreign owned companies (Shell, Caltex, Esso, Total).

(iv) Road Transport Industry

Background

2.12 In the mid-seventies there were about 1,100 buses operated by ten privately owned companies. At that time deterioration of bus services was recorded and attributed mainly to: (i) rapid increase in public transport use and the inability of the companies to respond to increased demand; (ii) inadequate policies of bus companies — absence of timely replacement of buses, poor accounting, etc.; (iii) rising operating costs due to fuel price and wage increases not adequately reflected in tariffs; and (iv) shortage of trained bus operators and maintenance personnel. Furthermore, related road transport infrastructure had not been developing to meet the rise in passenger demand caused by economic and social development.

2.13 In order to improve the situation in the industry and increase the capacity, the Government decided in December 1978 to allow private individuals to enter and operate transport services. Subsequent development has shown that this "open door" policy did not produce a positive effect in the industry and it was abolished four years later (para. 2.15). In 1979 a parastatal company was created, while five out of ten private companies went out of business mainly due to poor technical and financial management. Instead of having public transport improved, the late seventies and early eighties showed deepening problems in the industry. In the period 1972-83 the number of passengers carried continued to rise, reaching index 215 (1972=100), while indicators for vehicle trips and vehicle miles had erratic movements, indicating deficiencies in the industry; e.g. in absolute terms, vehicle trips in 1983 were at the level of 1974, with peaks in 1976 and 1981, while in regard to vehicle miles the peak was reached in

1975, and 1983 was at the level of 1974. To address the problem of passenger transport, the Government set up a Commission of Inquiry in August 1982. The principal task of the Commission was to look into restructuring of the industry with a view to increasing its efficiency. The Commission's final report is not available.

Present Situation

2.14 Passenger transport is now regulated, while freight transport is generally deregulated. The former is handled by five major transporters with a total fleet of about 725 buses and by about 260 individual owners with about 380 buses. The busing fleet is aging and about 50 percent of buses are seven years old or more. The National Transport Authority (NTA) regulates tariffs in passenger transport. The latest tariff came into effect in August 1984; (Annex I, Table 15); the increased rate was intended to cover all the costs and to enable the carriers to operate on a commercial basis. The latest tariff increase (8 percent on average) does not satisfy the major private carriers (para. 4.05).

2.15 Due to a "laisser faire" policy exercised in the past by NTA, there is a surplus of buses today. As of 1982, however, NTA has started to limit entry into the passenger transport industry and to approve renewal of the existing fleet only. Consequently, no fleet expansion is now allowed. Nevertheless, particularly during off-peak periods, the supply exceeds passengers' demand and due to surplus capacity of the bus fleet, there is fierce competition among the carriers and going out of business is not unusual. Out of nine major privately owned carriers in the early 1970s, only four survived in 1984, due to several pertinent factors summarized in para 2.12. The bus companies compete on major routes which are more lucrative by offering better service. On the routes where individual operators are licensed (companies are not assigned to the same routes) there is fierce competition, leading to disruption of assigned schedules and to undercutting of official tariffs. At the present, depending on the route and existing demand, 1-40 individual operators could be assigned to the same route. Needless to say, in view of the limited control exercised by NTA, the service is not satisfactory.

2.16 One of the five major carriers in passenger transport is the National Transport Corporation (NTC), the only parastatal company, created in 1980. NTC has a fleet of about 330 buses, five years old on an average, covering about 30 percent of the passenger transport on the main island. About 75% of its fleet is always in use and the load factor is about 65%. So far, its operations have been generally satisfactory, although its financial position started to deteriorate after operating with a small profit, and in FY85 a loss of MR 4 million is expected. NTC reports to a Board of Directors composed of various ministries and local authorities.

2.17 Public passenger transport in Mauritius has, however, not been satisfactory for years. The Government was aware of numerous problems impeding efficient operations in the industry (listed in para. 4.04) and agreed to undertake a Public Transport Study under the Urban Rehabilitation and Development Project (Ln. 1926-MAS). The study was financed by the Saudi Fund. The Bank had an opportunity to comment upon the terms of reference (Annex VII) but the comments were not adequately reflected in the

final version of the TOR. The study started with delays and was completed in December 1984. The Loan Agreement of the Highways Project (Ln. 2337-MAS) requires the Government to exchange views with the Bank on the study's findings prior to taking any follow-up action. Main problems related to passenger transport are addressed in more detail in Chapter IV.

2.18 Freight transport is fully carried out by private operators. There are about ten major companies and hundreds of individual carriers with about 4,000 trucks in public use. The capacity is slightly higher than the demand, which has been stagnating for years (Annex II). There are no restrictions for entry into the industry and no official tariffs. The transport rates are negotiable; the rate for the main client — the sugar industry — are regulated by contract; actual rates applied range between MR 0.8-1.2 per ton km, depending on haul, load, vehicle size and commodity type. Renewal of trucks is one of the major problems of the truckers since the average age of the trucks is about nine years; taxes and duties combined are high, reaching to about 150 percent of c.i.f. truck value, and for spare parts and tires they are up to 200 percent of c.i.f. value. The level of taxation on import of buses is even higher and is presented in para. 7.02(g). While the passenger carriers are organized into three unions, freight transporters have no union.

2.19 NTA (Chart II), an independent authority, regulates the industry (tariff for passenger transport, licensing, vehicle technical inspection). It reports to the Board appointed by the Minister of Works. Import of new buses has to be cleared with NTA, which also assigns routes to passenger transport carriers; the control, however, is lax mainly because NTA does not have sufficient staff for systematic control of routes, fares and timetables. NTA has only about 12 road inspectors, 15 vehicle examiners, 20 collectors and other support staff; MOW provides an engineer on a part-time basis, but NTA lacks an economist for evaluation of transport costs, tariffs and appropriate size of the public transport fleet. For example, the latest tariff revision in 1984 was prepared by a committee — appointed by MOW — whose principal members were expatriate advisers of the Government. Furthermore, NTA lacks a microcomputer where the necessary updated information will be stored and easily accessible. Therefore, it could be concluded that the current — unsatisfactory — state of the industry is also due to the inadequate role NTA has played as the regulator of the industry.

2.20 The Government, with the Bank's assistance (Bank project — Sugar Action Program in FY86), intends to reorganize the sugar industry, which is expected to lead to a reduction in the number of sugar mills (at present there are 21). In February 1985 the Mauritius Sugar Authority prepared an Action Plan for the Sugar Industry 1985-90. In 1985 it is expected that only two smaller mills (handling less than 4% of all sugar cane transport) may close, i.e. Solitude in the northwest and Reufaccnear Vacoa. At this stage, however, no substantive information is available which would permit an analysis of possible future changes in sugar cane and bagasse transport pattern on the islands. This will require attention in the future as well as possible feeder road construction due to the expected centralization of the sugar industry.

2.21 Concerning future industrial development and its possible implications on road transport, the preparation of industrial projects included in the PSIP, i.e. construction of seven regional industrial estates and Vacoas-Phoenix industrial estate, is still at an early stage and the volume of transport demand and its structure to be induced by the projects is not yet known. However, since the estates will be engaged in the textile and garment industry and investments earmarked for the projects are relatively small, it is plausible to assume that the size of the projects will not induce major transport volumes. As Mauritius' road network is very dense and 90% bituminized, it is unlikely that the projects will create particular transport problems for the country.

(v) Engineering and Construction

2.22 MOW is responsible for planning, design, construction and maintenance of motorways and main roads. Rural roads are administered by the Ministry of Local Government and three district councils, while five municipal councils are in charge of urban roads. MOW is adequately staffed. In the implementation of the Bank-financed Highways Project the Government agreed to create a Planning Unit (PU) in MOW to improve planning of road investments, project preparation and monitoring of execution of works. The unit was established in late 1983 and became fully staffed about a year later. PU is now carrying out, with assistance from FAC, a road network inventory which is scheduled to be completed in 1985.

2.23 The TD of the MOW carries out minor road and bridge design using its own staff, while all economic feasibility and detailed engineering studies are done by foreign consultants. As is the case with studies for the roads included in the Bank financed Highway Project, foreign consultants sometimes form joint ventures with local firms. For new roads, standards based mainly on those developed by the UK Department of the Environment or the French Ministry of Equipment have been followed with certain modifications to suit local conditions (Annex I, Table 8). The Development Works Corporation (DWC), a parastatal organization established in 1970 under the Ministry of Employment undertakes a variety of civil engineering works both in urban and rural areas. The Technical Assistance Project approved in 1983 and related to the SAL includes, inter alia, assistance for restructuring the DWC which is expected to be given financial autonomy in 1985. While there is a large number of private firms in the country who can handle building contracts, there are only a few firms capable of undertaking large road works. However, there is no scope for a larger number of firms to develop, as the construction industry is faced with the problem of erratic demand for works.

(b) Ports Subsector

(i) Port Facilities

2.24 Port Louis, the country's only deep-water port, has four berths, two of which are mainly for for container traffic. It also has separate terminals for sugar export and for import of fuel, fertilizer and cement. Under a Bank-financed port project (para. 7.01) the port was modernized and its capacity was significantly increased ; it is expected that the capacity will be adequate to meet the country's needs in the foreseeable future.

Waiting time for ships has been completely eliminated and the port generally has become more efficient. Currently the construction of a food grain facility at the port is being considered to be financed with African Development Bank and BADEA assistance; its timing and economic viability, however, have not been established as yet. A master plan study for future land use in the port area (until the year 2000) is financed by FAC; the draft report was completed in April 1985 and a copy will be sent to the Bank for comments.

2.25 Traffic in the port has been lower than anticipated; the volume is heavily influenced by sugar production and its export, which on average is about 600,000 tons per annum, compared to total port traffic of 1.7 million tons in 1983/84. In the period 1978/79-1984/85 traffic in the port declined an average of 2.1 percent per year (Annex I, Table 9) due to the economic difficulties in the country and resulting reductions in external trade. Consequently, the rate of occupancy in the port is not satisfactory and the percentage of vacant berths in 1984 is 39-53%, slightly higher than in 1983 (Annex I, Tables 10 a, b). Container traffic, however, has been gradually increasing, reaching about 236,000 tons in 1984/85, or 13 percent of the total port traffic. Cargo handling in the port is carried out by a newly established company — Cargo Handling Corporation. The management of the port is generally satisfactory; all its staff except some pilots are local.

(ii) Mauritius Marine Authority

2.26 The MMA operates with administrative and financial autonomy under the Prime Minister's Office (PMO). Following MMA's establishment in 1976, the effective start-up was slower than anticipated. However, following the Bank-financed port project, a technical assistance program financed by UNDP and subsequent filling of managerial positions, MMA is now functioning efficiently and has trained staff in senior positions. MMA is financially sound; the port has been operating with profit and by FY85 accumulated net profit reached about MR 80 million. Attention was given to training; in October 1984 MMA formally established a Training Center to train supervisors in cargo handling and administrative staff; the Center is not yet operational.

(iii) Cargo Handling Corporation Ltd.

2.27 The Cargo Handling Corporation Ltd. (CHC) was created as a parastatal in October 1983 when it took over all cargo handling activities in the port from one shore handling and three stevedoring companies — all private companies. Consequently, CHC now has a monopoly in cargo handling and the new company has taken over most of the staff and assets of the old private companies. The initial capital of CHC is MR 1.0 million and is shared by the Government (60 percent) and by MMA (40 percent). CHC reports to MMA and then to the PM office. The company is now trying to resolve longstanding problems in cargo handling in the port — low productivity and high cost and size of the labor force. CHC employs about 1,500 and is over-staffed. This issue is discussed in more detail in Chapter IV.

2.28 CHC is responsible for handling general cargo, containers, fertilizers and fish. Petroleum products, fertilizers and cement are pumped

through pipelines and are not handled by CHC; this similarly applies to sugar, which is exported in bulk by Mauritius Sugar Board Transport Company. CHC owns the following equipment: 3 tugs, 7 workboats, 40 lighters, 11 forklifts, and 4 uniloaders. Shore handling equipment is entirely owned by MMA. In financial terms, the results are mixed; namely, in two years (FYs 84 and 85) total accumulated operational profit reached MR 1.15 million; however, due to additional payments made to retiring staff, paid leave, etc. in 1984/85, an overall loss of MR 9 million is expected. The handling charges appear high, mostly due to the inefficiency of operations, and they are passed on to the port users. The cargo-handling on the second largest island of Rodrigues is carried out by a private company (PAPOL).

2.29 Average port charges for container and general cargo ships (Annex I, Table 16) are generally in line with charges of similar ports in the region. However, cargo handling charges by CHC (Annex VI) are generally higher in comparison to charges in other ports of the region. Over 90% of its costs are labor-based; in addition to surplus labor, rates for handling rice and flour, set by the Government, are not cost-based. In order to cross-subsidize these rates (which are about 1/6-1/8 of their estimated cost) other cargo handling rates were increased. Furthermore, container and bulk cargo rates need to be stipulated since the existing set of charges (Annex VI) of October 1982 is unduly complex.

(iv) Shipping

2.30 There are four conferences serving Port Louis: Cimacorem, Entente de Frets, Red Tariff, and Far East/East Africa; in addition to the several shipping companies in the conferences there are 18 other shipping lines serving Mauritius. There are also two small shipping companies owned by Mauritius: Colonial Steamship Company and Societe Mauritienne de Navigation. Each owns one ship and in 1983/84 the two vessels combined transported 64,000 tons, or less than 4 percent of the total traffic in Port Louis; 20,000 tons was attributed to inter-island transport, with Rodrigues. The Government is concerned about improving inter-island shipping which is impeded by long distances and also by limited demand on the small islands. The Government has been engaged in setting up a shipping line in the form of a joint shipping venture for bulk cargo trade with Europe; a fleet of three bulk carriers is being considered with the Government share in the venture. Also, the Government is considering creating a shipping corporation for inter-island transport of general cargo.

(c) Air Transport

2.31 In view of Mauritius' long distances to the African mainland and the rest of the world, air transport has particular importance for international communication. Mauritius is served by ten airlines (Air Mauritius, Air France, Air India, Air Malawi, British Airways, Tanzania Airways, South African Airways, Zambia Airways, Lufthansa and Air Madagascar) providing 26 scheduled flights per week to and from Africa, Asia, Australia and Europe. In addition to the international airport at Plaisance, capable of accommodating wide-body aircraft, there is a small airport on Rodrigues island served by Air Mauritius a few times per week.

2.32 Passenger traffic at the Plaisance airport has been growing steadily at an annual rate of about 2.2 percent, reaching about 387,000 passengers and 7,920 tons of freight in 1984/85 (Annex I, Table 12). The airport in Rodrigues handles only 7,200 passenger and 21 tons of freight. With the growth of tourism, the traffic at Plaisance airport is expected to grow further, which in turn requires improvement and modernization of airport facilities (Annex III). However, the number of companies serving Mauritius has been declining (there were 12 in 1982) and the Government plans for tourism may not be supported by its present air access policy. That is one of the sectoral issues discussed in Chapter IV.

(i) Civil Aviation Department

2.33 The Civil Aviation Department (CAD) was established in 1946 and is responsible for air transport operations in the country. It actually has a dual function — regulatory (air safety, air worthiness, flight operations, landing rights and airport related taxes) and operational (operating of the Plaisance and Plaine Corail airports). CAD has no expatriates and employs about 600 people. According to its assessed staffing needs, CAD has a shortage of staff in certain positions such as two engineers — an air worthiness surveyor and a flight safety officer. Revenues from landing charges, airport tax at the international airport, and other revenues go to the general budget of the Ministry of Finance. Overall financial performance of CAD is satisfactory; in three fiscal years (1981-83) CAD made a total operating profit (not including capital costs) of MR 16.3 million.

