

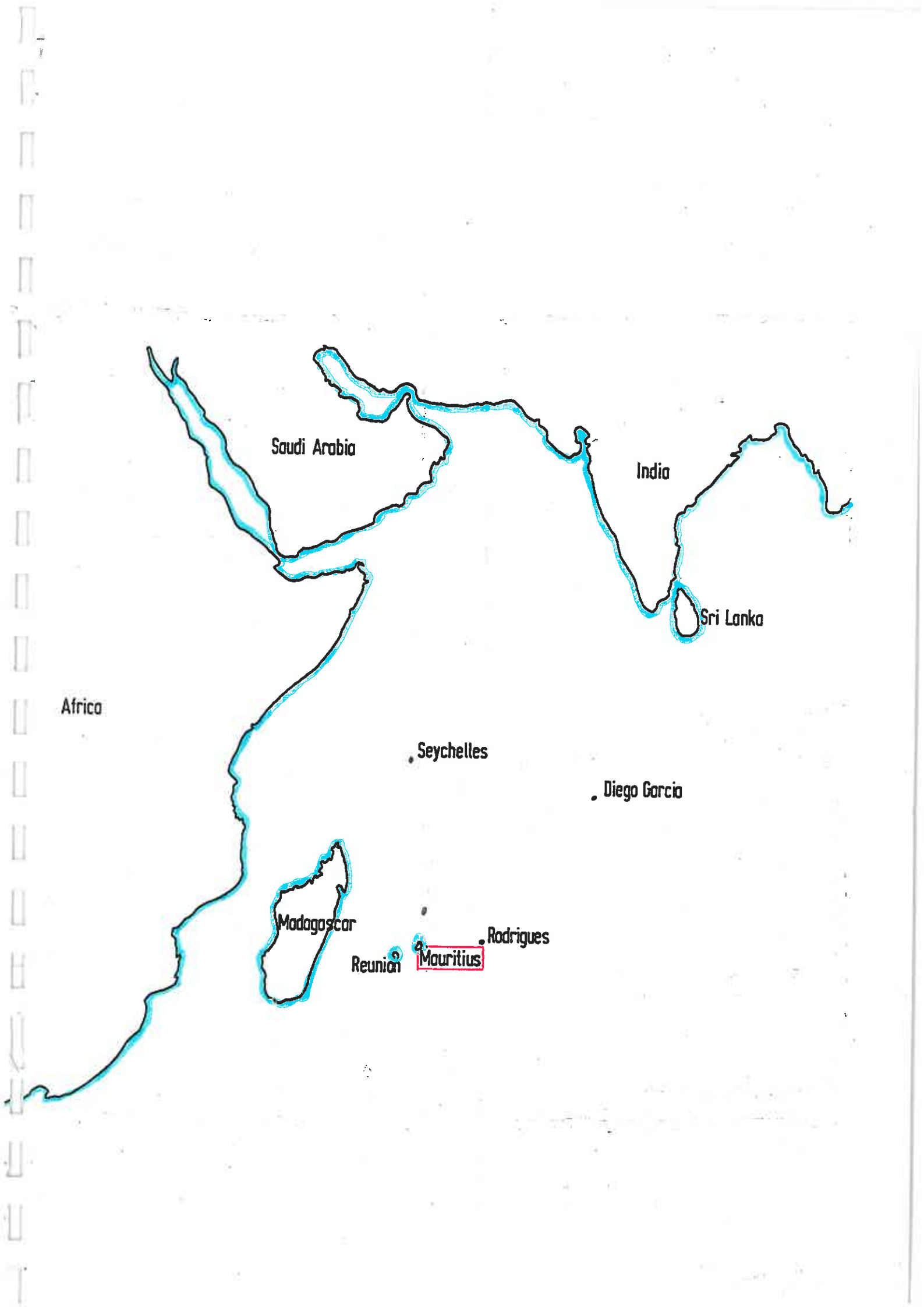
MAURITIUS

PRELIMINARY

Country Report

HABITAT II

Nov. 1994



Saudi Arabia

India

Sri Lanka

Africa

Seychelles

Diego Garcia

Madagascar

Reunion

Mauritius

Rodrigues

CONTENTS

- 1.0 Preamble
- 2.0 Introduction
- CHAPTER I : HOUSING
 - 3.0 Detailed statistical & physical data on the housing situation in Mauritius.
 - 4.0 Housing needs.
 - 5.0 Public sector policies and programmes from the 1960's onwards.
 - 6.0 Constraints in Housing development.
 - 7.0 PROGRAMMES/PROJECTS under implementation.
- CHAPTER II : B. SETTLEMENTS STRATEGY
 - 8.0 The existing settlement pattern.
 - 9.0 Reactions to the "laissez-faire" settlement situation.
 - 10.0 Government's response to the settlements' issue.
 - 11.0 Town & Country Planning Legislation.
 - 12.0 Physical Development Plans (Outline Schemes).
 - 13.0 Development Control Guidelines.
 - 14.0 Conclusion.
- CHAPTER III : THE ENVIRONMENT
 - 15.0 Major Environmental Issues.
 - 16.0 Environmental Management.
 - 17.0 The Environment Investment Programme Implementation.
 - 18.0 Conclusion.

1.0 PREAMBLE

1.1 Situated off the east coast of Africa, the Republic of Mauritius comprises the islands of Mauritius, Rodrigues, St. Brandon, Agalega and a number of smaller islands. Most of them are of volcanic origin and are surrounded by fringing coral reefs enclosing lagoons of various sizes. The islands are dispersed over a wide area in the Indian Ocean; the largest of them is Mauritius.

1.2 Mauritius is generally flat but some mountain ranges also occur, with the highest peak reaching 817 metres. Its coastline is about 310 Kms long and is almost completely surrounded by fringing coral reefs enclosing a lagoon area totalling 243 Km².

1.3 The climate is tropical with surface water temperature varying seasonally between 22° to 28°C but the island is prone to cyclonic depressions annually between the months of December and April.

1.4 The Island is endowed with sandy beaches, bays and lagoons, factors which have encouraged important fishing activities and a prosperous tourism industry.

- 1.5 Mauritius has no mineral resources; agriculture has been its main activity of mauritius with sugar cane and tea as the chief cash crops until a few years ago when industrial activities expanded to become the major foreign exchange earner of the country. Tourism occupies the third position in the generation of foreign exchange.
- 1.6 Human habitation is dispersed almost all over the island with the result that conflicts between different land uses become inevitable. There are many cases where buildings are constructed onshore, on hillsides, on wetlands and other vulnerable or sensitive sites.
- 1.7 Mauritius is exposed to natural disasters, like cyclones and droughts. Sometimes the damage is catastrophic, hurting deeply both the economy and the environment.
- 1.8 Prolonged droughts have also affected Mauritius over the last few years which, in the face of competing demands from increased economic activities, can have serious impacts upon all sectors of the economy including hydroelectric energy production. Indeed shortage of water can become a serious threat for the future.