2.34 CAD needs reorganization, particularly in order to separate its regulatory and operational functions, as it is the case in most countries. This would mean that an independent organization needs to be created to be in charge of the airport and run in on a commercial basis. CAD would, however, concentrate on regulatory matters in civil aviation. CAD, like MMA, reports to the Principal Assistant Secretary for external communication, who in turn reports to the Permanent Secretary in the Prime Minister's Office (PMO). The existing institutional arrangement for overviewing the sector is, however, inadequate and needs improvement. It should also be mentioned that neither MMA nor CAD express major difficulties with the present organizational set-up, possibly due to a lesser degree of control. This matter is reviewed further in Chapter III.

2.35 In addition to CAD there is an Airport Project Unit which was established in 1975. The unit is in charge of preparing and monitoring all airport projects in the country. At present, its main activity is a two-phase modernization/expansion program of the Plaisance international airport. The unit reports directly to the Permanent Secretary in the PMO.

(ii) Air Mauritius

2.36 Air Mauritius (AM) is financially and administratively autonomous but is a Government-controlled airline which has been well-managed and is steadily growing. AM has mixed ownership with the Government share of 51 percent, the balance being made up by British Airways, Air France, Air India and Rogers and Co. AM operates six aircraft to ten countries: one B-747, two B-707 (to Rome, Zurich, London, Nairobi, Bombay); B-737 (to

Nairobi, Johannesburg, Reunion and Moroni); and Twin Otter and HS 748 (to Rodrigues). The B-747SP, B-737 and HS 748 are leased, while the other aircraft are owned by AM. Due to improved efficiency of operations — increased load factor (which reached 69 percent in 1983/84), opening of new profitable routes and cutting down on operating costs, a cumulative profit of about MR 153 million was achieved in the three-year period FY82-84. For 1984/85 the expected profit is MR 40 million. The number of passengers carried by AM increased in FY84 to 125,000. Local staffing is being improved; in 1984 there were still 16 expatriates, mainly pilots and flight engineers. AM operations expanded with a newly leased B-747SP from South African Airlines (November 1984), when routes to Nairobi, Paris, London, Rome and Zurich were opened; in June 1985 AM opened a new route to Singapore (with B-707). AM has also been paying due attention to training and has been systematically sending its staff to the U.K. and France.

2.37 With its able and ambitious management, careful marketing analysis and sound financial position, AM intends to further expand its operations in Western Europe, the Far East and to possibly open a line to Australia. However, it seems that AM has been facing protectionism from some countries, which impedes its development plan. With coming stricter noise regulations in EEC countries from 1986, AM owned B-707 aircraft would not be acceptable to those countries and the decision to lease long-distance aircraft (B-747SP) for two years seems to be prudent, although the B-747SP has drawbacks of its own (e.g. higher fuel consumption). If the trend of profitable operations continues, it is expected that AM will gradually increase its fleet with modern new aircraft. AM has purchased a small aircraft (45 seats) for routes to Rodrigues, Agalega and Reunion. As the routes are of limited demand, acquisition of a fuel efficient aircraft (ATR 42) appears reasonable. It should also be noted that at present AM fleet is under-utilized and the company is exploring expansion to new markets. However, the development of AM operations will also depend on future air access policies of the Government, and naturally, AM is very concerned that no significant change vis-a-vis air access to Mauritius takes place (para. 4.12), since in 1983/84 AM carried about 36 percent of all landing and departing passengers at Plaisance airport and its share is on the rise.

(d) Cost Recovery in the Sector

2.38 Cost recovery in the transport sector has been generally satisfactory. MMA and AM operate with rising profit; CAD makes an operational profit in running the airport, while the CHC makes a small operating profit in handling cargo in the port, which is offset by sizeable payment to staff. On the other hand, in road transport the Government-owned bus company, NTC, is generally breaking even. The privately-owned segment of the transport industry, both for passengers and freight, has been facing increasing financial difficulties, which were more pronounced in 1983 and 1984. This stems partly from internal weaknesses of the carriers on the one hand and inadequate support of the Government through tariff, credit and fiscal policies on the other (para. 4.05). As a consequence, they have been encountering either small losses or are breaking even.

B. Main Problems

2.39 There are no major problems with the basic transport infrastructure, which is generally adequate to serve the needs of the main island of Mauritius. However, some improvements/modernization of the infrastructure is warranted. Also, transport communications with remote and sparsely-populated islands (other than Rodrigues) need improvement. Due to the very low level of population (less than 20,000 inhabitants combined) and consequently limited demand, the economic criteria for providing new infrastructure facilities may not be the only consideration.

(i) Roads

2.40 Most of Mauritius' roads, with the exception of motorways, originated as agricultural tracks which were progressively improved but without proper studies for their layout or design. Due to the progressive improvements done, the road pavements are heterogeneous and structurally weak, and are in need of strengthening. There is also a lack of adequate drainage along most roads. Many roads are confined between agricultural (sugarcane) fields, with not enough room to provide adequate shoulders and side-drains. The road reserve, about 1.5 m on either side of the pavement, meant for depositing materials, etc for road maintenance is often encroached by farmers with their plantings. Under the Road Ordinance (1966), Government has the authority to prescribe improvement lines for road widening; however, due to the strong lobby of the sugarcane industry in the country, land acquisition is expensive, difficult and time consuming.

2.41 In 1984/85 an inventory of the road network was carried out, covering about 750 km of main roads. Based on results obtained by the study, a five-year program (1987/88-1991/92) has been prepared, calling for upgrading of about 150 km of the main road network (pavement strengthening, improvement of drainage, horizontal and vertical alignment, etc.). MOW intends to upgrade the roads to the design standards accepted for the roads identified in the Bank-financed Highways Project (Annex I, Table 8). As the Government is short of resources to finance the road improvement program (total revenues from road users in 1983/84 reached US$9.3 million), external aid agencies are likely to be called in for assistance. The road improvement program deserves the full attention of potential donors (para. 6.08).

2.42 Although the organization of road maintenance is adequate, the quality and quantity of road maintenance has been less than satisfactory. Because of the lack of adequate funds, the TD had been unable to purchase necessary road maintenance equipment, materials such as bitumen, fuel, spare parts, etc. A number of paved roads had not been resealed for some ten years or more. The more heavily trafficked roads show serious deterioration in the form of surface deformation, potholes and cracks. The situation was partially alleviated by the resurfacing work done on certain roads under the Cyclone Reconstruction Program financed by the AfDF in 1980.

2.43 Due to the structurally weak pavements and inadequate drainage, widespread damage was caused to roads. Under the Highways Project financed

by the Bank (para. 7.03), improvements of a selected part of the network are being carried out. MOW through its recently established Planning Unit commissioned a study (financed by FAC) on the appropriate type of bitumen to be used on the road network; the study was planned to be completed in 1985. In addition, a road inventory is being carried out (financed by FAC) which is expected to be completed in the second half of 1985, while a study on road maintenance needs and appropriate methods suitable to Mauritius' conditions will be completed by the end of 1985 (financed by FAC).

2.44 Past allocations for road maintenance were below requirements. Actual funds allocated for road maintenance are presented in Annex I, Table 7. Based on data provided by MOW, the estimated requirement of recurrent funds (without cost of administration) for routine and periodic road maintenance administered by the TD was MR 15.0 million in 1983 prices; that is a covenant of the Loan Agreement (Ln. 2337-MAS). In FY85 the minimum amount adjusted for inflation should be about MR 18.0 million. As of FY84, however, the funding of road maintenance has been improving (Annex I, Table 7) and meets the above requirement; in FY84 actual expenditures (excluding administration) were MR 28.6 million and in FY85 about MR 31 million. It should be noted, however, that the method of presentation of actual expenditures in road maintenance in MOW needs improvement; namely, it has been difficult to distinguish the expenditures on maintenance from those on road improvement and construction on the one hand and expenditures for labor and administration on the other. Streamlining of road maintenance funding is therefore necessary. In case the funding starts to decrease in the future, creation of a Road Fund with revenues earmarked exlusively for road maintenance could be considered. That would also guarantee the necessary minimum funding and liquidity. For example, the existing road tax, whose revenue appears adequate to cover recurrent road maintenance expenditures, could be considered by the Government for that purpose (Annex I, Table 6).

(ii) The Port

2.45 With the Bank's assistance the port at Port Louis was developed as a modern port, adequately equipped and managed. However, the utilization of existing capacity is low and the traffic volumes are below those originally anticipated under the port project. The port facilities for general cargo were estimated to be used in average at about 55 percent (Annex I, Tables 10 a and b) of available capacity in 1984; the utilization rate is lower than in 1983 and it would go down further if a theoretical port capacity with three shifts (round-the-clock operations) were to be applied. This development is mostly due to Government measures to reduce imports. The proportion of containerized traffic has, however, developed faster than anticipated and MMA has already taken necessary action to handle the growing traffic — a rubber-tired transtainer, tractors and trailers have been procured, while the land to the rear of Berth 4 has addition space to be developped as a modern container terminal. As the fishing port was completed in May 1985 (financed by grant aid from the Japanese Government) including a fishing quay 160 meters long and open sheds, demand for new capital investments in the port now became limited. In view of longer vessels' arrival in the future, necessary dredging of the port entrance area and acquisition of a tug is becoming necessary. These projects are addressed in Chapter VI.

2.46 The Bank-financed project, together with the recently constructed bulk sugar loading terminal, Ro-Ro vessels, increase of container traffic and increased mechanization have resulted in a substantial excess of port labor. The only lighterage operation still carried out is discharge of bagged rice, which would also be abolished if the proposed new cereal complex in the port is constructed. A surplus of labor and low productivity in cargo handling is reviewed in Chapter IV.

(iii) Airport Facilities

2.47 Airport facilities at Plaisance international airport need improvement and extension. To respond to the growing volumes of passengers at the airport and expected growth of tourist traffic, the investments at the existing airport became necessary after the Government decided not to go along with new airport construction in the north/east. After the runway was resurfaced and new lighting was put in place in 1983/84, the following major works were included (with the assistance of Aeroport de Paris) in a two-phase program: a new control tower 27 m high, a new terminal building (3,500 m^2), new navigation aids, meteorological equipment, a new parking area (for 700 cars and 20 buses) with an access road and aircraft parking area for three wide-bodied aircraft. The program phases (1982/83-1984/85 and 1985/86-1987/88) are being financed by aid (grants and loans) from France, the U.K. and the People's Republic of China.

2.48 Difficulties in communication with remote islands calls for finding a least-cost solution. Airport facilities on Rodrigues island were improved in 1984, while on the smaller island of Agalega, a low cost airstrip is being constructed. The works are financed by a loan from Caisse Centrale (France). The construction of the airstrip on St. Brandon island is temporarily delayed. More information is presented in Annex III.

III. PAST BANK INVOLVEMENT IN THE SECTOR

3.01 The Bank has so far financed two operations in the sector: the extension and modernization of the port of Port Louis and a highway project. The port project started with a loan of US$10 million in 1974 (Ln. 967-MAS). The loan financed the construction of two new berths, two tansit sheds, a workshop, an administration building, port entrance dredging, procurement of cargo handling equipment, and technical assistance. The project was later reassessed to reflect price increases caused by initial delays in implementation and a subsequent agreement to construct a third berth. In 1976 a Third Window loan of US$3.6 million (1339-T-MAS) was approved for the revised project. The port project was cofinanced by U.K. bilateral aid (US$3.0 million equivalent) and by UNDP (US$514,000) providing for the technical assistance to the port authority.

3.02 The project was successfully completed by the end of 1983, but with a delay of about four years. Its main objectives were met, although the port capacities are presently underutilized as a consequence of the fall in economic activities and reduction in export/import trade. The technical assistance included in the project was effective and the management of port operations has improved.

3.03 The second operation in the sector is the Highways Project, approved in 1983 (Ln. 2337-MAS) with a loan a US$15.2 million. The loan is financing strengthening/improvement of 75 km of main roads, improvement of MOW's main workshop, construction of a vehicle inspection center, procurement of road patching equipment, portable weighing bridges, and consultants' services. The main objectives of the project are to protect past investment and improve the design standard of selected main roads (reference Annex I, Table 8) and to strengthen MOW's capacity for road maintenance. The project had an initial delay, since it took over 15 months for the loan to become effective, mostly due to a loan effectiveness conditionality that access to road reserve and other land required for the project is ensured. For the major project component — road strengthening/improvement — the Government awarded the contract to the lowest evaluated bidder in September 1985 following ICB procedures. Due to the late start, the project is now expected to be completed in 1987, one year behind schedule.

IV. PRINCIPAL SECTORAL ISSUES

4.01 The transport sector, as presented earlier in the TSM, has several problems with various degrees of complexity. Many of them could be dealt with in the short term. However, three principal issues for which there are no quick solutions emerge in the sector: (i) public passenger transport; (ii) air access policy; and (iii) cargo handling in the port. The issues are presented below in summarized fashion, while the proposed action is presented in Chapter VII.

(i) Public Passenger Transport

4.02 Problems in the public transport industry have been mounting for many years. There are three types of carriers in Mauritius which are generally sharing the market close to 1/3 each: (a) 260 individual operators, who own about 380 buses; (b) four privately owned bus companies (UBS, RHT, TBS, MBT) with 390 buses; and (c) the Government-controlled company NTC with 335 buses. In regard to individual carriers, NTA does not have a grip on their operations; basic indicators per carrier, such as number of passengers carried, passenger/km, annual profit/losses, are not known. However, for the five companies, sufficient information is available which permit to identify the problems.

4.03 Privately owned companies have been complaining for years about their financial difficulties and inadequate support by NTA and the Government in general. In the period 1979-82, five out of nine companies went out of business. To fill the gap, the Government decided in 1980 to create NTC; its initial fleet was made up of buses of bankrupt companies and its operations generally made up for the loss of capacity of the private companies. It appears, however, that the creation of the parastatal company and later issuance of the Bus Industry Acquisition Act (1983) which allowed the Government the possibility of acquiring private buses, created a certain uneasiness in the privately owned segment of the industry. It should be noted, however, that the Act has not been implemented so far. In short, the situation for the four remaining privately owned companies has been deteriorating, while NTC, with certain Government support (such as loan guarantees for purchase of buses), is slowly expanding its operations. It should be noted that NTC operates under control of its Board and the Government.

4.04 Passenger transport has been faced with several problems resulting in inadequate transport service and deteriorating positions of privately owned companies; the indicators of the present situation could be summarized as follows:

- an aging busing fleet (average age, 7 years);
- a lack of fleet standardization (19 different makes);
- unreliable service due to frequent breakdowns leading to a low bus utilization rate, often less than 70 percent (only two out of five companies have good repair facilities);
- low tariffs (there was no adjustment in tariffs between December 1981 and August 1984);

- a major increase in customs duties and various taxes on bus imports, which now combined may go up to about 400 percent of c.i.f. bus price (up to 300 percent for buses imported from EEC and Commonwealth countries) and for spare parts reaching even 200 percent of c.i.f. price;
- inadequate management and low operational efficiency in some of the companies;
- structural and staffing weaknesses of NTA to cope with public transport problems;
- inadequate criteria for issuance of route licenses to carriers (not based on a in-depth analysis of the market, demand, and state of the road network);
- difficulties in obtaining loans or bank guarantees from commercial banks (except for NTC) for purchase of new buses;
- poor financial performance of privately owned companies in FY83 and FY84 (two encountered losses, while the other three broke even) also led to cash-flow problems;
- an absence of a fleet replacement program (except in NTC) partly due to uncertainty (as to whether they will be nationalized) prevailing among private companies;
- inadequate arrangements between NTA and carriers for the transport services (once a route is assigned to a carrier, there has been lack of necessary control over type of bus to be put into service and the frequency of the services on specific route); and
- absence of a union which would unite private carriers and represent their interest vis-a-vis the Government.

4.05 The most discussed and reviewed subject from those listed above was the bus tariff system. Under pressure from the bus companies, the Minister of Works appointed a Transport Tariff Committee to analyze the problem and come up with appropriate recommendations. The report of the Committee on bus fares was issued in July 1984 in which the Committee recommended new fares with an estimated average increase of 8 percent over December 1981 fares. The recommendation was accepted by the Government and a new tariff system became effective in August 1984. Excerpts from the Committee Report concerning operations of the bus companies are presented in Annex IV. The bus companies were, however, dissatisfied with the increase, claiming that an appropriate increase should be between 15-25 percent. With the exception of general references to price increases of specific items affecting their operations, the companies have failed so far to produce a "counter report" which would provide detailed calculations and substantiate their position. Although the validity of their criticism is questionable, it is certain that the overall environment in which the privately owned companies operate need wide-ranging changes, from technical matters (route rationalization) to Government policy (taxation, loan guarantees). Otherwise, in the absence of fleet renewal and if prevailing conditions listed in para. 4.04 continue, the companies will gradually phase out their operations.

4.06 There are also indications that the Government is giving consideration to consolidating about 260 individual carriers into cooperatives. If this materializes in a proper way, i.e. with the necessary assistance in accounting and management, that may put more order and efficiency into ope-

rations of the carriers. The four privately owned bus companies have been concerned in the past with the possibility of nationalization and until recently their fleet renewal has not been encouraged by the Government; a few months ago, however, the Government intervened at State Commercial Bank in favor of a private company (UBS) in order to enable acquisition of 44 buses intended for replacement. This Government action should not remain exceptional. Recommendations for possible improvements in public transport are presented in Chapter VII.

4.07 In order to address the above problems, a study of public transport [1/] was initiated by the Government, the Saudi Fund and the Bank with two main objectives: (a) to improve the efficiency and standard of bus services, and (b) to improve the public transport infrastructure (depots, workshops). The study was expected to present a detailed implementation program including a feasible route rationalization plan which could be monitored by NTA. TOR were not precise (Annex VII) or detailed which was, to some extent, relevant to the outcome of the study. The study was carried out by individual consultants with assistance from TMU and NTA staff in the period September 1983-December 1984. The focus of the study was the development of a route rationalization plan which would improve the efficiency and standard to bus services.

4.08 Although the study has its limitations (para. 4.12), it has presented valuable data collected through an extensive, island-wide investigation, which resulted in a thorough evaluation of present service levels as well as transport supply and demand on the existing routes. In order to achieve an appropriate match between supply and demand, the study has prepared a route rationalization plan, which also takes into consideration profitability factor from the operators' view. Optimum resource allocation in the conditions prevailing in Mauritius has to take into account a desired level of operation, transport costs on a route and achievable crew and bus efficiency. Therefore, an analysis of each route was carried out to determine how the route performance could be improved.

4.09 The route rationalization plan presented in the Study does not represent a radical departure from the present bus network. The proposed plan consists of rescheduling of buses and amendment to route layout — by developing "core" routes, route extension, diversion and express services. This analysis resulted in cutting the present 198 bus routes to the recommended 111 bus routes. The Study also found that the total requirement of buses to be licensed is 1,020 as against the present 1,100 buses, i.e. a minor change as compared to the prevailing view of a bus (supply) overcapacity. Specific allocation, i.e., route transfers from one operator to another were not considered in the report, leaving it to the NTA to decide. Having in mind NTA's shortcoming, specific proposals in this respect would have been quite helpful. The study claimed that the proposed reduction to 1,020 buses would be able to provide 36.72 million vehicle miles annually as against 36.62 million vehicle miles served by the existing bus

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[1/] The study's formal title is "Islandwide Study of Public Transport 1984".

fleet in 1983. On the supply side, the total seat miles provided by the operators is estimated at about 5 million seat miles per day. Furthermore, it was found that 0.41 million person trips are performed each day with average length of trip of 6 miles, giving a total demand of 2.5 million passenger miles per day. As the ratio of passenger/miles to seat/miles, the average load factor is assessed at 50%. Consequently, the route rationalization plan would not cause any reduction in the total bus operations in the country, but more efficient use of a slightly reduced fleet.

4.10 In order to implement the route rationalization plan, the Study indicated that there was a need to amend present conditions attached to Road Service License. Namely, at present the operators do not have the flexibility to alter route service to suit passenger demand. The Study argues for the operator to be given this flexibility, which should in turn improve productivity of two basic inputs — vehicles and staff — and consequently the benefits will be passed to the users. The Study recommends that this flexibility be extended to bus companies only, since extension of the flexibility to individual bus owners would supposedly lead to possible abuse. This was referred to abuses of the present regulations by individual carriers in regard to tariffs and timetables.

4.11 Public passenger transport needs to be closely monitored in regard to route performance, levels of service provided and revenue/costs development. Consequently, the road inspectors of the NTA should be strengthened and geared to undertaking these tasks. Manual processing of the monitoring system is slow and the Study recommends the introduction of a microcomputer system to store, retrieve and present results with the speed and precision to analyze the data. Furthermore, taking into account that about 125 out of a total 1,100 buses are over 14 years old and that the average increase in passenger transport demand is about 5% per year, the study also came out with a general proposal for fleet replacement and expansion. However, since the study did not go in depth into the matter, NTA will have to liaise with all bus operators in order to establish a balance between the total fleet requirement for the country on the one hand, and the fleet replacement needs of each bus operator on the other.

4.12 Principal recommendations of the Study are too general and are not action-oriented; they could be summarized as follows:

- bus routes should be redesignated and regrouped into 111 "core" routes;
- a total of 1,020 buses (instead of about 1,100 at present) are required to operate along these routes;
- bus operators should work out a productivity oriented fleet replacement cycle, leading to average annual bus acquisition of 100-120 new buses;
- NTA should closely monitor all bus purchases for public service in the country;
- bus companies should reorganize their depots and workshops;

- NTA should prepare a phased program of construction of improvement of bus shelters;

- there is a need for better organizing the operations of individual bus owners — by creating cooperative societies (a form of an association of the carriers for self-help in bus maintenance for example would be appropriate but the study did not elaborate on this);

- NTA should monitor the quality of the service of operators more effectively, including the acquisition of a microcomputer.

4.13 Overall, in spite of voluminous and valuable data gathered and subsequent analysis carried out, the study came short of expected specific recommendations and program of action. There is a number of shortcomings, the main ones being listed below:

- due to the limitation of computer program capability, the island-wide study of passenger supply and demand was actually split into three regions, thus making it impossible to consider the merits of inter-regional bus routes based on demand; i.e. the possibility of routes continuing from one region to another was excluded in the program, which definitely affects the ultimate number of routes; consequently, the island could not be analyzed as a single integrated route network, and the proposed system of "core routes" has questionable viability;

- a five plus five year investment program for acquisition of buses and improvement of related infrastructure (workshops, depots, terminals, etc.) to be "justfied in economic/financial terms" was not presented;

- necessary reorganization in the institutional set up of the industry, specifically strengthening of NTA was not addressed;

- important policy matters were not reviewed, such as the adequacy of taxation of road users and possible facilities to ease the position of the private segment of the industry, and

- some recommendations are too general and of little practical use, for example: NTA may draw up a phased program of construction of bus shelters; there is a need to organize individual carriers into cooperatives (without explaining how it should be done); major route restructuring is not considered necessary at the present, etc.

Consequently, it could be concluded that since the study did not accomplish what was to be expected from the TOR (investment program, integrated network route rationalization, etc.), additional work will be required in order to complete the analysis and reach the necessary recommendations. Since the data and analysis of the present situation is done, it is now necessary to carry out a system analysis of bus routes in an integrated network; this should result in a more realistic route rationalization plan. Also, the consultants should prepare for NTA a proposal for specific

route allocation of the carriers. Furthermore, a detailed and justified investment program for buses and road transport infrastructure is necessary, together with appropriate proposals for policy matters listed above. It is now up to the Government to decide which action it intends to take.

4.14 The Government has refrained so far from making any major decision in regard to public transport. Government comments on findings and recommendations of the Public Transport Study are not yet available. Before embarking on any action, careful analysis of possible options is now required. It would have been a great help for the Government had NTA been better organized and staffed to provide necessary assistance (para. 7.02) in providing the Govenrment with a future course of action.

(ii) Air Access Policy

4.15 Determination of an appropriate air access policy for Mauritius is directly related to its tourism development. Tourism plays an important role in Mauritius' economy and contributes 10 percent of foreign exchange earnings and provides employment for 10 percent of the labor force in the country. In 1977 the Government began its own systematic promotion of tourism and the peak of tourist arrival was reached in 1979 (128,400). Thereafter, a decline in the arrivals and receipts from tourism was recorded mostly due to erosion of Mauritius' competitive position vis-a-vis other tourist destination. In analyzing country origin of tourist arrival (1983) it could be observed that almost two-thirds come from the island of Reunion, the Republic of South Africa and France (Annex I, Table 13). A more diversified distribution might have been more favorable for Mauritius. The relative loss of competitive position was basically caused by an increase of various component of fare price (air fares, hotel accommodations and other ground costs); however, the largest impact was made by air fare increases which amounted to about 40 percent in the period 1979-83.

4.16 Limited direct air access to Mauritius has been emphasized as the most important single factor behind the rising costs of air fares. Contrary to Mauritian experience, countries which have relatively free air access had encountered a relatively high increase in tourist arrival in the same period (Cyprus, Thailand, Sri Lanka). Furthermore, the limited air access threatens the economic viability of new investments in tourism. The hotel occupancy rates were the lowest in 1982, when the mean rate was only 46 percent for beds and 57 percent for rooms; in 1983 they rose slightly. On the other hand, the Government is pursuing a policy of increasing hotel accommodation capacity and in a three-year period (1983-86) the number of hotel rooms is to reach 2,900, an increase of 26 percent (Annex I, Table 13).

4.17 Mauritius accessibility to foreign tourists was affected in 1983/84 after three airline companies with scheduled flights to Mauritius pulled out (Alitalia, Kenya Airways and Royal Swazi Airline). The Government's air access policy so far has been restrictive to protect the only domestic airline (Air Mauritius) and to some extent for internal security reasons. Consequently, little initiative has been shown so far to develop charter flights so to make a more attractive access policy for airlines with scheduled flights. Inefficient use of available hotel capacity, particularly in the off-season period (April to November) and up-

coming additional capacity under construction calls for urgent review of Government air access policy.

4.18 It seems, however, that the Government's strategy was to encourage AM to introduce new services, rather than to seek engagement of new foreign airlines and/or charter carriers. AM has been expanding its operations (para. 2.36) and in 1983/84 carried 36 percent of all passenger traffic to Plaisance airport. Even with new lines to Zurich, Singapore and Paris and a newly leased B-747, AM's unused capacity is rather limited to support Goverument's program in tourism development, particularly during seasonal peak periods.

4.19 In 1982 UNDP financed a study on air access — "Analysis of the Economic Impact of Alternative Air Access Policies on Tourism in Mauritius." Recognizing certain objective factors such as Mauritius' long distance from the tourist markets (Europe, North America, Japan), rising cost of transport, etc., the study criticized Government policy on "almost total reliance on scheduled airlines to provide air transport." In essence, the study recommended a less restrictive air access policy with use of charters; under different scenarios the study concludes that increases in income from tourism could be as high as about 15 percent per annum if the flexible policy, as the consultants recommended it, would be applied. In regard to charters the study advocates the principle of selectivity and linkage to several major markets only; a possible development of Mauritian-owned and run charter companies was not excluded. Notwithstanding some erronious data in the study and occasional unsubstantiated statements made, certain principal recommendations appear conceptually reasonable, such as regarding liberalization of air access policy and introduction of charter flights on a limited scale. Also regarding AM, one can agree with the study's statement that "...a viable national airline is a very considerable asset to any developing nation, and particularly to an island nation. On this count also, it would appear unwise to adopt any policy that might come to unduly threaten the viable existence of Air Mauritius." It should be mentioned, however, that AM reacted to the study with criticism of its findings and recommendations. Understandably, AM expressed strong reservation for charter operations which might encroach on traffic being carried by AM; it seems that AM is of the opinion that if charters are to operate in the future, Mauritius may have more to lose than to gain if scheduled airlines reduce their frequency and/or capacity to Mauritius. This would be correct only if the scheduled airlines were affected, but that may not be the case.

4.20 The Bank has already tried to assist the Government in seeking appropriate solution for air access policy matters through SAL II and the Technical Assistance Project (1983). A Study of Air Travel Marketing Strategies included in the Technical Assistance Project (Annex V) should be carried out. However, it could be concluded that the subject of air access policy in Mauritius' context has not yet been sufficiently explored to permit policy decisions with long lasting effects. Nonetheless, in view of pending problems facing tourism — decline of foreign exchange earnings and growing hotel capacity — Government action, at least a limited one, is now warranted (Chapter VII). It appears that the Government has recently become more open to exploring charter rights on a trial basis.

(iii) Cargo Handling in the Port

4.21 Inefficiency in cargo handling in the port of Port Louis has been a long-standing problem which was inherited by CHC in 1983. Some minor improvements in output per gang/hour have been recorded recently (Annex I, Table 11 b); nonetheless, fundamental problems prevail: the existence of surplus labor, low effective working hours, and built-in disincentives in the system of remuneration. CHC employs about 1,500 people, of which there is an excess of employees by about one-third, assuming single-shift operation; double shifts may be difficult to justify with the present low traffic in the port. Of about 1.8 million tons of annual traffic in the port, CHC handles only about 350,000 tons (general and containerized cargo). Fuel and bulk cargo is handled by other companies.

4.22 CHC expects that its container operations will expand in the future. Namely, CHC counts that shipping conference lines operating in East African Region may prefer to pay more for services in Port Louis in exchange for cutting the time of loading/unloading including waiting time in some neighboring ports. CHC thus expects that at least 5,000 containers of 30 m^3 will use Port Louis as transit port (e.g. for Seychelles, Comoros, Somalia). The freight would then be transformed into break bulk and loaded on smaller ships. However, in order to make these expectations more realistic, the output in cargo handling needs substantial improvement. The comparative figures shown in Annex I, Table 17 indicate that CHC has the worst output indicators when compared with similar ports in the region.