- 1.9 In the longer term, there are the additional threats posed by climate change and associated sea level rise the combination of which may likely reduce the carrying capacity of the islands in the longer term.
- 1.10 The small size of Mauritius together with diverse physiography, climatic variations and multiple use of land resources create serious conflicts between different land uses. Consequently encroachment on environmentally sensitive areas such as watersheds, wetlands and coastal ecosystems, mountains, parks and forest lands become very difficult to control. As the country is still dependent on sugar manufacture, over 50% of the land area, equivalent to 90% of arable land, is under sugarcane, a situation which does not leave much land for other purposes.
- 1.11 Mauritius has no proven oil and coal resources, and makes very limited use of renewable energy resources such as wind, hydro, solar and biomass. The only local sources of energy being adequately exploited at present are hydro power and bagasse (residue from cane). Consequently the country is heavily dependent on imported fuel.

1.12 Though Mauritius is surrounded by a fairly large area of protected lagoons, fish catch has dwindled over the past few years due to overexploitation and pollution mainly from landbased sources. Mangrove swamps, estuaries and other fish nursery grounds and fish reserves have been devastated by uncontrolled developments along the coast. This has been accompanied in several coastal areas by a shift from fishing to lagoonal sand mining which causes further environmental degradation.

1.13 In spite of the foregoing, the situation in the environment and human settlements (land use planning and housing) sectors has not reached a point of no return and is indeed not out of hand. The Government is taking the necessary measures in the fields of planning, housing and the environment in general to offer a better living environment for the population of Mauritius.

2.0 INTRODUCTION

2.1 This preliminary Report looks at the Shelter Sector in Mauritius since the 1976 Habitat summit of Vancouver - its evolution in terms of statistical data, current and future housing policies, projects and programmes as well as developments that have taken place in the field of settlements/environmental planning in terms of national and regional/local strategies and plans. It also exposes environmental projects and programmes of the Republic of Mauritius.

2.2 In the field of housing, it should be observed right at the outset that, whilst the island's situation is far from being the ideal, it is, by African and Asian standards very much under control in view of its manageable dimensions. If the squatter problem is a significant indication of and a yardstick by which to gauge the housing situation in a developing country, then it should be known that in relation to a population of 1,078,000 in 1992 Mauritius had as at November 1994 to this date (November 1994) some 1900 squatter households in the process of regularisation, and another 400 under investigation, all on State lands. It should

further be observed that there are no cases of squatting on private lands.

2.3 In view of para. 2.2, it has not been felt necessary, in the context of Habitat II, to set up a national committee as recommended to discuss housing problems with a view to elaborating on shelter sector strategies and plan of actions for the country. However, the Ministry responsible for Housing Lands and Town and Country Planning, conscious of the fact that no ideal solution exists in so far as low-income housing is concerned and that this is an area where affordability and aspirations just cannot be matched, and desirous of listening and reacting to NGOs, pressure groups as well as housing operators, will be organising a HOUSING FORUM in early 1995 to debate housing issues.

2.4 This Report may be revised in the light of the outcome of the forthcoming *Housing Forum* to the extent that new ideas and perspectives that may be brought up could impact on Government policies and programmes charted so far.

2.5 It needs to be observed that Mauritius has over the years of its economic development, formulated

and implemented various types of housing schemes, from complete housing units delivery to the low-income group to sites' and services schemes. Core-housing schemes also have been successfully developed. Public sector housing has over the last three years taken a new shape: housing blocks of 4 levels have and are being developed, mostly in urban/suburban areas. This is a new experience in low-income housing dictated by public land shortage, high prices of private lands, offsite and on-site infrastructure costs of servicing public housing and the new integrated approach adopted to housing development - i.e. the provision of social services and amenities on large housing estates.

- 2.6 Finally, it needs also to be observed that the public sector has since 1989, initiated an enabling strategy for private sector housing developments whereby various incentives are given to private companies and/or developers to engage in house constructions. However, since the package of incentives offered did not prove attractive enough to the private sector, the Government has recently revised it. The new package will be operational very soon.

CHAPTER I: HOUSING

3.0 DETAILED STATISTICAL & PHYSICAL DATA ON THE HOUSING SITUATION IN MAURITIUS

3.1 The Housing Stock

3.1.1 The latest housing census which is dated 1990 showed that there were 223,821 housing units in the State of Mauritius, out of which 216,011 were in the island of Mauritius and the remainder in the island of Rodrigues.

3.1.2 The urban areas (i.e. the 5 statutory towns) of Port Louis, Beau Bassin/Rose Hill, Quatre Bornes, Vacoas and Curepipe account for 43.0% of the housing stock. But when the peri-urban areas are reckoned with, the percentage of housing units in the urban and peri-urban zones goes up to 51.6% of total housing.

3.1.3 Out of the 216,011 housing units for the island of Mauritius, 208,163 were occupied and provided accommodation for a population of 1,014,205 grouped into 229,367 households. The excess of households over housing units gives an indication of the shortage of housing units which amounted to 13,356. It would however be more realistic to put

the shortfall at 20,000 dwellings, when allowance is made for vacancy rate (3%), urbanisation pressure, social mobility and spatial inadequacies.

3.1.4 The 1990 housing census data show that there were 7,810 housing units in Rodrigues, (an out island 550Km South east of Mauritius) out of which 7,221 were occupied. The number of households amounted to 7,268 and the population stood at 33,883.

3.2 Physical Data

3.2.1 Building Characteristics

Out of 200,621 buildings counted in the 1990 housing census for the island of Mauritius, *residential buildings* (exclusive of 2,202 detached rooms used by part of a household) amounted to 177,711, out of which 6,666 were partly residential.

3.2.2 The number of buildings used wholly as 1 housing unit stood at 146,632 representing 82.5% of the number of residential buildings. There were 14,044 blocks of flats and semi-detached houses, representing 7.9% of the total housing stock.

Another 5.7% of residential buildings were buildings designed as 1 housing unit but crudely subdivided into smaller housing units.

3.2.3 Residential Building Height and Building Materials

88.1% of the residential buildings (including partly residential) were constructed on 1 floor, while another 11.5% were one-storeyed buildings (i.e. ground plus one floor). According to the 1990 housing census 71.9% of the residential buildings had concrete walls and roofs and 16.9% were built of wood and/or iron.

3.2.4 Age of Residential Buildings

As at 1990 some 56% of the existing residential and partly residential buildings were built after 1975. The share of the housing stock built between 1960 and 1974 amounted to around 24% and 11% predated 1960.