4.23 One of the principal issues is minimum monthly wage generated for all employees irrespective of whether they work or not; furthermore, CHC has to face three well-organized labor unions (for manual laborers, clerical staff and supervisors). The cost of handling the cargo is increased by the very low productivity of the port workers. The workers were grouped for the day's work in the old lighterage port area and then transported by boat to the new port constructed under the Bank-financed project. After they arrived at their workplace, they had a break for a meal and thus the work hardly starts before 10:00 in the morning; as a consequence, only about five out of eight hours work is effectively done per day (Annex I, Table 11). Thereafter, an eight-hour day is followed by three hours of overtime, when they make 200 percent of their regular wage; during that period labor productivity is good, but the ship owner must pay for the three hours overtime even if only one is needed, since the gangs are paid per day.

4.24 The new company CHC is now faced with the very difficult and delicate task of trying to increase productivity and reduce both costs and size of the labor force. As indicated earlier, over 90% of all operating costs are labor-related. Some measures have already been introduced such as compulsory retirement and retirement on medical grounds, while the grouping of workers is now taking place in the new port area resulting in time savings. Also, CHC has the difficult task of convincing the Government that all charges in cargo handling, including those for flour and rice, should be cost based. In addition, various forms of incentive schemes are being considered that would prove acceptable to the unions.

4.25 In view of the urgency to rationalize cargo handling operations and to establish an action program CHC has decided to engage an ILO Port Training Expert who came to Mauritius in February 1984 for a one-year assignment to set up a Port Training Center. The expert was to prepare a study on how the employees of CHC could improve their performance. The study was completed in March 1985; however, CHC concluded that it was of little use. Thereafter, it was decided that MMA and CHC would prepare an in-house analysis by September 1985 which would address the following topics: (a) introduction of a double-shift system; (b) review of the remuneration system; (c) introduction of an appropriate merit system; and (d) introduction of a new pension scheme for port workers.

4.26 In conclusion, no quick solutions are envisaged which would rapidly remedy the shortcomings in cargo handling. The problems could be gradually solved by attrition, provided CHC refrains from hiring new staff, and with the introduction of an incentive system for workers which would reward increased output per gang/hour. The managers of CHC are familiar with this option and the internal study, now underway, is to elaborate on it.

V. TRANSPORT PLANNING AND MANAGEMENT

(i) Institutional Framework

5.01 The Ministry of Economic Planning and Development (MEPD) through its section for infrastructure makes an overview of the development in the transport sector. However, responsibility for the management of the sector is divided as explained earlier among various ministries/departments. MOW is responsible for development and maintenance of motorways and main roads, while the rural and urban roads are the responsibility of Ministry of Local Government and of local authorities; NTA is in charge of the road transport industry; MMA handles port operations; CAD is responsible for planning, regulation and operation of air transport, while the APU is in charge of all airport projects.

5.02 At present there is no integrated economic planning for the country and none for the transport sector. The MEPD is in charge of planning capital investments in the country, including those for the transport sector and finalizes proposals for the sector initially made by the MOW (for roads and the road transport industry), MMA (for ports and maritime transport) and APU (for airport projects). Management and planning in the port and civil aviation subsector appear adequate, while that in MOW has been improving following the creation of the Planning Unit in 1983.

5.03 In regard to staffing of the Government ministries, agencies and departments involved in the sector, the situation is different than in most countries of the region. Namely, there is a sufficient supply of local engineers, economists, accountants, statisticians, etc. On the other hand, there is a shortage of certain specialized skills e.g. flight safety officers and air worthiness surveyors (in CAD), or experienced senior economists specialized in road transport (for NTA). Nevertheless, through organized training abroad the deficiency is gradually being eliminated; MMA, AM and CAD have been making appropriate educational and training arrangements abroad for their staff. However, some positions, mostly in AM, are still filled with expatriates.

5.04 In regard to human resource development, a subject which goes well beyond the field to be covered by the TSM, there is no comprehensive and systematic approach in setting supply and demand of skilled labor in the country; this affects transport as well as other sectors. Records of new graduates by type of skill is available only for those who have completed their education in Mauritius. For those who graduated abroad (an estimated 80% of the total number of graduates) and return to Mauritius, no official data is available. This needs to be put under control by the Ministry of Education. No effort has been made to forecast demand for skilled labor by type and quantity. In discussing the subject with officials of the Ministry of Employment and MEPD, the need to address this problem comprehensively was clearly recognized. Concerning the transport sector, forecasting the needs for professional staff should be introduced. This should be closely coordinated with the Advisory Board at the university, which decides on the number of students to be enlisted in different schools at the university.

(ii) Main Problems

5.05 Transport sector coordination and planning needs improvement. That is particularly relevant to civil aviation and the port subsector. The present institutional framework with a Principal Assistant Secretary for external communications overviewing civil aviation, maritime transport, overseas communication service and meteorological service needs improvement. The Principal Assistant Secretary with two assistant secretaries and a small administrative staff report to the Permanent Secretary of the Prime Minister; the PM has ultimate direct control over external communications,which could be explained by the critical importance and sensitivity of external communication for an island country like Mauritius.

5.06 The Principal Assistant Secretary, who directly oversees civil aviation and maritime transport, lack the necessary professional staff and expertise to exercise the necessary systematic planning, coordination and supervision of the agencies and departments engaged in the two transport modes. Specifically, in the pending sectoral issue of air access policy so relevant to the country's future economic development, it would be very difficult for the Principal Assistant Secretary's office to prepare for the Government a comprehensive program of action.

5.07 Due to the size of the country and the limited future development needs of the transport sector, it seems that creation of a new Ministry of Transport would not be warranted. Taking into account the country's specific characteristic it would be justifiable to reorganize the Principal Assistant Secretary's office into a Department for External Communications, to be headed by the Principal Secretary (or his equivalent). Although the Government has a reservation for creation of the Department for the reason of being "not compatible with legal framework," the advantages of such a Department should be reconsidered. If created, the Department should be strengthened in staffing; its transport section should acquire three experienced professionals: one each for civil aviation and port and maritime transport and a senior economist/planner; APU would also be included in the Department. As the issue of determining appropriate air access policy deserves Government's urgent attention and thorough assessment, a position of a suitable senior advisor for civil aviation may be difficult to fill at present. It is therefore suggested that the required expert (18-24 months) be financed under the ongoing Technical Assistance Project, approved by the Bank in November 1983. The funds for such assistance are available under the project.

5.08 Certain changes also need to be considered in the institutional arrangement for managing civil aviation and the international airport at Plaisance. As indicated earlier in the TSM, CAD is presently in charge of both regulatory and operational functions. As it is the case in most of the countries in the region, it would be necessary to separate regulatory responsibility of CAD from operations. Thus, it would be more appropriate to create a Civil Aviation Authority (similar to MMA) which would retain regulatory function in the domain of civil aviation; it should also acquire responsibility for deciding on landing rights and charges (now the PMO's responsibility). The international airport, together with small one on Rodrigues, should thus be taken over by a parastatal (Government-controlled) company which would have necessary freedom in administrative

and financial matters in operating the airports on commercial basis. Both CAD and the airport company would be under the authority of the new Department for External Communications. The Government, however, does not consider the reorganization warranted mainly due to the small size of country.

5.09 NTA, the authority in charge of road transport regulations (tariffs, licensing, vehicle inspection vehicle import clearance, etc.) has too many responsibilities (Chapter II), but limited means of exercising its authority. Institutionally, NTA is to be an independent body which is to report to a board whose members are appointed by the Minister of Works; it is therefore needless to say that MOW has influence over NTA. The problem, however, lies in NTA's lack of stronger role in the road transport industry. NTA is also short of a few critical staff whose absence has been reflecting on its performance. Namely, the fundamental issue of the need to improve passenger transport on the island is partly the responsibility of NTA which did not have adequate control over public carriers or their routings; due to staff and management constraints NTA was also slow in decision making (e.g. tariffs for passenger transport). Its staff of about 120 is geared more to technical and administrative matters (collecting revenues for licensing vehicles, route permits, vehicle registration) than to some essential analytical tasks of assessing road transport costs, supply and demand with necessary projection. NTA has no economist, while an engineer and a planner are seconded occasionally from MOW. In order to enable NTA to undertake other functions proposed above, an analytical division/department should be created which would analyze the problems of public transport in a systematic fashion and provide necessary follow-up of the recently completed Public Transport Study and its recommendations. Undoubtedly, this would lead to the creation of a few new positions and the necessity for a budget increase; however, without its strengthening, the role of NTA in road transport will remain inadequate.

VI. GOVERNMENT' S STRATEGY FOR THE SECTOR

6.01 The transport sector strategy after the change in Government in July 1983 has not yet been clearly established. However, following Government's priorities listed in the Public Sector Investment Program, indications are that its general approach is to assign priority to completion of ongoing projects and to rehabilitation/improvement of existing infrastructure. Such an approach appears reasonable. Total actual investments in the sector for the period 1981/82-1983/84 were MR 228.0 million (about US$21 million equivalent). In the latest PSIP (1984/85-1986/87) the share of transport investments is 16.7 percent with total investments in the three-year period of MR 727.0 million (about US$49 million equivalent). The amounts are being adjusted from time to time and these figures should be taken as indicative ones. The investments in the transport sector are 48 percent for roads, 37 percent for civil aviation and 15 percent for the port (Annex I, Table 18). The share of the transport investments is about average for the countries of the region.

(i) Transport Projects in PSIP

6.02 The program for the sector generally makes sense, with emphasis on the improvement of the Plaisance international airport and the strengthening and improvement of main roads. In some cases, however, project economic viability (calculation of ERR) has not been established and economic justification for the investments is questionable (proposed construction of a new grain facility in the port). Since the port was recently modernized and extended and the fishing port just completed, no major investments in the port are envisaged in the near future. There are two remaining projects: (a) port improvement (US$2 million) financed by MMA and ODA (U.K.) which includes construction of a recruitment center and acquisition of small equipment, and (b) new port project (about US$5.5 million) which will be financed 45% by MMA and the balance by an external source; the project basically contains acquisition of a powerful tug of 2,500 HP, cargo handling equipment and dredging of the port entrance area to permit turning circle to ships over 200 meters long.

6.03 In regard to the road infrastructure, the following projects are being implemented or are being prepared: (i) strengthening and improvement of selected main roads (75 km) financed by the World Bank, (ii) construction of a bridge on the Grand River financed by the African Development Bank, (iii) construction of a motorway through Port Louis (1.6 km) to be financed by the African Development Bank, and Phoenix-Nouvelle France Road to be financed by EDF and FAC (17 km). The ERRs for these projects are 40%, 19%, 22% and 12% respectively. The first three projects to be completed by 1988 are sound and will improve the traffic flows, particularly in urban areas. However, the construction of Phoenix-Nouvelle France Road (US$10 million) does not have the same priority, particularly at a time when limits on public expenditures are imposed. Nevertheless, the Government intends to pursue the project in order to take advantage of the grant money made available for this project. In addition, about US$3.5 million was earmarked for aquisition of buses for parastatal NTC in the three-year PSIP period.

6.04 Regarding the international airport, the Government was originally considering building a new airport in the northeast. However, in 1982 it finally adopted the alternative solution supported by the Bank — to improve the existing international airport in Plaisance. The two-phase improvement/modernization program is planned to be completed by 1988. Navigation aids are being installed, while the control tower is nearly completed. Construction of a new terminal building, parking space and an access road will start shortly. The works and equipment are being financed by the U.K. (25 million pounds), People's Republic of China (13.5 million pounds), FAC (MRs 75 million equivalent) and EDF (1.5 million of ECU).

(ii) The Sector Development and Resource Gap

6.05 The development of the transport sector in recent years has been influenced significantly by the deterioration of the economic situation and financial austerity program in the country. This has led the Government to pursue a pragmatic approach in investing in projects of importance for the country's economy, particularly those supporting hard currency earning (the port extension and modernization project and modernization and extension of the international airport). More recently, attention has also been given to improving communications with other islands.

6.06 The present Government stabilization program (January 1985-June 1986 calls, inter alia, for restraints on credit expansion. The rolling three-year PSIP is mainly concentrated in basic infrastructure projects with emphasis on industry, energy, agriculture and tourism; more productive activities are left to private investors. Transport projects are particularly sensitive to the above Government measures since they are capital intensive and have high foreign exchange component; out of about US$49 million equivalent envisaged for the sector, about 72% or US$35.3 million is estimated foreign exchange cost. On the other hand, the sector directly generates only limited amount of foreign exchange to the economy (from stevedoring operations in the port and operations of AM and civil aviation taxes on foreign carriers); sector requirements for foreign exchange, however, for fuel, spare parts, tyres, equipment and vehicles imports exceed the sectoral direct earnings of the foreign exchange. Due to scarcity of foreign exchange and restrictions imposed on capital expenditures, investments in the transport sector have been adjusted in such a way that project implementation period has been extended from originally two years to three (the new port project) or to four years (Phoenix - N. France Road Construction).

6.07 It should be noted that there is a possibility to reduce the sectoral demand for foreign exchange particularly in road transport — reduction in fuel consumption, vehicle maintenance and repair costs, etc. by upgrading the road network (para. 6.08). These savings to the economy should be carefully assessed for each project and therefore it is highly recommended that the Government establishes a program of priorities including an action plan for the implementation of a Road Improvement Program.

6.08 With regard to capital needs of the sector, it could be concluded that major projects and investments have been completed or are underway, with the exception of the road infrastructure where there is still a

sizeable need for further improvement of the main road network, which is not in satisfactory condition (para. 2.40) to respond to growing heavy traffic volumes and demand of the economy. In case no systematic road strengthening/improvement program is carried out, it would lead not only to increased transport costs, but to further deterioration and the need for full but costly reconstruction of the network. Therefore, it would be preferable for external aid agencies (FAC, EDF and others) to continue and expand upon the initial step made by the Bank-financed Highways Project (para. 3.03).

(iii) Government Strategy in the Sector

6.09 The Government's strategy vis-a-vis the two major issues in the sector — passenger transport and air access policy — remains to be seen. In regard to passenger transport, the recently completed Public Transport Study has laid out some recommendations. So far, the Government's strategy for the privately owned segment of the transport industry has not been encouraging. It is expected, however, that on the basis of the Study's recommendations and future necessary analysis, the Government will reassess the situation in the industry and that it will encourage an environment in which different types of carriers will operate without discrimination.

6.10 Concerning the civil aviation, the Government is undoubtedly committed to development of international tourism on the one hand and the support of the development of its airline (AM). Such a policy should not be questioned as long as AM is performing well and the overall benefits to the economy and the country alike are offsetting possible losses from restrictive air access policy. Nevertheless, continuation of the present (restrictive) air access policy vis-a-vis foreign carriers may lead to drawbacks in tourism in the first place and in turn to a slowdown in aggregate foreign exchange earning. It should be noted that the Government has been aware of the problem and a study of air access financed by UNDP was prepared in 1982 (para. 4.19). Furthermore, under the Bank-financed Technical Assistance Project (1983) a study on Air Travel Marketing Strategy is to be carried out. The Government has refrained so far from making any decision on the subject.

6.11 In the decision-making process in the sector, particularly in selecting priority projects, the Government did not always rely on economic considerations, i.e. project economic analysis. This is expected to be rectified in the future, since the Government has become growingly aware that in the situation of very limited resources, including foreign exchange, any investment decision without establishing prior economic viability would have adverse effect on the country's economy.

VII. POLICY MEASURES NEEDED IN THE SECTOR

7.01 The TSM has presented that the transport system of Mauritius is simple and that the infrastructure is generally well developed. However, several problems have been identified, a few of which require Government action. Some of them need to be urgently addressed (like passenger transport), while others have lower priority (reorganization of CAD). Concerning the air access policy, the Government decisions are expected to be based on the results of a study (para. 6.02 c).

7.02 The recommendations summarized below should be viewed as suggestions to the Government for the appropriate course of action, rather than a prescribed list of remedies:

a) Improvement of passenger transport. This has to be approached from two aspects: (i) reorganization of public transport service through a new routing and licensing system (existing 198 routes need to be rationalized but not necessarily into 111 "core routes") which will provide more rational and reliable service based on economic criteria; this implies establishment of a better organized monitoring/controlling mechanism by NTA; however, to make full benefit of the Public Transport Study, additional work is required; (ii) in order to retain a competitive market in public transport, it would be necessary to reassess the policy toward privately-owned bus companies; specifically, appropriate measures should be made available to facilitate their position — tariffs should be reviewed on an annual basis, availability of loans or loan guarantees by State Commercial Bank for their fleet renewal should be encouraged (that would increase confidence of the carriers); import duties and taxes which are found to be excessive and over the average level of taxation in the country should be reduced for purchase of commercial vehicles and related spare parts (see g); fleet standardization to three/four makes through import licences given by NTA is also recommended; in addition,concerning the operations of NTC, more freedom in decision making, particularly in daily operational matters, would be beneficial.

b) Strengthening of the National Transport Authority. In order to exercise better control over the services of public carriers, NTA would need more road inspectors and seven-days-a-week operation; on the other hand, NTA should expand its functions to systematically cover major topics such as development of supply and demand, transport costs, etc.; to this end the NTA would need to establish an analytical department/division which would need to acquire new permanent staff, in particular a senior transport economist; this would enable NTA to have a more meaningful contribution to the Government in the follow-up on the findings and recommendations of the Public Transport Study.

c) Air Access Policy. Gradual liberalization of air access policy is needed. In a cautious approach and on a trial basis one or two charter companies could be engaged on routes which are not presently served by scheduled flights, preferably to open up new markets. The study on Air Travel Marketing Strategies (financed under the Bank's Technical Assistance Project) should start as soon as possible; TOR for the study is in

Annex V; it would also be worthwhile to pursue merging AM offices abroad with MGTO representatives which would enable more intensive and better coordinated effort for advertising Mauritius tourism abroad.

d) Cargo handling in the port. Present disincentives (absence of reward for better performance) in the system of remuneration for CHC staff need to be replaced with a bonus system which should provide adequate incentive for the increase of workers' output; furthermore, work discipline could also be improved by establishing a code of conduct for workers which, once accepted by the unions, should be enforced. Furthermore, CHC should be allowed to revise rates for rice and flour in order to set them on a cost basis and avoid further cross-subsidization.

e) Creation of a Department for External Communications. It is suggested that a Department be created to replace the existing Principal Assistant Secretary Office (in Prime Minister's Office); this would ensure more efficient planning of investments and better oversight of port, maritime transport and civil aviation; for that reason it would also be preferable to integrate the Airport Project Unit into the new Department, which would also retain overseas communications and meteorological services already existing in the Principal Assistant Secretary's Office; to carry out its modified responsibilities for the transport sector, it is estimated that the new Department would need three senior and experienced professionals — in port and maritime transport, civil aviation and an economist planner; the Technical Assistance Project has funds available which could finance one of the experts for 18-24 months until a long-term solution is found.

f) Reorganizing of the Civil Aviation Department. CAD is presently in charge of regulatory functions and of running the international airport at Plaisance; it would be more appropriate to separate the functions and creates a Civil Aviation Authority which would be responsible basically for: air safety, air worthiness, flight operations, traffic and landing rights, maintenance of airport navigation, communication and meteorological facilities, etc.; the international airport, however, should be run on a commercial basis by a parastatal company with administrative and financial autonomy under the Department of External Communications, which is proposed to be established.

g) Revision of Some Road User Charges. Present custom duties and other taxes on imports of vehicles and spare parts and tires are excessive, reaching up to about 400% (combined) of C.I.F. price (Annex I, Table 14). That creates particular hardship to public carriers to repair and renew their fleet; this in turn has a negative effect on the reliability and quality of road transport. Consequently, it is recommended that, at least for commercial vehicles and spare parts, the custom duties (50-250%), surcharge on duty (33.1%), stamp duty (13.2%) and sales tax (5%), be revised — lowered to a level which will not be an impediment to the modernization and improvement of road transport.

Annex I
Table 1

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Road Network in 1985

	Length		Share of Bitumen Roads
Motorways	26 km	1.5%	100%
Main Roads	837 km	46.8%	100%
Urban Roads	578 km	32.3%	100%
Rural Roads	346 km	19.4%	49%
Total	1,787 km	100.0%	

Source: Ministry of Works, Port Louis, Mauritius, May 1985.

Annex I
Table 2

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Motor Vehicle Fleet [1]

Year [2]	Motor-cycles	Passenger Cars	Taxi Cars	Vans	Buses	Trucks	Other [3] Vehicles	Total
1978	8,437	21,757	3,609	7,233	1,393	4,195	2,333	48,957
1979	8,550	22,400	3,479	7,747	1,468	4,250	2,400	50,294
1980	8,304	22,280	3,305	8,153	1,490	4,200	2,279	50,011
1981	8,087	22,029	3,156	8,546	1,469	4,216	2,271	49,769
1982	8,249	22,467	3,026	8,857	1,442	4,269	2,423	50,733
1983	8,523	23,070	2,954	9,233	1,418	4,315	2,486	51,999
1984	8,642	25,807	2,735	9,607	1,364	4,277	2,350	54,782
Share in the Fleet 1984 (%)	15.8	47.1	5.0	17.5	2.5	7.8	4.3	100.0
Average Annual Growth Rate (%)	0.4	2.9	-4.7	4.9	-0.3	0.4	0.1	1.9

1/ Privately-owned vehicles of which about 37% were commercial vehicles in 1984; in addition, there are about 2,700 government-owned vehicles.
2/ End of year.
3/ Include tractors, ambulances, fire service vehicles, etc.

Source: Ministry of Economic Planning and Development, Port Louis, May 1985.

Annex I
Table 3

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Fuel Consumption
(in '000 gallons)

	Super	Regular	Diesel Fuel
1980	10,836	926	14,596
1981	9,826	808	15,440
1982	9,198	686	14,442
1983	9,639	402	13,982
1984	11,535	n.a.	14,322
Average Annual Growth 1980-84 (in %)	1.5		-0.4

Source: Central Statistical Office, MEPD
Port Louis, May 1985

Annex I
Table 4

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Fuel Prices (1985)
(MRs per gallon)

	Super	Diesel
CIF (Port Louis)	15.54	14.36
Port Fees	2.16	2.01
Landed Cost	17.70	16.37
Custom Duty	13.50	2.00
Handling and other charges	4.00	2.13
Profit Margin	0.60	0.60
Wholesale Price	35.80	21.10
Retailers' Margin	1.20	0.90
Pump Price	37.00	22.00
Pump Price/Litre (US$/Litre)	8.14 (0.55)	4.84 (0.32)

Source: Ministry of Finance
Port Louis, May 1985

Annex I
Table 5

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Road Traffic Accidents and Casualties

	1979	1980	1981	1982	1983	1984
Road traffic accidents						
Number	7,828	5,753	5,281	4,749	4,593	4,717
Number per 100,000 of population	859	621	562	500	480	483
Motor vehicle accident						
Number of motor vehicles involved	12,622	8,965	8,241	7,354	6,618	6,932
Number per 100,000 of population	1,385	968	877	774	691	709
Number per 1,000 registered motor vehicles	188	130	119	104	91	94
Total Casualties	4,266	2,068	3,149	2,460	2,727	2,475
Nature of casualty						
Killed	137	124	108	99	101	87
Seriously injured	260	127	269	147	181	326
Slightly injured	3,869	1,817	2,772	2,214	2,445	2,062
Casualties by class of road users						
Pedestrians	1,602	592	1,066	1,016	1,037	904
Pedal cyclists	545	340	384	243	254	290
Passengers	1,021	586	839	658	778	590
Drivers or riders of motor vehicles	1,098	550	860	543	658	691

Source: Bi-annual Digest of Statistics, December, 1984
Central Statistical Office, Port Louis

Annex I
Table 6

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Estimated Revenues from Road Users
(in MRs '000)

	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84
1. Import Duties 1/ on Gasoline	91,200	113,000	118,670	130,273	127,571	155,586
2. Import Duties 2/ on Diesel Fuel and Lubricating Oil	13,810	27,300	32,920	29,069	28,352	28,045
3. Import Duties 3/ on Motor Vehicles	47,300	49,300	53,900	38,114	37,066	45,169
4. Import Duties on Bodies, Spare Parts and Tires	24,630	23,495	24,790	15,118	20,951	31,555
5. Road Tax 4/	24,235	21,388	23,921	24,816	24,502	25,695
6. Licenses	5,316	5,150	4,938	1,537	1,238	1,409
7. Vehicle Examination and Registration Fees	3,010	2,933	2,963	2,482	2,697	2,848
Total	209,501	242,566	262,102	241,409	242,377	290,307

1/ Import duty is 36% of retail price.
2/ Import duty is 10% of retail price.
3/ Import duties range between 30-70% ad valorem; in addition, there are fiscal duties which can go from 50-200%, depending on the vehicle type.
4/ The road tax is paid annually for every motor vehicle (except Government-owned) and ranges between Rs 485 (for cars) to 2,915 (for heavy trucks).

Source: Ministry of Finance, Port Louis, May 1985

Annex I
Table 7

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Expenditures for Road Maintenance FY 1982-85
(MRs million)

	1981/82	1982/83	1983/84	1984/85 1/	1985/86 2/
Materials (Fuel, lubricant, bitumen, pipe, concrete, etc.)	7.49	5.94	7.31	7.96	15.00
Administration/Labor	n.a.	n.a.	25.43	27.91	28.50
Repair of Equipment and Vehicles (Spare parts, tires, etc.)	0.45	0.46	0.52	0.55	0.56
Total			33.26	36.42	44.06

1/ Preliminary data
2/ Budgeted amounts

Source: Ministry of Works, Port Louis, Mauritius
May 1985

Annex I
Table 8

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Design Standards of Main Roads [1]

	Port Louis-Mahebourg Road	Port Louis-The Mount Road	Plain Des Papayes Road	Quartier Militaire-Bel Air Road
Design speed	80 km/hr	80 km/hr	60 km/hr	60 km/hr
Carriageway width	7.0 m [2]	7.0 m	6.0 m	6.0 m
Shoulder width (minimum)	0.7 m	0.7 m	0.7 m	0.7 m
Minimum horizontal curve radius	240 m	240 m	120 m	120 m
Maximum gradient	6%	6%	6%	6%
Minimum vertical curve radius				
(a) Concave	3,000 m	3,000 m	1,300 m	1,300 m
(b) Convex	2,200 m	2,200 m	1,500 m	1,500 m
Road Crossfall (minimum)				
(a) Carriageway	2.5%	2.5%	2.5%	2.5%
(b) Shoulders	4%	4%	4%	4%

1/ Roads included in the Bank-financed Highway Project; the design standards are based on those developed by French Ministry of Equipment.
2/ 10.5 m in first about 4 km from Port Louis.

Annex I
Table 9

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Traffic in Port Louis
(in metric tons)

	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85 1/
1. Imports							
- bagged cargo	132,016	156,205	129,590	103,360	109,819	121,823	100,926
- bulk cargo	691,159	662,498	602,783	579,630	568,053	540,855	589,045
- general cargo	179,350	156,075	102,837	72,723	82,519	81,805	96,128
- containerized cargo	67,627	122,627	151,929	139,256	141,749	156,833	159,332
- other	22,109	30,063	19,736	35,050	32,297	29,942	15,301
Total	1,092,260	1,127,468	1,012,594	930,020	934,437	931,258	960,732
2. Exports							
- bagged cargo	588,443	613,825	18,583	0	0	0	0
- bulk cargo	248,331	257,611	580,012	714,158	749,314	728,598	657,681
- general cargo	7,022	2,538	2,554	2,360	2,878	3,430	12,086
- containerized cargo	27,950	45,325	47,526	52,892	57,943	62,407	76,341
- other	26,342	34,503	21,152	33,170	29,958	26,710	49,207
Total	898,088	953,802	669,827	802,580	840,093	821,145	795,315
Grand Total	1,990,348	2,081,270	1,682,421	1,732,600	1,774,530	1,752,403	1,756,047

Annual Growth Rate 1978/79-1984/85: -2.1%

1/ Preliminary data

Source: Mauritius Marine Authority
Port Louis, May 1985

Annex I
Table 10a

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Occupancy in the Port in 1983 1/

Berth	Vacant	Occupied			
		Total A+B+C	A Not Working	B Working	C Not Workable
	(%)	(%)	(%)	(%)	(%)
No. 1	46	54	22	29	3
2	35	65	30	33	2
3	35	65	35	27	3
4	46	54	26	23	5
Quay C	7	93	74	15	4
Quay D	30	70	36	28	6
Quay D/A	30	70	61	7	2
B.S.T.	Not Available				

1/ Based on one shift operation

Remarks:

(1) Quay C is used by inter-island and fishing vessels.
(2) Quay D is also used for bulk molasses, black oil, edible oil and L.P. gas vessels.
(3) Quay No. 1 is also used for bulk fertilizer, white oil, tallow and liquid ammonia vessels.
(4) Part of Quay No. 2 is also used for bulk cement vessels.
(5) Quay D/A is used mainly by small fishing vessels.
(6) B.S.T. berth is used only by vessels loading sugar.

Source: Mauritius Marine Authority, Port Louis, Mauritius
August 1984

Annex I
Table 10b

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Occupancy in the Port in 1984 1/

Berth	Vacant (%)	Occupied			
		Total A+B+C (%)	A Not Working (%)	B Working (%)	C Not Workable (%)
No. 1	53	47	15	28	4
2	39	61	28	30	3
3	42	58	31	23	4
4	45	55	25	22	8
Quay C	5	95	75	16	4
Quay D	28	72	36	26	10
Quay D/A	91	9	8	1	0
B.S.T.	85	—	—	15	—

1/ Based on one shift operation

Remarks:

(1) Quay C is used by inter-island and fishing vessels.
(2) Quay D is also used for bulk molasses, black oil, edible oil and L.P. gas vessels.
(3) Quay No. 1 is also used for bulk fertilizer, white oil, tallow and liquid ammonia vessels.
(4) Part of Quay No. 2 is also used for bulk cement vessels.
(5) Quay D/A is used mainly by small fishing vessels.
(6) B.S.T. berth is used only by vessels loading sugar.