3.2.5 Basic Household Amenities

The 1990 census shows that the island of Mauritius is well provided with basic infrastructure.

3.2.6 Electricity

In that year, 224,134 households were provided with electricity, representing 97.7% of total households. This contrasts with 93.5% in 1983 and 70.8% in 1972.

3.2.7 Water

Out of the 229,367 households, the number provided with piped water amounted to 220,916, thereby representing 96.3% of total households. Of these, 59.6% had piped water inside the housing units, 34.9% outside the house but on the premises and 5.5% were making use of public fountains. The number of households with piped water within the house amounted to 57.45 of total households, in contrast with 40.6% in 1983 and 27.2% in 1972, showing therefore a marked tendency towards supply within the dwelling.

3.2.8 Bathroom facilities

The number of households with bathrooms inside the dwelling amounted to 113,157, representing 49.3% of total households. This is a marked improvement

over the past two decades, with only 36.3% of total households in 1983 and 21.4% in 1972 having bathing facilities inside the housing unit. Nevertheless, it must be pointed out that in 1990 there were still 106,008 households, representing 46.2% of total households, with bathing facilities outside the house and another 10,193, i.e. 4.5% with no bathroom (although the latter figure compares with 14% of households with no bathroom in 1983).

3.2.9 Toilet facilities

In the case of toilet facilities, the number of households making use of flush toilets connected either to the sewerage system or to an absorption pit and septic tank amounted to 147,928, representing 64.55% of total households. This compares favourably with the situation in 1983, when only 48.9% of total households enjoyed a flush toilet, and in 1972 (with 33.5%). On the other hand, the number of households using a pit latrine declined steadily from 58.0% of total households in 1972 to 44.5% in 1983 and to 35.0% in 1990. The use of flush toilets is more predominant in the urban areas than in the rural zones. In 1990, some 83.6% of households in the

five townships enjoyed a flush toilet, compared with 50.4% in the rural areas.

3.2.10 Kitchen facilities

There has been over the past two decades a marked tendency towards providing kitchen facilities within the house. For the island of Mauritius, the share of total households with inside kitchen facilities rose from 37.2% in 1972 to 50.5% in 1983 and to 66.1% in 1990. The share of households with inside kitchen facilities were higher in the urban areas than in the rural zones in 1990. In effect, 80.3% of urban households enjoyed inside cooking facilities, as compared with 55.5% of rural households.

3.2.11 Cooking fuel

There has also been a change in the type of fuel used for cooking. In 1990, some 25.4% of households in the island of Mauritius used wood or charcoal as principal fuel for cooking, as compared with 53.7% in 1983 and 62.3% in 1972. In contrast, the number of households using kerosene increased from 31.9% of total households in 1972 to 35.4% in 1983 but fell down to 21.8% in 1990.

Households using gas or electricity increased steadily from 4.6% of total households in 1972 to 10.5% in 1983 and to 52.6% in 1990. There has in effect been a substantial increase in the consumption of gas, as the principal source of fuel for cooking, with gas alone accounting for 51.1% of households. The use of gas and electricity is more predominant in the urban areas, with 68.55% of urban households making use of that type of energy for cooking, as opposed to 40.9% of rural households.

The Table below gives a summary of the basic amenities and the degree of their access to households.

3.2.12 Availability of basic amenities to households

	1972		1973	1990
Household with electricity	No.	106,817	184,903	224,134
	%	70.8	93.5	97.7
Water supply inside house	No.	41,029	80,221	131,689
	%	22.7	40.6	57.4
Flush toilets	No.	50,504	98,688	147,928
	%	33.5	48.9	64.5
Inside bathing facilities	No.	32,200	71,826	113,157
	%	21.4	36.3	49.3
Attached kitchens	No.	56,025	99,732	151,534
	%	37.2	50.5	66.1
Electricity/gas for cooking	No.	6,963	20,731	120,656
	%	4.6	10.5	52.6

3.2.13 Household Size

Average household size has shown a constant decrease during the past 20 years. From 5.32 persons per hh in 1972) the hh. size has decreased to 4.89 in 1983 and further to 4.45 in 1990.

3.2.14

Housing Tenure 1972 - 1990

Year	Total	Owner	Tenant/ s-tenant	Free	Other/Not Stated
1972 No.	149,499	79,385	48,605	20,412	1,097
%	100.0	53.1	32.5	13.7	0.7

1983 No.	197,689	130,417	36,463	30,396	413
%	100.0	66.0	18.4	15.4	0.2

1990 No.	229,447	173,092	35,764	20,326	265
%	100.0	75.4	15.6	8.9	0.1

4.0 HOUSING NEEDS

4.1 The actual housing deficit together with the average 0.8% annual population growth needs a declining household size and a replacement rate of 1% of the depleting housing stock. It has been estimated that there is a need for the construction of some 73,000 housing units up to the year 2,000 in order that each household be provided with a housing unit by that year.

4.2 With the current trend of private sector construction of housing units, it is estimated that an annual average of 5,000 units would be built by that sector as from 1990. Therefore, the

public sector would have to construct about 23,000 units up to the year 2,000, i.e. an average of about 2,300 units annually.

5.0 PUBLIC SECTOR POLICIES AND PROGRAMMES FROM THE 1960s ONWARDS

5.1 Various public sector policies and programmes have been formulated and implemented since the 1960s. The details are as below:

5.1.1 Post-Cyclone Rehousing

In view of the substantial damage caused to the housing stock by two successive cyclones, Carol and Alix in 1960, shelter provision has been a sensitive issue. The sector held a high priority in the past three decades, although public sector attitude has fluctuated within the context of the times at which changes had occurred. Government involvement in the sector started in 1960, responding to the overnight deficiency in the stock caused by cyclones Carol and Alix. As most homeless victims were not land owners, the decision had to be taken to build housing estates, with 14,000 houses built in the period 1961-70 by the public sector at a highly subsidised rate, out

of which some 6,000 were erected on estates in the urban areas and another 3,000 on estates in rural zones. Another 4,000 were built on private sites while the rest were smaller units for small families.

No sooner was the programme completed than in 1975 another cyclone struck the island, this time seriously damaging or destroying some 13,000 housing units. In the period 1975-80, Government embarked on a programme for 10,000 units, entrusting 7,000 to the Central Housing Authority (CHA), 2,000 to the Mauritius Housing Corporation (MHC), 600 to the Sugar Industry Labour Welfare Fund (SILWF) and another 600 to be dealt with a grant obtained from the European Development Fund. The programme faced considerable difficulty, with delays in land acquisition, the untimely programming of infrastructure and escalating building costs but was completed by 1981.