Source: Mauritius Marine Authority, Port Louis, Mauritius
May 1985

Annex I
Table 11a

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Handling of General Cargo

(Statistical Data - October 1983 to February 1984)

1. Actual Manpower

Deck	Hatch	Sewers	Carpenters	T/Clerks	Watchmen
92	214	46	8	39	13

2. Days Harbor Worked

	5 Months	Monthly
Weekdays	116	23.2
Night	113	22.6
Sundays	17	3.4
Public Holidays	7	1.4
TOTAL	140	28.0

3. Number of Gangs Operating

	Hours	5 Months	Monthly	Daily
Weekdays	7-15	1,272	254.4	10.7
Nights	15-18	899	179.8	7.9
Sundays	7-11	100	20	5.5
Public Holidays	7-11	27	5.4	3.8
Total		1,399	279.8	-

Source: Cargo Handling Corporation, Port Louis, Mauritius, August, 1984

Annex I
Table 11b

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Handling of General Cargo

(Statistical Data - December 1984 to March 1985)

1. Actual Manpower

Deck	Hatch	Sewers	Carpenters	T/Clerks	Watchmen
89	212	45	8	39	14

2. Days Harbor Worked

	4 Months	Monthly
Weekdays	94	23.5
Night	90	22.5
Sundays	16	4.0
Public Holidays	5	1.2
TOTAL	115	28.7

3. Number of Gangs Operating

	Hours	5 Months	Monthly	Daily
Weekdays	7-15	1,064	266	11.3
Nights	15-18	759	189.7	8.4
Sundays	7-11	101	25.2	6.3
Public Holidays	7-11	20	5.0	4.1
Total		1,085	296.2	-

Source: Cargo Handling Corporation, Port Louis, Mauritius, May 1985

Annex I
Table 12

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Air Traffic

	1979/80	1980/81	1981/82	1982/83	1983/84 1/	1984/85	Annual Growth Rate
a) Traffic at Plaisance Airport							
1. Aircraft Movements	7,692	7,583	7,263	8,548	7,144	7,237	-1.5%
2. Passenger Traffic (arrivals and departures)	349,783	333,893	339,910	346,340	378,593	386,950	2.2%
3. Air Freight (in tons) (loaded and unloaded)	8,033	6,814	7,160	5,782	6,926	7,924	-0.1%
b) Traffic at Plaine Corail Airport							
1. Aircraft Movements	791	794	668	486	452	356 2/	
2. Passenger Traffic (arrivals and departures)	6,815	7,244	6,317	7,203	7,694	6,041 2/	
3. Air Freight (in tons)	9.0	16.0	14.5	20.9	18.4	12.2 2/	

Source: Department of Civil Aviation, Plaisance, May 1985.

1/ Preliminary data

2/ Until March 31, 1985

Annex I
Table 13

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Tourism and Air Access

(i) Actual and Projected Tourists Arrivals
(in '000)

1979	1980	1981	1982	1983	1984	1985	1986
128.4	115.1	121.6	118.4	123.8	136.2	149.8	164.8

(ii) Country Origin of Tourists Arrived in 1983
(in %)

Reunion Island	24.4
Republic of South Africa	22.0
France	17.8
Madagascar	6.5
FR of Germany	5.6
U.K.	4.7
Italy	4.5
Other countries	14.5
	100.0

(iii) Hotel Occupancy Rate
(in %)

	1981			1982			1983		
	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.
Rooms	45.9	64.0	75.8	36.7	56.7	69.1	44.9	62.3	82.3
Beds	35.7	53.2	63.7	28.4	46.1	58.0	35.0	51.4	66.3

(iv) Room and Bed Capacity

	1983	1984*	1985*	1986*
Rooms	2,300	2,550	2,750	2,900
Beds	4,900	5,300	5,700	6,000

*Projected

Source: Mauritius Government Tourist Office
Port Louis, May 1985

Annex I
Table 14

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Taxes and Duties on Vehicles and Parts

Item	Preferential [1] %	Non-Preferential %	Surcharge on the rate of duty payable	Stamp Duty [2]	Sales Tax [3]
Buses					
1300cc	125	175	33.1%	13.2%	5%
1300cc-1800cc	150	200	33.1%	13.2%	5%
over 1800cc	200	250	33.1%	13.2%	5%
Minibus (payload not less than 750 kg)	50	80	33.1%	13.2%	5%
Trucks/Lorries	50	80	33.1%	13.2%	5%
Cars					
1300cc	125	175	33.1%	13.2%	5%
1300cc-1800cc	150	200	33.1%	13.2%	5%
over 1800cc	200	250	33.1%	13.2%	5%
Spare parts [4]	75	105	33.1%	13.2%	5%
Tires	75	105	33.1%	13.2%	5%

1/ For EEC countries only
2/ Levied on C.I.F. price
3/ On C.I.F. price customs duty and stamp duty combined.
4/ There are exceptions (bearings, nuts and bolts, etc.): 30-50%.

Source: Ministry of Finance, Customs Department, Port Louis, May 1985

ANNEX I
Table 15

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

SECOND SCHEDULE
(regulation 3)

THIRD SCHEDULE

THE FARES SET OUT IN COLUMNS 2, 3 AND 4 OF THIS SCHEDULE ARE IN CENTS OF A RUPEE

Journey in Number of Stages First Column	*Adults' Fares Second Column*	*Children's Fares Third Column*	*Student's Fares Fourth Column*
1	100	50	50
2	100	50	100
3	150	100	100
4	150	100	150
5 to 6	200	100	150
7 to 8	250	150	200
9 to 10	300	150	200
11 to 12	300	150	250
13 to 14	350	200	250
15 to 20	400	200	300
21 to 25	450	250	350
more than 25	500	250	350

BY AUTHORITY: L. CARL ACHILLE, GOVERNMENT PRINTER. AUGUST 1984. 4254/8/84—1292

Annex I
Table 16

MAURITIUS

Transport Sector Memorandum

Average Ship Charges[1/] of Selected Ports
(in MRs)

Ports	Porte-conteneurs	Conventionnels
Navires		
Port Louis	37 000	38 000
Réunion	52 000	57 000
Tamatave	27 000	26 000
Tulear	-	2 000
Majunga	-	7 000
Nosy Be	2 000	2 000
Diego Suare	-	9 000
Mahé	40 000	40 000
Djibouti	8 000	8 000

1/ For ships between 10,000 and 15,000 dwt

Source: Port Master Plan Study, BCEOM 1985

Annex I
Table 17

MAURITIUS

Transport Sector Memorandum

Comparison of Port Handling Charges and Cargo Handling
(in MRs)

	Port Louis	Réunion	Seychelles	Djibouti	Tamatave
.Droits de ports sur marchandise					
. conteneurs	plein 400 vide 150	selon produit	selon produit		
. general cargo	de 11 à 27/t		36/t		
. vrac	12,20/t		11/t		
. import	-	24 à48/t		450 à900/t	
. export	-	moy. 16/t		180 à 450/t3,5/t	3,5/t
. transbordement	-	0		90 à 270/t7/t	7/t
2. Tarifs de manutention					
. conteneurs	plein 1414 vide 250	plein 2208 vide 352			1146/TEU
. sacs	87/t	320/t			58/t
.general cargo	141/t	480/t	350 à 166/t		70/t
. import				105/t	
. export				70/t	
. transbordement				158/t	
3. Rendements					
. conteneurs	5 TEU/h	15 TEU/h/eq.	6 TEU/h	11 TEU/h	
. sacherie	10,4 t/h	22 t/h	30 t/h	19,6 t/h	
. divers -	15,3 t/h	30 t/h	13 t/h	34 t/h	20 t/h

Source: Port Master Plan Study, BCEOM, 1985

Annex I
Table 18

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Investments in the Transport Sector

a) Actual Investments in the Transport Sector 1981/82-1983/84 1/
(in MRs million)

	1981/82	1982/83	1983/84	Total	Share	Share of Foreign Financing
Roads	63.0	33.0	7.0	103.0	45.2%	75%
Port	21.0	14.0	33.0	68.0	29.8%	85%
Civil Aviation	-	7.0	50.0	57.0	25.0%	80%
Total 2/	84.0	54.0	90.0	228.0	100.0%	
(US$ million) 3/	(7.64)	(4.91)	(8.18)	(20.73)		

b) Expected Investments for the Transport Sector 1984/85 - 1986-87 1/
(in Rs '000)

	1984/85	1985/86	1986/87	Total	Share	Share of Foreign Financing
Roads	77.0	155.0	120.0	352.0	48%	70%
Port	49.0	51.0	6.0	106.0	15%	89%
Civil Aviation	53.0	93.0	123.0	269.0	37%	70%
Total 4/	179.0	299.0	249.0	727.0	100%	
(US$ million)	(12.01)	(20.00)	(16.71)	(48.79)		

1/ PSIP in current prices and rounded figures; part of the Public Sector Investment Program for the whole economy; figures being revised by Government.

2/ For the three-year period the total investments in the economy were about Mrs 3,027, of which foreign financing was about MRs 1,352 million or 45%, and local financing was about MRs 1,675 million or 55%.

3/ Exchange rate: US$1.00 = MRs 11.0.

4/ For the three-year period the total investments in the economy are planned at about Rs 4,347 million, of which about 52% is envisaged to be financed by external sources and about 48% by the Government.

Source: Ministry of Economic Planning and Development, May 1985.

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

SUGAR PRODUCTION AND DISPOSAL

('000 TONS)

ITEM		1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84
STOCKS (BEGINNING OF THE YEAR)	21	13.6	39.5	23.9	31.7	45.7	38.5	25.0	18.7	43.6
PRODUCTION	22	501.9	679.2	664.5	670.4	662.9	490.8	612.5	649.4	602.7
EXPORTS	23	440.7	658.1	618.4	619.3	628.2	466.0	582.7	562.5	586.3
(O/W UNITED KINGDOM)	24	433.8	570.8	494.9	480.3	445.6	363.4	434.4	423.7	439.2
LOCAL CONSUMPTION	25	35.3	36.7	38.3	37.1	41.9	38.3	36.1	36.0	37.5
STOCKS (END OF THE YEAR)	26	39.5	23.9	31.7	45.7	38.5	25.0	18.7	43.6	22.4

(SUGAR YEAR : JULY/JUNE)
NOTE: THESE FIGURES DO NOT CORRESPOND WITH CROP YEAR DATA

SOURCE : MAURITIUS CHAMBER OF AGRICULTURE

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

FOODCROPS : AREA (ARPENTS) AND PRODUCTION (TONS).

ITEM		1980		1981		1982		1983	
		AREA	PROD.	AREA	PROD.	AREA	PROD.	AREA	PROD.
VEGETABLES									
BEANS	31	771	1,123	554	835	468	730	598	860
CUCUMBER	32	271	1,399	242	1,323	281	1,695	244	1,475
PUMPKIN	33	339	2,172	129	978	167	1,255	137	1,040
GROUNDNUTS	34	683	1,071	1,324	1,854	1,310	1,940	1,468	1,910
MAIZE	35	773	732	1,041	1,081	1,285	1,375	988	1,200
POTATOES	36	1,674	11,694	1,829	15,999	1,500	13,500	1,746	14,910
TOMATOES	37	1,468	6,121	1,577	6,739	1,930	9,530	2,110	11,550
CABBAGE	38	289	3,416	229	2,125	208	2,415	231	2,455
ONIONS	39	485	2,196	518	2,295	501	2,190	280	1,485
OTHER VEGETABLES	40	1,665	6,843	1,571	6,558	1,604	7,380	1,648	7,145
FRUITS									
BANANAS	41	605	2,625	602	4,415	770	6,415	775	7,075
OTHER FRUITS	42	64	258	86	476	80	535	57	425
TOTAL	43	9,087	39,650	9,702	45,178	10,104	48,940	10,304	51,730

(1 ARPENT = 1.043 ACRES)

SOURCE : CENTRAL STATISTICAL OFFICE

Airport Facilities and Future Improvements 1/

3

Development of Civil Aviation Facilities

12. The Government has signed a Convention with the Caisse Centrale de Cooperation Economique, France, whereby a loan of 53m FF was provided for meeting the cost of the following works, installations and services:

(a) Consultancy Services by Aeroport de Paris for

(1) Analysis of tender documents and supervision of the contract works for

(i) Plaisance Airport Runway Resurfacing
(ii) Construction of a Drain
(iii) Airport Lighting Systems and
(iv) Navigational Aids

(2) Detailed study, design and preparation of tender documents, tender analysis and supervision of works for a New Control Tower.

(3) Preparation of a Master Plan for the phased development of Plaisance Airport in 3 five-year plans to cater for air traffic forecast to the year 2000.

The Consultants would work in close collaboration with the Airport Project Unit of the Prime Minister's Office and the Department of Civil Aviation.

(b) Civil engineering works consisting of demolishing and repairing the damaged portions of the runway, providing an overlay of average 12 cm thickness of asphaltic concrete on the whole length and width (2600 metres by 45 metres), and the construction of a drain parallel to the runway on the south east end. The drain would be 800 metres long, 2 to 5 metres wide, and 1 metre deep.

(c) The supply, installation, testing, and commissioning of the following equipment:

(1) Precision Approach (Category I) Airport Lighting System for Runway 13.

(2) Simple Approach Airport Lighting System for Runway 31. The contract includes all trenching works, ducting, concrete bases and lighting posts required for these installations.

(d) The supply, installation, testing, and commissioning of the following navigational aids:

(1) 1 Doppler VOR/DME (Very High Frequency Omni Directional Radio Range/Distance Measuring Equipment) at Grand Baie.

(2) 1 Doppler VOR/DME at Plaisance Airport.

(3) 1 Marker Beacon at Bigara Transmitting Station.

(4) 1 NDB at Nouvelle France

(5) 1 Ceilometer
(6) 1 Transmissometer

} Meteorological equipment to be installed at Plaisance Airport for cloud base and runway visual range measurement.

(e) The construction of a new Control Tower 23 metres high, total floor area 450 square metres, and the supply, installation, testing, and commissioning of the Control Tower Equipment.

1/ Excerpts from Report of DCA for 1982/83
Port Louis, Mauritius, June 1984

4

13. On 24th January 1983, the Governments of Mauritius and of the People's Republic of China agreed that the loan of £13.5 million, granted by the latter Government under the Technical and Economic Agreement signed in August 1972 for the new airport project, should be used for the development of Plaisance Airport, namely for the construction of a Terminal Building and Car Park.

14. To implement the Aeroport de Paris's Master Plan gradually in all its aspects (including the examination of proposals from financial organisations, the preparation and organisation of contract documents, the supervision of works, and training of staff), a request has been made under the Indian Technical Assistance Programme to the Government of India for experts from International Airports Authority of India to reinforce the Airport Project Unit so that the development of Plaisance Airport could be done in the most economical way, including the monitoring and progress-reporting of the project.

15. Finally, the British Government has also indicated that it would be willing to loan funds to implement the Master Plan.

9

PART IV

PLAISANCE AIRPORT

Redevelopment

1. With the decision to go ahead with the development of Plaisance Airport mentioned in Part I paragraph 12, discussions were held with Aeroport de Paris and with tenderers. Project implementation began in 1983.

2. Runway investigation and resurfacing started in April 1983 and is expected to be completed by November 1983. Cracks are being repaired and the runway resurfaced with 12 cm of asphalt. After discussion with airlines, schedules have been altered so that arrivals of medium and heavy aircraft take place after 1400 hours local. Schedules of aircraft using less than 1300 metres of runway have been maintained.

3. Plans for the Control Tower were submitted by Aeroport de Paris and sent to tender. The Tower would be on 7 levels, and its total height would be 26.82 metres. The attached technical block would be of 156 square metres in the first instance.

4. The contract for the new Airfield Lighting was awarded in June 1983; works are scheduled to start in November 1983 and be completed seven months later.

5. The Master Plan was drawn up and submitted in March 1983. It was approved in April 1983. The plan proposed a complete rebuilding of all Departmental facilities apart from the cargo hangar, which would be extended. It also included provision for extending the Air Mauritius hangar and for extending the runway in 2 phases;

(a) Runway 13 by 310 metres by 1987.