As with the previous programme, repayment terms were fairly generous, with land and infrastructure costs being subsidised fully, and building costs recovered at low interest rates over a 40-year repayment period.

5.1.2 Towards cost recovery projects in the 1980s

By the late 1970s it became increasingly clear that the policy of high subsidy could not be maintained indefinitely, and when cyclone Claudette hit the island at Christmas 1979, damaging some 2,500 dwellings, Government response was not the same as to previous disasters. With pressure from such lending agencies as the World Bank, Government decided to view housing as a continuing programme rather than emergency action-based, and started to envisage the concept of affordability and full cost recovery. A survey was carried out in early 1980 to test the acceptance of core housing and sites and services. Response was positive, and Government embarked on an EDF-financed sites and services project and building loan for some 500 beneficiaries and on a World Bank package for, *inter-alia*, the implementation of the first phase La Tour Koenig sites and services and core housing project (on the periphery of Port Louis), that would benefit some 600 households.

After the implementation of the La Tour Koenig Project, Government's role as an active implementor in the sector phased out until 1990.

In the period 1984 to 1990, except for some minor projects by the CHA (rehousing of La Butte landslide victims in Port Louis) and the MHC under previous commitments Government did not propose any major public sector construction project.

5.1.3 Government Policies in the late 1980s

A gradual change in policy started in 1986, with emphasis on (a) the improvement in the conditions of sugar camp dwellers; (b) quality of life; and (c) encouragement of home ownership.

The sugar estates were asked to give consideration to the parcelling out of land into small plots for their workers, with plot servicing at the expense of the public sector, land transfer exempt from tax and the availability of part grant and part soft loan to meet building costs.

The second emphasis was on the quality of life, and provision was made for the rehabilitation of existing Central Housing Authority estates in need of infrastructure upgrading.

Home ownership was also encouraged, with exemption on registration duties for first buyers of

residential land, soft loans with an element of grant from the Mauritius Housing Corporation and facilities to Central Housing Authority and Sugar Industry Labour Welfare Fund residents in estates built prior to 1976 to become owners with only a small final payment. The latter would further be eligible for soft loans for the rehabilitation of their dwellings.

Two important elements need to be highlighted here:-

- Whilst the major 1960 cyclone Carol had badly damaged 40,000 houses and the 1975 cyclone Gervaise damaged 13,000 houses, only some 2,500 units were damaged by the February 1994 cyclone Hollanda. These figures clearly demonstrate that the successive major cyclones affected fewer and fewer houses because of the improvements in the structural soundness brought to the housing stock and housing quality in general.

- whilst in 1968, the per capita income of the country was Rs 14,046, in 1993 it stood at Rs 51,687. This indicates *inter-alia* that the ability to invest in a shelter by wage earners has increased substantially over the last 15 years so

much so that better housing schemes than those traditionally undertaken by the former Central Housing Authority can now be planned, implemented and made affordable to the low-income categories.

5.1.4 Housing Development Certificates

In 1989, Government took the view that because of the shortage of manpower and materials in the construction sector, the magnitude of housing demand and the scarcity of land resources, any ambitious housing programme would have to concentrate on medium rise buildings and to make use of latest building technologies in order to keep prices down. In an effort to shift building contractors and investors in realty to the housing sector, Government decided to deliver Housing Development Certificates (HDCs) to building companies and housing promoters wishing to provide flats for lower and middle income groups. Companies holding HDCs were to benefit from reduced corporate tax, exemption from income tax for eight years, exemption from import duty and import levy on construction equipment and a series of building materials, part remission on registration duty and land conversion tax on land acquisition and loans

from the Development Bank of Mauritius and the Mauritius Housing Corporation.

To-date, 59 applications for HDCs have been received, out of which 18 HDCs have been granted for projects involving the construction of some 2,500 units. Letters of intent have been issued to another 18 applicant companies with projects totalling around 1,000 units. Applications not yet processed amount to 23, representing proposals for the construction of 2,900 units.

It is to be observed that no application has been received for projects targetting low income groups. The majority of applications relate to dwellings aimed at upper middle and middle income categories, with a minimum provision aimed at the lower middle income group.

5.1.5 The Un Toit Pour Chaque Famille (A Roof For Each Family) Policy

The 1990/1991 Budget re-emphasised Government commitments to the plight of the lower income groups within the framework of the ambitious programme of *Un Toit Pour Chaque Famille*. In November 1990, a Task Force on Housing was set up,

its terms of reference being to examine the housing sector and to draw up a Master Plan for housing development, with proposals for different categories of house seekers, especially the low-income and middle-income groups. The Task Force proposed in April 1991 a National Housing Programme for the construction of 73,000 housing units for the period 1991-2000. It recommended that initially 40% of funds for housing should be devoted to lower income groups and that projects should be based on the neighbourhood concept, with facilities for community development and essential services, and located in the vicinity of employment centres. It also recommended the launching of pilot projects with particular attention to multi-storeyed apartment buildings, with the object of assessing their acceptability and educating Mauritians in adapting to life in high-rise apartments. Among the innovations which the Task Force suggested were the use of the latest building technology, an invitation to foreign construction companies with experience in the country's climatic conditions to take part in the construction programme and the support to local contractors intent on adopting new building technology.

In 1991, a private company, the National Housing Development Company Ltd (NHDC) was set up to act as the executive arm of Government in the housing sector. It was provided with Rs200 million as seed capital to enable it to embark on a series of large scale projects for low and middle income groups, with the Government bearing the cost of land and basic on-site and off-site infrastructure (water, sewerage, roads and electricity)

The NHDC has to-date (end 1994) built 4,000 housing units in 3 storeyed blocks 200 terraced-units. Further projects are being finalised for the implementation of some 2,000 units.

The housing units are meant primarily for the income groups drawing between Rs 3,000 - Rs 4,000 and Rs 4,000 - Rs 6,000 per month.

It should be observed here that to further facilitate access to NHDC housing, the Government decided in February 1994 to lower down-payments as follows:

Salary	Down-payment
Less than Rs 4,000*	Rs 5,000
Rs 4,000 to Rs 6,000 sale	5% of housing unit price
more than Rs 6,000	10% - do -

* 1 U.S.\$ = approx. Rs 18 (as at November 1994)

Government has further reviewed loan repayment facilities from the monthly equated instalments to the progressive repayment system for beneficiaries drawing less than Rs 6,000 monthly.

Apart from the National Housing Programme assigned to the NHDC, Government has allocated during the period 1984 - 1993, 1,340 building site leases to enable very low-income people to build their own individual houses. It should be brought up also that by December 1991, Government had approved 1,298 leases to squatters, regularising thereby their illegal occupation of State lands.

6.0 CONSTRAINTS IN HOUSING DEVELOPMENT

6.1 The major constraints the housing sector has to face are the following: climatic conditions, land availability, provision of basic infrastructure, amenities and services, construction technology, access to finance and affordability.

6.2 Climatic Conditions

6.2.1 The continued occurrence of cyclones over the last few decades has created cyclone consciousness and a natural reaction towards safety design from the Mauritian population. There has developed over the past 30 years a marked preference for construction in concrete as opposed to wooden structures and c.i.s roofs. The whole population is aware that housing units have to be designed to withstand high velocity winds (of 250-300 Km/hr.

6.3 Land Availability

6.3.1 Residential land is scarce and hence very costly. It is out of reach of the low-income group and hardly accessible to the lower middle-income group. The need to optimize the utilisation of

that scarce resource has rendered it necessary to achieve greater densities for housing development. The present urban housing projects are being developed at densities of around 100 to 125 units per hectare as opposed to the maximum of around 60 units per hectare in the last two decades. The end result is the construction of blocks of apartments, generally 3 to 4 levels high, a new concept which the urban Mauritians have to get to adapt to and live with. In the rural areas more and more duplex types of units are being constructed.

6.4 Basic Infrastructure

6.4.1 Several housing estates built in the aftermath of cyclones were geared mostly towards the provision of the basic housing units only. Basic infrastructure such as water, sewerage, roads and drains were installed gradually at a later stage. Those housing estates obviously did not contain all the facilities conducive to a decent environment. On an economic standpoint, it costs more to execute civil works in several stages on one site than at one go, notwithstanding the associated inconveniences for the inhabitants. The integrated approach adopted for the new

housing projects of the '90s resolves this problem as it allows house building works and infrastructure works to be carried out concurrently.

6.5 Amenities and Services

6.5.1 In parallel with the installation of basic infrastructure, amenities and services such as schools, health centres, post offices, community centres, police stations, sports and playgrounds, shops need to be provided. However, budgetary constraints have prevented the construction of such facilities in the recently completed projects with a large number of units (1,200 to 1,300 units) but land requirements have been provided for and in due course those facilities will become available. It has, however, been possible to integrate part, if not all, facility requirements in smaller developments (125 - 300 units).

6.6 Construction Industry

6.6.1 The housing sector is very dependent upon the construction industry which until recently was characterised by a certain obsolescence. Local construction firms have just started to adopt new

technology and modernize their equipment. The enlistment of foreign construction firms for the execution of part of the first projects implemented by the National Housing Development Co. Ltd has given a new impetus to building technologies which allow time, a crucial element, to be saved.

6.6.2 The current full employment situation in the country has resulted in a shortage of labour thereby necessitating recourse to imported labour.

6.6.3 Most of the raw materials have to be imported. However, one component available locally is sand; but coral sand is being drawn out at a rate that is adversely affecting the environment. The maximum utilisation of rocksand and the minimum utilisation of coral sand are being promoted and vulgarised.

6.6.4 The absence of standardised building components does not help to achieve cost effectiveness. There is effectively a need to industrialise that sector. A "Building Committee" and a "Standards Committee" grouping appropriate parties have been set up by the Ministry of Housing, Lands and Town

and Country Planning to look into the matter.

6.7 Finance

6.7.1 Mauritius is no exception to the common world situation whereby financial resources available locally are not sufficient to allow the construction of a substantive number of units to meet the existing demand. Loans from foreign countries have been sought and some obtained in order to finance part of the national housing programme.

6.7.2 On the other hand, house-seekers have been encouraged to effect savings in a special savings scheme "Plan Epargne Logement (PEL) run by the Mauritius Housing Company Ltd (MHC) which is the financing arm of Government in the housing sector.

6.8 Affordability

6.8.1 Land and construction costs have put houses out of reach of the lower income groups (LIGs). Government is therefore passing only the cost of the buildings to purchasers satisfying set criteria whilst bearing all costs pertaining to land and infrastructure (both on-site and off-site). Furthermore, loans with subsidised

interest rates are put at the disposal of the Low Income Groups.

6.8.2 A recent market survey in the rural areas has revealed that one out of four families cannot afford a fully completed housing unit even with the abovementioned elements of Government subsidy. For these families (earning less than Rs 3,000 per month), a new housing (The Very Low Income Group Housing) programme for some 600 units is shortly to be implemented. This programme contains projects on 10 sites, across the country, to accommodate 50 units on average. The units will be designed with reduced finishes and would be completed by the beneficiaries. This would not only bring down costs but would also encourage self-participation.

7.0 PROGRAMMES AND PROJECTS UNDER IMPLEMENTATION

7.1 Improvement of existing Public Housing Estates.

7.1.1 Government is not only constructing new housing projects with all basic facilities, but is also rehabilitating deficient basic infrastructure such as water supply, sewage disposal and roads and drainage network on existing estates (see para.

5.4.1). In 1991, a list of the most stricken estates (46 out of the global 178) was established. By 1992, all existing estates had already been provided with individual water connections. As regards sewerage, works have been completed on 4 of these estates and are due to be completed on 20 other estates early next year.

7.1.2 Sugar estate camps, where reside lower income workers of the sugar industry, have been classified into 3 categories: to be demolished, uninhabitable and to be repaired. Government is meeting the costs of electricity, water, sewerage and roadworks in connection with the rehabilitation of these sugar estate camps where live a fair proportion of the rural population..

7.2 Low-Cost Housing projects

7.2.1 The National Housing Development Company (NHDC), awarded 5 contracts for the construction of 1,172 housing units of which 1080 are located in suburban areas and 192 in one rural area. All the units have been completed and allocated.

Government has advanced Rs 200 m, as seed capital (see para. 4.1.5), to the NHDC for the implementation of the above projects.

7.2.2 In December 1991 a foreign loan to the tune of Rs 384m was obtained for the construction of an additional 2,000 units as follows.

Date of start of works	Site location	No. of Units	Completion Date
1. March 1992	Sub-urban	992	May 1994
2. May 1992	Sub-urban	1,008	Aug. 1994

7.2.3 In July 1991, another foreign loan of Rs 100m was obtained for the construction of about 400 housing units on 2 sites. Construction of 216 units started in a rural area in October 1993 and was completed in September 1994.

7.3 New Projects

7.3.1 The Ministry and the NHDC have identified some 10 new sites for the construction of another 2,000 units for the low income group. Discussions for appointment of a contractor are being held and the principle of a "Finance and Build" package is envisaged.