(b) Runway 31 by 300 metres by 1992.

6. Airport consultants from the People's Republic of China arrived in June 1983 to prepare and submit proposals for the building of a Terminal Building and car park along the lines suggested in the Master Plan.

7. Discussions were also held with the UK on financing as many as possible of the remaining proposals on the Master Plan.

Passenger Facilities

8. There was no change to the facilities provided to passengers, with the terminal building being able to handle one B 747 load of passengers comfortably.

Freight Hangar

9. No change was carried out in the freight handling services of Plaisance Airport. The capacity of the freight hangar remained at 5,220 cubic metres.

Runway and Apron

10. The length of the runway remained at 2,590 metres and repair works were started under the redevelopment plan. Pavement Classification Number of the existing surface was 80.

11. On the apron. parking was available simultaneously for four aircraft of the B 747 size and three of the B 707 size. Hydrant refuelling was available at all parking bays; the fuel storage capacity was 210,000 gallons.

Navigation and Landing Aids

12. The following navigation aids were available:

Medium Frequency Non-Directional Beacon (NDB)
Medium Frequency Locator Beacon
Very High Frequency Fan Marker Beacon
Very High Frequency Omni Range (VOR)/Distance Measuring Equipment (DME)
ILS for Runway 13 with associated DME and NDB

Electrical Power

13. Electrical power for airfield lighting and other services was provided by the Central Electricity Board. The following standby sets were available:

One 60 KVA Dorman
One 80 KVA Dorman
One 175 KVA Rolls Royce
One trailer-mounted 250 KVA Petbow
Three trailer-mounted emergency lighting sets
Two 825 KVA English Electric (Bigara Station)
One 15 KVA GM Power Plant (Bigara Station)
One 875 KVA Paxman Diesel (Tombeau Bay)
One 60 KVA No-Break Austinlite Design (Tombeau Bay)
One 15 KVA GM Power Plant (Flic-en-Flac)

Air Traffic Services

14. Air Traffic control was available round the clock. Ways of reducing the workload of the Aerodrome/Approach controller were studied and a separate cubicle set up to control approaching and departing traffic beyond Flic-en-Flac beacon. Communications tests were carried out from the cubicle and the results were being assessed.

15. An air traffic controller was posted to the Flight Information Centre to supervise the Communicators during hours of peak aircraft movements.

16. Also, it was decided to send the Communications Centre Staff on training courses dealing with aeronautical radio communications as no staff member in this section has had any formal training at an ICAO approved school.

17. A Search and Rescue Exercise was held in September 1982 to test the SAR agreement signed between the Governments of France and Mauritius in December 1981. A dinghy, without a locator beacon, was launched on the Mauritius — Rodrigues route and the exercise consisted in looking for it 14 hours later. A C 160 Transall of the French Air Force eventually located the dinghy after about 8 hours' flying. Also participated in the exercise: one DHC 6 Twin Otter from Air Mauritius, one vessel each from the Mauritian and French Navies.

12

PART V

PLAINE CORAIL AIRPORT

Runway

1. The paved runway at Plaine Corail Airport remained at 1,000 metres. Works continued on levelling and grading its strips.

Facilities

2. The space available for incoming and outgoing passengers was unchanged; however, works started on a 60 square metre extension in April 1983.

Traffic

3. The number of passengers handled increased by 14% to 7,203; freight increased by 45% to 20.9 metric tons, and mail by 10.3% to 7.6 metric tons. Details of traffic, computed from Plaine Corail, are a Annex P.

Radio and Navigation Aids

4. The following radio and navigation aids were available:
Two Very High Frequency channels for communications with aircraft.
High Frequency Single Side Band channels for communications with Plaisance Airport.
Medium Frequency NDB

5. Proposals were made for installing an internal communications network on Departmental vehicles in use at the airport.

Air Traffic Services

6. To improve the air traffic services, an assistant air traffic controller was posted to Plaine Corail airport in March 1983.

Security

7. Works continued on the installation of a perimeter chain link fence around the airport.

Rescue and Fire Fighting

8. In addition to the rescue and fire fighting truck purchased from India and received on 30 April 1982, a similar truck and a full range of protective equipment was offered as a grant by the Australian Government in January 1983. Part of the equipment has been received. Plans have been made for the construction of a new garage for the trucks and equipment at the airport.

9. A member of the Rescue and Fire Fighting staff from Plaisance Airport was posted to Plaine Corail in March 1983.

Outer Islands

10. A team consisting of Departmental, Air Mauritius, and French Government representatives visited the islands of St Brandon and Agalega in April 1983. Tentative plans were drawn up for the construction of a 1100-metre strip on North Island in Agalega and of a 740-metre strip on Puits a Eau island in St Brandon. Both projects would be financed by a loan from the Caisse Centrale de Coopération Economique.

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

Basic Data of Major Bus Operators[1/]

Review of Traffic Operations by Major Bus Operators

Operator	Year ended June	Buses held (No.)	Average Buses Operated daily (No.)	Bus Utilisation (%)	Total vehicle miles operated (thousand)	Average daily service miles	Average miles/ bus operated/ day
N.T.C.	1982	276	173	63	6,277	17,197	100
	1983	287	187	65	8,122	22,250	119
	1984*	335	226	67	10,930	29,945	132
U.B.S.	1982	242	148	61	6,370	17,452	118
	1983	241	144	60	6,396	17,523	122
	1984*	241	141	59	6,140	16,822	119
R.H.T.	1982	82	59	72	1,902	5,211	88
	1983	82	59	72	1,863	5,104	87
	1984*	82	53	65	1,787	4,896	92
T.B.S.	1982	49	37	76	1,938	5,310	144
	1983	48	39	81	1,999	5,477	140
	1984*	51	41	80	2,121	5,811	142
M.B.T.	1982	20	16	80	689	1,888	118
	1983	20	16	80	712	1,951	122
	1984*	20	16	80	744	2,038	127

*1984 figures are all estimates

1/ Source: Report of the Committee on Tariff of Bus Fares, Port Louis, Mauritius, July 1984

Overhead Costs as a percentage of Operating Costs

Operator	Year ended June	Total Operating costs Rs Million	Administration excluding interest Rs million	%	Administration including interest Rs million	%
N.T.C.	1982	44.37	3.60	8.11	5.35	12.06
	1983	56.52	4.43	7.84	6.74	11.92
	1984	77.47	6.49	8.38	10.42	13.45
U.B.S.	1982	51.14	2.95	5.77	4.48	8.76
	1983	54.53	2.25	4.13	4.11	7.54
	1984	50.24	3.40	6.77	5.75	11.45
R.H.T.	1982	12.74	0.96	7.54	1.37	10.75
	1983	13.57	0.89	6.56	1.36	10.02
	1984	14.61	0.93	6.37	1.32	9.03
T.B.S.	1982	11.26	0.59	5.24	0.91	8.08
	1983	12.73	0.71	5.58	0.94	7.38
	1984	13.55	1.05	7.75	1.26	9.30
M.B.T.	1982	3.77	0.20	5.31	0.22	5.84
	1983	4.37	0.22	5.03	0.24	5.49
	1984	4.58	0.23	5.02	0.24	5.24
Average All Operators	1982	123.28	8.30	6.73	12.33	10.00
	1983	141.72	8.50	6.00	13.39	9.45
	1984	160.45	12.10	7.54	18.99	11.84

Summary of Expenditure by Bus Operators

Operator	Total expenditure for the year ended 30th June				Percentage change in c.v.m. %
	1983		1984		
	Rs m	c.v.m.	Rs m	c.v.m.	
N.T.C.	63.26	778	87.89	801	3.0
U.B.S.	58.64	920	55.99	912	(-)0.9
R.H.T	14.93	801	15.93	892	11.4
T.B.S.	13.67	684	14.81	698	2.0
M.B.T.	4.61	645	4.82	648	0.5

Summary of Revenues from Bus Operation

Operator	Gross revenue for the year ended 30th June				Percentage change in c.v.m. (%)
	1983		1984		
	Rs m	c.v.m.	Rs m	c.v.m.	
N.T.C.	65.59	806	88.60	808	-
U.B.S.	51.81	813	53.10	865	6.4
R.H.T.	15.19	815	15.68	882	8.2
T.B.S.	13.74	687	14.74	695	1.2
M.B.T.	4.68	657	4.90	658	-

Operator	Profit(+)/or Loss(-) for the financial year ended June (Rs million)	
	1983	1984
National Transport Corporation	+2.33	+0.71
United Bus Service	-6.83	-2.89
Rose Hill Transport	+0.26	-0.25
Triolet Bus Service	+0.07	-0.07
Mauritian Bus Transport	+0.07	+0.08

MAURITIUS

TRANSPORT SECTOR MEMORANDUM[1/]

STUDY OF AIR TRAVEL MARKETING STRATEGIES

TERMS OF REFERENCE

The study will propose appropriate marketing strategies for tourist flights to Mauritius from new and traditional markets, and recommend a market intelligence gathering and monitoring system to provide the essential information to the Government on the potential for developing tourism markets. In formulating these proposals, the consultant will take account of the prospects for air services to be operated by Air Mauritius as well as foreign carriers, and will consider the potential for both scheduled and non-scheduled operations.

Background

The Government has selected tourism as one of the key sectors to assist in restoring equilibrium in the balance of payments, and has adopted a broadly based action plan to stimulate growth in the sector and the recovery of Mauritius' competitive market position.

A key element in the recovery plan is a continuing program to improve and diversify air service connections. This programme has already begun with a major marketing campaign in the U.K., and agreements to introduce extra flights to South Africa and Rome before the 1983-84 high season. Government-to-Government and airline-to-airline discussions have also been initiated with several countries to explore the possibilities of an early introduction of new services, including joint ventures and traffic rights pooling between Air Mauritius and foreign airlines and dedicated tourists flights, as well as conventional bilateral route sharing.

The study would assist in determining a longer term strategy for the expansion of air services to Mauritius, and in establishing the information gathering and market monitoring systems necessary to keep the strategy abreast of changing conditions in the international air travel markets.

The Study

The consultant will review the existing coverage of air services and, taking into account current initiatives to expand this coverage and other conditions in international markets, shall recommend a program of air service development after identifying the most promising new medium-term tourist markets, consistent with Mauritius' chosen tourism development strategy favoring high-spending visitors. In the light of expected market conditions over the next five years, the consultant shall

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1/ Included in IBRD Technical Assistance Project, November 1983.

assess whether air services to existing and new markets are more appropriately organized as regular scheduled flights, catering to small groups or individual tourists, or as special (charter) flights catering to large groups. The strategy for air service development so recommended shall also take account of major tour wholesaler/retailer practices in the specific markets considered and the general regulatory framework affecting the type of air services to be developed. The consultant should also identify potential longer-term future markets and set up a data collection system to monitor the timing for potential expansion into these markets.

In making the review, the study will include, but not be limited to, the following potential markets:

New Countries and Regions	Specialized Markets
Australia	Affinity groups
Japan	Conventions
Middle East	Incentive tours
Scandinavia	Business stop-overs
Eastern Europe	
East Africa countries	

The study will also evaluate a range of marketing techniques, such as off-season pricing and joint regional promotions, judged suitable for each particular market.

Duration and Reports

The study will take about six months, with an Inception Report submitted one month after the work commences, a draft final report three months thereafter. The Inception Report shall make a preliminary survey of all potential markets for Mauritius' tourism, identify the most promising areas for further work and propose a work plan for undertaking the required analysis. Approval of the work plan shall be deemed to have been given three weeks after its submission unless indicated to the contrary. The Government comments on the draft final report will be provided to the consultant within one month of its receipt. The Final Report shall be submitted one month after receipt of the Government's comments. In making the study, the consultant shall maintain close consultation with the MGTO and other relevant Mauritian officials and tourism industry representatives, with Air Mauritius and with the consultants undertaking the Organization Study of Tourism Promotion Services.

Selection to undertake this study will depend on demonstrated experience in tourism and air service marketing. Estimated starting date: June 1984; completion December 1984.

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

CARGO HANDLING CORPORATION LTD
SHORE & LIGHTERAGE DEPARTMENTS

RATES FOR LOADING/UNLOADING GENERAL CARGO AS FROM 1 OCTOBER 1984

		Rs	
1	Full Containers of 30m³ (T.E.U.)	1,414.00	per box
	Full Containers of 30m³ S.T.C. Government flour or mail and empty flour containers of 30m³	250.00	per box
	Empty Containers of 30m³ (Others)	707.00	"
	Bagged cargo (excluding cement & fertilizers)	87.00	per ton/m³
	All other cargo (including cement & fertilizers)	141.00	"
	Government Rice	8.17	"
	Government Flour	6.55	"
	Crates Fowls	20.00	per box
	Cattle	50.00	per head
	Other live animals and Government cattle	11.00	"
	Horse box (full)	400.00	per box
	Horse box (empty)	200.00	"

NOTE: Containers other than 30m³ will be charged pro-rata

2 Overtime Rates per Shift from Vessel to Quays and/or from Lighters to Quays - Week days & Saturdays

	Pallets Rs	Break Bulk Rs	Containers Rs
Rate for first gang	2,850.-	3,510.-	1,875.-
Rate per additional gang	1,535.-	2,175.-	1,050.-

3 Overtime Rates per Shift from Vessel to Quays and/or from lighters to quays - Sundays & Public Holidays

	Pallets Rs	Break Bulk Rs	Containers Rs
Rate for first gang	3,150.-	4,000.-	2,150.-
Rate per additional gang	1,530.-	2,050.-	840.-

4 Overtime Rates per Hour from vessel to Quays and/or from lighters to Quays after 6.00 p.m. on Week Days and 4.00 p.m. on Saturdays

	Pallets Rs	Break Bulk Rs	Containers Rs
Rate for first gang	535.-	660.-	350.-
Rate per additional gang	290.-	410.-	195.-

.../2...

.../2...

5 Overtime Rates per Hour from Vessel to Quays and /or from Lighters to Quays - after 11.00 a.m. on Sundays & Public Holidays

	Pallets Rs	Break Bulk Rs	Containers Rs
Rate for first gang	590.-	750.-	405.-
Rate for additional gang	285.-	385.-	160.-

6 Overtime Rate per Shift when Cargo is discharged in Lighters or loaded from Lighters on board Vessels (all days)

	All Cargo Rs
Rate for first gang	1,567.-
Rate per additional gang	710.-

7 Survey Expenses During Ordinary Overtime Shifts when Cargo is discharged in Lighters or loaded from Lighters on board Vessels

Rate per gang Rs 710.-

8 Overtime Rates for working between 1.00 p.m. and 4 p.m. on Saturdays and during Meal Hours when Cargo is discharged in Lighters or loaded on board Vessels from Lighters

	All Cargo Rs
Rate for first gang	345.- per hour
Rate per additional gang	230.- "

9 Survey Expenses between 1.00 p.m. and 4.00 p.m. on Saturdays and during Meal Hours when Cargo is discharged in Lighters or loaded on board Vessels from Lighters

Rate per gang Rs 230.- per hour

10 Overtime Rate for landing Rice at Granary on Week days & Saturdays

Rate per gang Rs 1,250.-

11 Overtime Rate for landing Rice at Granary on Sundays & Public Holidays

Rate per gang Rs 1,375.-

12 Rate for Disinfection of Lighters

Rate per lighter Rs 150.-

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

GOVERNMENT OF MAURITIUS

MINISTRY OF WORKS

URBAN REHABILITATION AND DEVELOPMENT PROJECT

ISLANDWIDE STUDY OF PUBLIC TRANSPORT

TERMS OF REFERENCE

INTRODUCTION

Buses form the principal mode of public transport in Mauritius. In 1982, the bus fleet comprising 1081 single decker vehicles carried 150 million passengers on 170 routes. There are currently four major bus companies and the National Transport Corporation which is publicly owned. The companies and the National Transport Corporation together operate approximately 63 per cent of the bus fleet. The remainder are operated by approximately 250 individual operators or small businesses. Bus services and fares are controlled and regulated by the National Transport Authority which was set up in 1978 under the aegis of Ministry of Works.