7.4 Low-Cost Housing Access Scheme

7.4.1 In order to make the housing units affordable to the low income group, Government has revised the sale conditions of NHDC units as follows:

(a) Deposit:

Originally, a 10% deposit was claimed outright from any applicant. Now, those earning less than Rs 4,000/month have to make a down payment of Rs 5,000 only while those drawing between Rs 4,000 and Rs 6,000 per month have to deposit only 5% of the sale price.

Furthermore, purchasers benefit for a Rs 30,000 grant from Government.

(b) Repayment Scheme

7.4.2 Government has amended legislation in order that a new repayment scheme based on the progressive annuities payment be made possible. This has allowed NHDC houses to be purchased with a monthly

payment of around Rs 800. only. Thus, it is now possible for families with a monthly income not exceeding Rs 3,000 to also become house owners. Concurrently, the Very Low Cost Housing Scheme (see para. 4.8.2) is being contemplated for this income category.

CHAPTER II : HUMAN SETTLEMENTS

8.0 THE EXISTING SETTLEMENT PATTERN

8.1 For the sake of convenience, it is proposed to focus on the spatial dimensions of the human settlement development process in Mauritius over the past decade wherein the country has known a rapid rate of economic growth.

8.2 With respect to the rural areas, the pattern in the evolution of human settlements exhibits that the vast majority of residents clusters in settlements. Some of the developments may be linear in form and not very compact, though they are fairly widely dispersed across the countryside. This is obviously due partly to the way agriculture developed in the past, namely in the form of estates - with little smallholder farming. Even when the number of small planters tended to increase they continued to live in their village settlements.

8.3 On the other hand, there has been an increasing over - concentration of human settlements within the urban areas and the periphery thereof -

notably within the Port Louis/Plaines Wilhems conurbation. This conurbation which lies within the districts of Port Louis and Plains Wilhems respectively embraces the country's five townships (namely Port Louis, Beau Bassin - Rose Hill, Quatre Bornes, Vacoas - Phoenix and Curepipe) as well as the surrounding areas thereof. Such a trend has been triggered on account of major industrial enterprises constituting significant employment outlets being located within the Port Louis/Plaines Wilhems conurbation. In other words, economic development concentration has manifestly occurred in the Port Louis/Plaines Wilhems conurbation.

8.4 However, a marked imbalance can be readily discerned in the settlement pattern with the scale tipping definitely in favour of the urban areas.

8.5 The problems occasioned by such a dispersed pattern are briefly spelt out below, namely:-

(i) Increasing vehicular congestion in the Port Louis/Plaines Wilhems conurbation.

Employment opportunities especially in the secondary and tertiary sectors being concentrated in the Port Louis/Plaines Wilhems conurbation, thus giving rise to

commuting on a significant scale. Such a situation is to be expected and is associated with transport and traffic problems in various forms.

- (ii) Underutilisation of the country's land resources. scarce land resources.

The haphazard development of human settlements detracts from the principle of optimisation of the limited land resources, especially having regard to the availability of land with potential for human settlement development.

- (iii) The coexistence of incompatible land uses.

As already highlighted, human settlement developments have occurred to no small extent in the Port Louis/Plaines Wilhems corridor and in the periphery thereof. In quite a few instances, such settlements have been established in close proximity to industrial concerns or other closely related activities, thereby adversely affecting the amenity of the said settlements by reason of noise, dust, dangerous traffic conditions or otherwise .

- (iv) Urbanisation pressures encroaching on prime agricultural lands.

Agriculture being the mainstay of the national economy, there is manifestly the need to protect agricultural land in general against the threat imposed by other land uses and especially the threat of urban development on land with agricultural potential. On the other hand, the disorderly development of human settlements leads to urbanisation pressures encroaching on prime agricultural lands.

(v) The inefficient use of infrastructure

The development of Mauritius since independence has been accompanied by massive investment in basic infrastructure development programmes, and projects in transport, health, education, housing, commerce, industry, power, water, etc. However, many of these investments are the product of independent decisions and plans by sectoral Ministries, statutory bodies, private sector and foreign aid donors. A proportion of these have been implemented without spatial co-ordination within the context of a national physical development plan.

- (vi) Difficulties associated with the management of dispersed settlements.

The effective management of dispersed human settlements poses some key problems relating to issues of organisation, control and the quality of service provision.

- (vii) Coastal zone management

At this stage it is pertinent to highlight the importance of protecting and preserving our coastal zone which is easily liable to degradation in view of its sheer fragility. The coastal zone, characterised by unique visual and environmental features, and presents itself as a prime asset not only because it provides recreational amenities but also because it accommodates tourism-gearred activities, the tourism sector being the third most important in the national economy both in terms of foreign exchange earnings and employment generation.

9.0 REACTIONS TO THE "LAISSEZ FAIRE" SETTLEMENT
SITUATION

9.1 Over the recent years, pressures have been exerted by the population (including NGOs) through the media - the press in particular - for the imperative need to rationalise our settlement system so as, *inter alia*, to make an efficient use of resources and to maximise accessibility between people and jobs, goods and services.

9.2 In this connection, it is apposite to briefly highlight the element of public participation in the overall planning process. As a matter of fact, the Town and Country Planning Act currently in force explicitly makes provision for draft Outline Schemes (physical development plans) to be deposited so as to enable members of the public to make representations thereon prior to the same being finalised. Similarly the proposed Town and Country Planning Bill embodies an express provision relating to public involvement in the preparation/revision of the National Physical Development Plan. More will be said shortly on the proposed Town and Country Planning Bill.

9.3 On the other hand, the Local Authorities and the Government in particular are fully alive to the need for making judicious and orderly use of the country's scarce land resources. It should be noted that there are nine Local Authorities in the Island of Mauritius, consisting of five Municipalities for the urban areas and four District Councils for the rural areas.

10.0 **GOVERNMENT'S RESPONSE TO THE HUMAN SETTLEMENTS ISSUE**

10.1 In the light of the above-named problems, Government's response concretized itself in the formulation of a National Physical Development Plan (hereinafter referred to as the NPDP) completed in 1993 and covering the whole of the Republic of Mauritius. The NPDP, it may be recalled, was prepared as a component of the Environment Investment Programme (EIP)

10.2 The NPDP is intended to provide a spatial framework which enables the achievement of the following fundamental goals, namely:-

(i) The improvement of the quality of life of the Mauritian citizen

(ii) The development of the key sectors of the economy

- (iii) The judicious siting of secondary and tertiary activities
- (iv) The protection of agricultural areas
- (v) The conservation of the natural heritage
- (vi) Redressing the imbalance between urban and rural areas in respect of human settlement development
- (vii) The provision of the appropriate spatial framework for the efficient co-ordination and development of the public sector investment programmes (including housing).

10.3 The main thrust of the spatial strategy of the NPDP rests on the principle of balanced development in compact urban form which maintains a 50/50 balance of population between the conurbation and the rural regions. However, the emphasis is on directing new development to a limited number of selected settlements to create expanded but compact urban forms. In other words, such a spatial strategy aims, *inter alia*, at making an efficient use of resources and at maximising accessibility between people and jobs, goods and services.

- 10.4 It is relevant to point out that the NPDP, by setting a framework in which economic development, environmental protection and quality of life can proceed harmoniously, is multi-sectoral in scope and consequently it amply defines the context in which human settlements may develop.
- 10.5 At this juncture, it is interesting to point out that there was substantial investment of the country's active forces in the overall formulation of the NPDP. The Steering Committee set up to guide and monitor the preparation of the NPDP included representatives of NGO's, of the Chamber of Commerce and of other organisations concerned with town and country planning including the environmental aspects thereof.
- 10.6 In addition, members of the public at large were invited through the press to submit views/comments and suggestions in writing to the Steering Committee in respect of the elaboration of the NPDP. Such reactions were taken on board to the extent that this was practical and feasible.

11.0 TOWN AND COUNTRY PLANNING LEGISLATION

11.1 Major shortcomings of the current Town and Country Planning legislation.

11.1.1 The Town and Country Planning Act currently in force dates back to 1954 and has become outdated especially having regard to the rapidly changing conditions and circumstances over the past decade. In other words, the Act is unlikely to meet the requirements of an effective modern planning framework. Some of the glaring shortcomings of the current Act are outlined below, namely:-

- (i) There does not exist in the current Act any legal provision for the preparation and keeping under review of a national physical development plan.
- (ii) The form and content of outline schemes are design - orientated and not geared to consider new concepts like scarce economic resources, social and environmental factors.
- (iii) The procedures relating to the preparation and approval of outline schemes are time-consuming and cumbersome.

(iv) The planning appeals system offends the basic principle of the separation of powers in that the Town and Country Planning Board both prepares Outline Schemes and determine appeals lodged on the said Outline Schemes.

11.2 Need for an efficient legal framework

11.2.1 The new Town and Country Planning Bill aimed at remedying the weaknesses inherent in the current Act will soon be introduced in the National Assembly. It is worth noting that the new legislation has been framed within a perspective of decentralisation of decision making and plan making responsibilities at the level of the Local Authorities. Only strategic issues are to be considered at central level.

11.2.2 The imperative necessity for a comprehensive legal framework for the country's overall planning system needs not be stressed further. Indeed, it is obvious that plans and policies, however grand these may be, would be certainly frustrated in the absence of the appropriate legal backup.

12.0 PHYSICAL DEVELOPMENT PLANS (or Outline Schemes)

12.1 One of the major objectives of the NPDP is to provide a spatial framework that will be used as a

basis for the formulation of detailed zoning policies and development criteria to enable the effective control/monitoring of development, including human settlement development.

12.2 The NPDP, as already indicated, being hitherto in want of an official legal backing, the Outline Schemes prepared under the Town and Country Planning Act, 1954 implicitly translate into detailed operational plans, the overall spatial strategy being spelt out in the said NPDP document.

12.3 The Outline Schemes are geared, *inter alia*, towards organising land use at the regional/local level in such a way as to minimise, if not to avoid, incompatible systems of land use. Thus, human settlement developments are being planned in order to respond to basic environmental considerations, thereby enhancing the quality of life of the residents.

12.4 The whole of the Island of Mauritius is presently covered by Outline Schemes, nine in all, namely, the Port Louis Outline Scheme, the Beau Bassin - Rose Hill Outline Scheme, the Quatre Bornes Outline Scheme, the Vacoas - Phoenix Outline Scheme, the Curepipe Outline Scheme, the

Pamplemousses - Riv. du Rempart Outline Scheme, the Moka - Flacq Outline Scheme, the Grand Port - Savanne Outline Scheme and the Black River Outline Scheme. The Outline Scheme for the Island of Rodrigues is in the pipeline.

13.0 DEVELOPMENT CONTROL GUIDELINES

13.1 Guidelines which relate to residential morcellements, industrial developments as well as developments in the coastal zone form an integral part of the Outline Schemes. These guidelines admittedly serve as a valuable policy instrument to effectively fashion and control development whilst at the same time responding to basic planning and environmental considerations. The guidelines also impart a sense of consistency to the overall development control process in that the norms and standards being applied are the same in similar situations. As a result, they are generally perceived as being fair and equitable, thereby enhancing their acceptability.

13.2 The other practical importance of the guidelines is that they facilitate the development control function of the Local Authorities in as much as the latter do not benefit from the services of qualified planners as these are not available on the local market.

14.0 CONCLUSION

14.1 This brief overview has outlined the country's planning response towards handling the human settlement issue. The planning system presently in place has addressed the multifarious components of the human settlement development process including its spatial, qualitative, quantitative and institutional as well as socio-economic dimensions.

14.2 It can be readily appreciated that the nation's human settlement pattern is an integral part of the NPDP. One of the guiding principles of the planning strategy is spatially balanced development in terms of national/regional and urban/rural composition. An essential element of the plan is the diffusion of urbanisation and the benefits of economic opportunities in rural areas. These accord with the fundamental goals of the NPDP which include improving the quality of life of the Mauritian people on a nation-wide scale.

14.3 In the light of the above, a note of optimism can be sounded to the extent that the necessary framework has been established to enable Mauritius to grapple efficiently and effectively with its human settlement problems and that in the interest of the nation at large.

CHAPTER III: THE ENVIRONMENT

15.0 MAJOR ENVIRONMENTAL ISSUES

15.1 With the rapid pace of development since 1984, many environmental problems started to emerge. These problems were not foreseen due to the country's preoccupation to satisfy its basic economic needs. Once the economic situation was redressed, attention was focused on the quality of life which simultaneously generated an environmental awareness in the country. By virtue of the size, location and narrow economic resource base and overall vulnerability of the island to environmental stress, urgent action was required to halt environmental degradation and at the same time to take preventive measures to protect the environmental assets. In response thereof, a National Environment Action Plan (NEAP) was prepared in 1990.

15.2 The underlying principle adopted in the Action Plan is an Integrated Approach to Environmental Management and Pollution Control. Although the Plan places great emphasis on an all embracing definition of sustainable development, there are, a nonetheless, a number of specific areas relating to the environment which have received special

consideration. These are water quality standards, solid waste disposal, sewerage disposal, agricultural run-off degradation, biodiversity, and environmental legislation.

15.3 With respect to water quality, the NEAP notes that rivers, streams and aquifers are threatened by effluents from dye houses, food processing industries, tanneries, and sugar factories as well as from agricultural run-offs.