OBJECTIVES

The principal objectives of the proposed study are twofold -

(a) to improve the efficiency and standard of bus services;

(b) to improve the public transport infrastructure (depots, workshops, termini, interchanges and stops).

N.B. The Islandwide Study of Public Transport is being financed by the Saudi Fund for Development as part of the National Physical Plan Implementation studies being carried out under the World Bank's Urban Rehabilitation and Development Project.

SCOPE OF WORK

The Government requires that study proposals be presented in the form of a detailed implementation programme covering a five year period and an outline programme for five years more. The efficiency improvements should include a realistic route rationalization plan capable of implementation and monitoring by the National Transport Authority. The physical improvements should be justified in economic/financial terms and be accompanied by outline plans, drawings and cost estimates.

Route Rationalization

The consultant's work programme should make full provision for carrying out a route rationalization study involving:

(a) data collection and analysis - quantifying travel demands and levels of service offered on existing routes;

(b) forecasting and quantifying future travel demands and bus fleet requirements;

(c) developing a route rationalization programme, taking full account of operational constraints;

(d) detailing frequencies, schedules and fares for each route in the recommended rationalization programme.

The attention of the Government should be drawn to any matters concerned with the route rationalization programme which could have an impact on its successful and speedy implementation.

Infrastructure Improvements

The infrastructure improvement programme would involve the following principal tasks.

(a) Inventory of existing facilities - all facilities (depots, workshops, termini, shelters, signs etc.) provided by the present private operators or the National Transport Corporation should be included and an evaluation made of their value, expected life and usefulness;

(b) forecasting of future infrastructure needs;

(c) identifying and developing an infrastructure improvement programme;

(d) designing, detailing, costing and evaluating each component of the improvement plan;

(e) drawing up a phased implementation programme taking full account of investment constraints.

It is intended that the implementation programme will form the basis for further funding activity from international or bilateral sources.

REPORTS

The consultant's team will report to a Steering Committee comprising inter alios representatives and advisers to the Ministry of Works, the National Transport Authority and the National Physical Plan Implementation Unit.

A brief report on administrative and technical matters will be prepared by the consultants each month and circulated at least five days prior to the Steering Committee meetings.

A study findings will be presented in a Draft Final Report 10 (ten) months after the start of the study in two separate documents: one concerning route rationalization and the other infrastructure improvements. Interim reports for each of those areas should be presented 4 to 6 (four to six) months after the commencement of the study. The interim report on route rationalization should present the results of the data collection programme and the assumptions and results of the forecasting exercise. The interim report on infrastructure improvements should present the results of the inventory and forecasts of future needs.

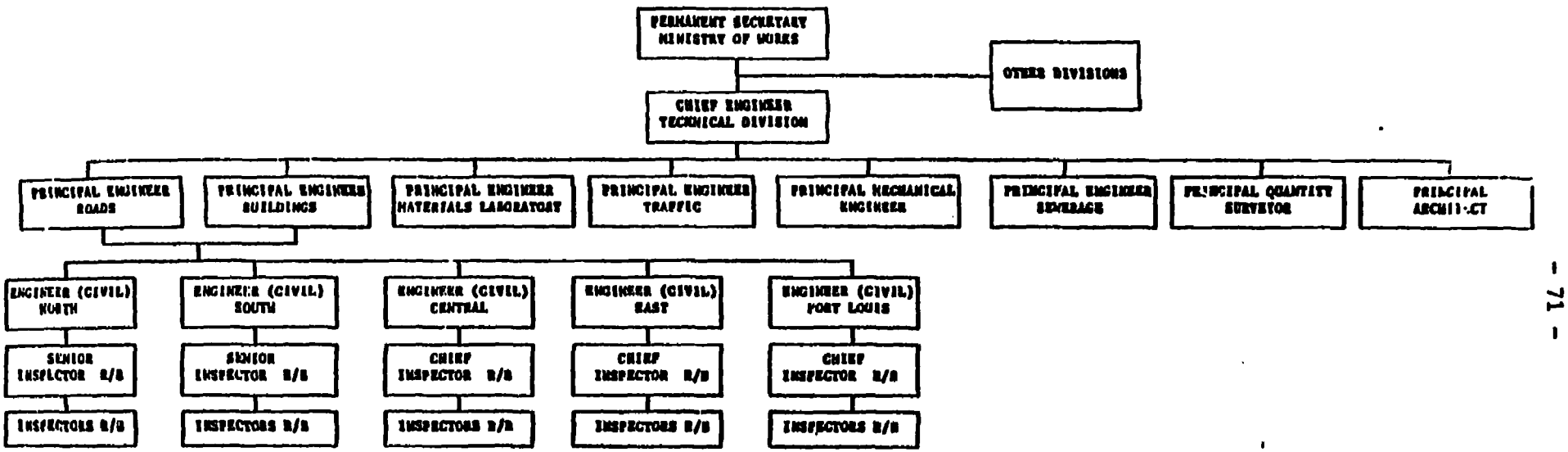
The Government will require 30 (thirty) copies of the Interim Reports, 30 (thirty) copies of the Draft Final Report and 50 (fifty) copies of the Final Report.

Traffic Management Unit,
Ministry of Works,
28th July 1983.

MAURITIUS

TRANSPORT SECTOR MEMORANDUM

ORGANIZATION OF ROAD SECTION OF TECHNICAL DIVISION UNDER MINISTRY OF WORKS



R = Roads
B = Buildings

Source: Technical Division, December 1982

CHART I

MAURITIUS
TRANSPORT SECTOR MEMORANDUM

NATIONAL TRANSPORT AUTHORITY

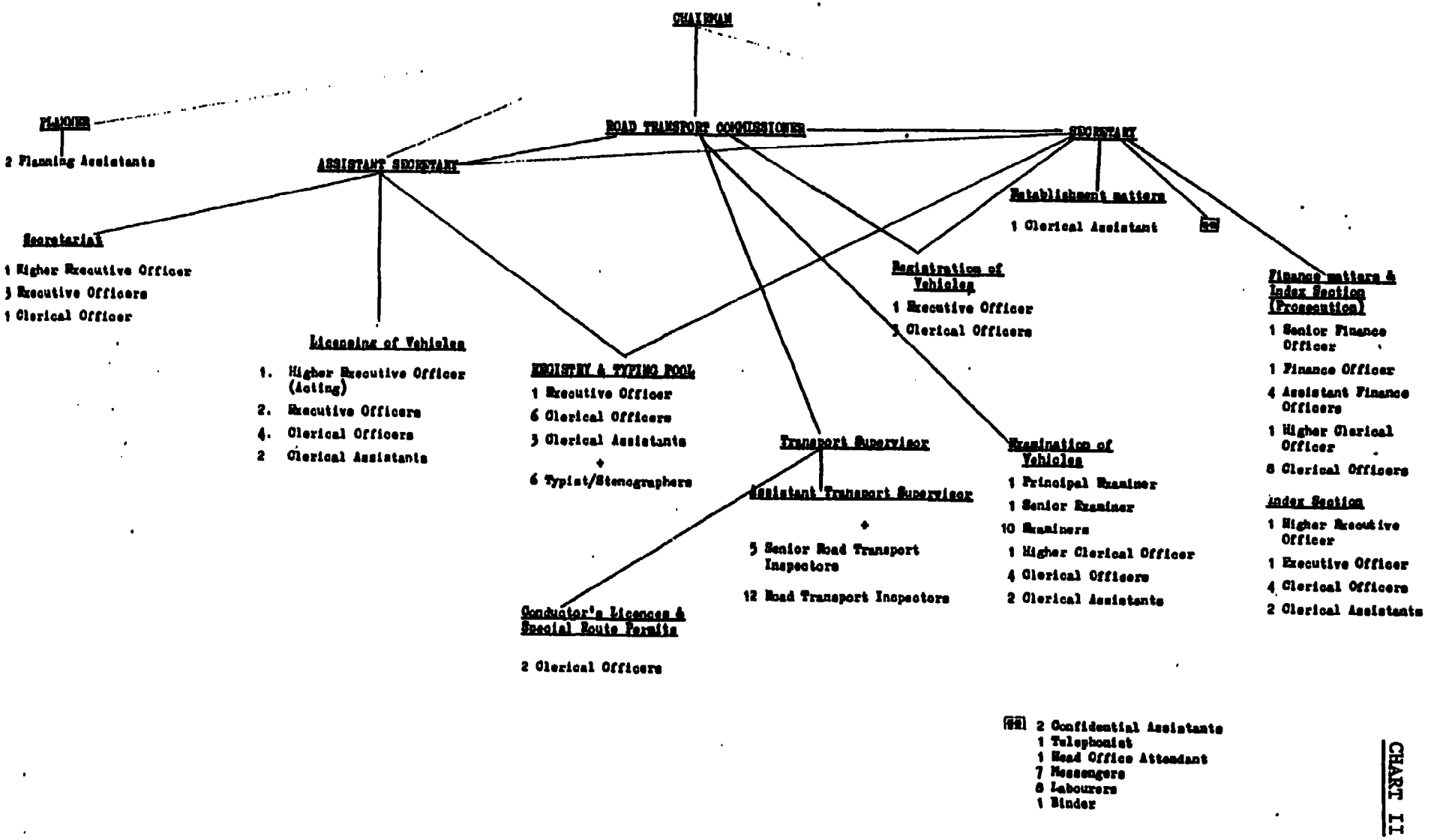
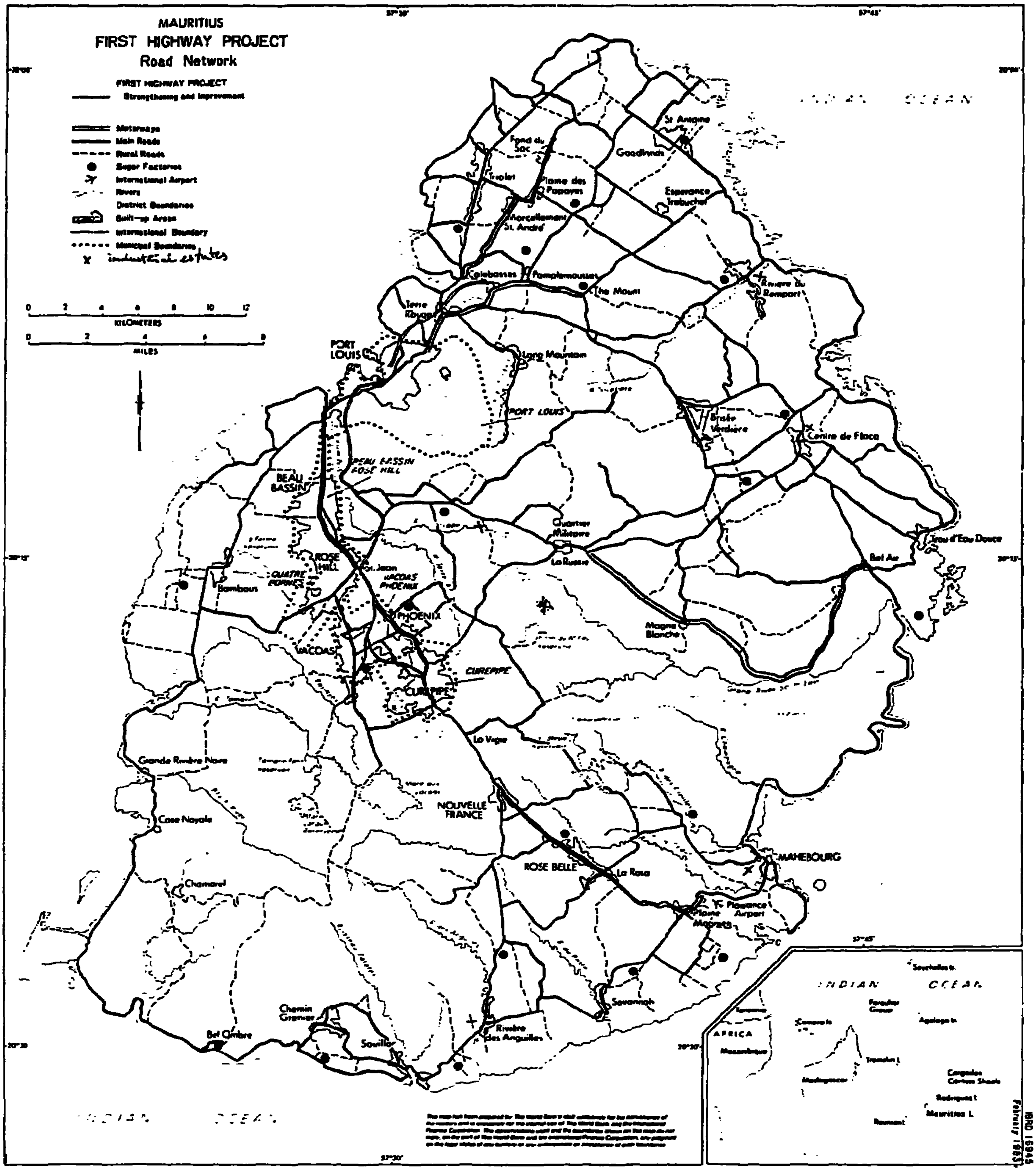


CHART II


MAURITIUS
FIRST HIGHWAY PROJECT
Road Network
FIRST HIGHWAY PROJECT
Strengthening and Improvement
Motorways
Main Roads
Rural Roads
Sugar Factories
International Airport
Rivers
District Boundaries
Built-up Areas
International Boundary
Municipal Boundaries
KILOMETERS
MILES
INDIAN OCEAN
Fond du Sac
Goodlands
St Antoine
Triolet
Plaine des Papayes
Esperance Trebuchet
Morcellement St. André
Calebasses
Pamplemousses
The Mount
Riviere du Rempart
Terre Rouge
PORT LOUIS
Long Mountain
Brisée Verdière
Centre de Flacq
BEAU BASSIN
ROSE HILL
Quartier Militaire
La Rosaie
Trou d'Eau Douce
Bel Air
Bambous
St. Jean
PHOENIX
Magne Blanche
VACOAS
CUREPIPE
La Vigie
Grande Rivière Noire
NOUVELLE FRANCE
Case Noyale
ROSE BELLE
La Rosa
MAHEBOURG
Chamarel
Plaisance Airport
Plaine Magnien
Savannah
Chemin Grenier
Rivière des Anguilles
Bel Ombre
Souillac
AFRICA
Seychelles Is.
Comoro Is.
Agalega Is.
Mozambique
Madagascar
Tromelin I.
Cargados Carajos Shoals
Rodrigues I.
Mauritius I.
Reunion I.
IBRD 16945
February 1983