15.4 Solid waste disposal is a major problem with indiscriminate dumping by the roadside, under bridges and on vacant lands, sometimes situated over aquifers. There are no special disposal facilities for solid hazardous wastes which are co-disposed with domestic garbage.

15.5 The current sewerage system covers only 20 percent of the population mainly in Port Louis and the central plateau. The rest use absorption pits/septic tanks or pit latrines which are a direct threat to the quality of the underground water which contributes 50% of the potable water in the island. The sewerage network is grossly overloaded by frequent discharge of industrial effluents which at time leak into aquifers.

15.6 Agricultural run-off contamination arises from the intensive use of chemical fertilizers and pesticides. This has polluted rivers, ponds, lagoons and destroyed insect life in addition to pests.

15.7 Coastal degradation stems partly from the mining of sand, construction of jetties, breakwaters and groynes which interfere with natural wave and current movements, thereby changing beach erosion and deposition patterns. Coral sand mining from lagoon areas amounted to about 800,000 tonnes per year in recent years. In hotel development or tourist zones, marine pollution is growing due to the rising volume of discharges of contaminated water from poorly-designed sewerage outfalls and sewerage percolation from hotel waste disposal systems and pit latrines.

15.8 Loss of biodiversity is cited in the plan as an important issue since less than 2 percent of the land area remains under natural vegetation.

16.0 ENVIRONMENTAL MANAGEMENT

16.1 The Government is actively involved in improving the environment through a series of regulatory measures in collaboration with several ministries, the public at large and the private sector. Day to day nuisances are addressed by the Ministry of Environment and the Local Authorities with the collaboration of enforcing agencies.

16.2 Proactive measures are taken in form of land use plans, Environment Impact Assessments (EIA), regulations, etc. A National Physical Development Plan has been prepared for the country and this is used as a basis for the preparation of outline schemes used for guiding spatial development in the country as further detailed in Chapter 2. Protection of good agricultural and environmentally sensitive areas is given special consideration in those plans. (See Chapter 3).

16.3 As regards undertakings relating to major impacts on the environment, they are classified as scheduled undertakings requiring an EIA under the Environment Protection Act (EPA). This is a very important management tool for achieving sustainable development and ensuring that

ecological factors are taken fully into account in economic development. The review of the EIA report takes into consideration public comments, views of relevant government departments and agencies and may also, if necessary, request inputs from independent quarters.

16.4 As long term measures the Government is presently implementing the Environment Investment Programme identified in the NEAP. This programme comprises 32 projects covering the following areas:-

A. Land Use Planning, Infra & Pollution Control

Institutional Strengthening

Land Management and Tourism

National Physical Development Plan

Strengthening of Land Planning & Control

Regional Planning of Tourism Zones

Industry Sewerage and Solid Waste Disposal

Environmental laboratories

Creation of Industrial Parks

National Sewerage Master Plan

Incentive for Industrial Pollution Control

Establishment of Hazardous Substance Control Board

Worker Health and Accident Surveys

Impact of dust and leaded gasoline

National Solid Waste management Plan
Characterisation of Sugar Industry Waste

B. Agriculture

Pesticide Assay Laboratory
Improving Pesticides Use and Regulation
Integrated Pest Management Research
Fertilizer Study and Research

C. Marine Conservation

Marine Environment Management Plan
Establishment of Marine Parks
Lagoonal Health Study and Pollution
Monitoring
Oceanographic Data Collection
Marine Conservation Centre

D. Terrestrial Conservation

Black River Gorge National Park
Nature Reserves
Offshore Islands
Re-afforestation

17.0 THE ENVIRONMENT INVESTMENT PROGRAMME
PROGRAMME

17.1 Institutional Strengthening

17.1.1 The Government of Mauritius, in addition to the NEAP, has strengthened the main organs of the Government concerned with environmental management. In 1991 it created a new *Ministry of Environment and Quality of Life* (MEQL) and simultaneously redefined the National Environment Policy, introduced the Environment Protection Act with new powers to monitor and control the environment in conjunction with the "enforcing agencies". However, despite the adoption of the Environment Protection Act in 1991, there is still considerable confusion as to institutional responsibilities, thus resulting in duplication of effort.

17.2 Landuse Planning

17.2.1 In an effort to control mutually antagonistic development the Government of Mauritius (GOM) has prepared a National Physical Development Plan (NPDP). This Plan will be one of the most important instruments in preventing environmental

degradation by providing a rational framework for land allocation among competing sectors. This plan has already been prepared and approved by GOM. The Ministry of Housing, Lands and Town and Country Planning has now embarked on a series of operational development plans (the Outline Schemes) using the NPDP as a framework. The Outline Schemes are essential tools for environmentally sound decision making by local authorities.

17.2.2 However, the NPDP and the Outline Schemes cannot in themselves promote land utilisation consistent with national objectives, without the support of a comprehensive planning legislation. Accordingly the GOM is coming up with a new Town and Country Planning Act.

17.3 Control of Marine Pollution

17.3.1 There are several EIP projects which are geared towards monitoring and control of marine pollution. Besides, with the implementation of the National Sewerage Master Plan, and the National Solid Waste Management Plan as well as the forthcoming control of effluents degradation of the marine environment may be abated.

Additionally the GOM is finalizing the National Oil Spill Contingency Plan as well as the Port Louis Harbour Contingency Plan to control pollution by oil within territorial waters. The Oil Marketing Companies also have their own contingency plans. There are also programmes at the Indian Ocean Commission level to halt siltation of the lagoon, particularly at the outer island of Rodrigues.

17.4 Nature Conservation

17.4.1 Indigenous vegetation covers only 2% of the island. It has disappeared from most of Mauritius, and what has been spared is now threatened by more vigorous, invasive exotic species. Original lowland forests have been virtually destroyed, but some upland communities remain including swamp forest, Sideroxylon thicket, upland forest, mossy forest on Mount Cocotte, and Philippia thicket.

17.4.2 Most of the indigenous forests are contained in Nature Reserves and many plant species are endemic to Mauritius. The indigenous flora of Mauritius is of great interest to scientists, amateur naturalists and tourists. It is also vital to

some bird species predominantly confined to undisturbed indigenous forests.

17.4.3 Of the nine endemic Mauritian bird species, six species are listed as endangered in the International Union for Conservation of Nature red data book. Furthermore, the two snake species on Round Island are highly endangered. Some large butterflies are also threatened.

17.4.4 The GOM is making a tremendous effort to preserve the unique nature biodiversity of Mauritius for future generations. The Captive Breeding Centre for birds at (west coast) Black River will serve as a focal point for bird conservation. Breeding of the Echo Parakeet, Pink Pigeon, the Mauritius Kestrel and the Rodrigues Fruit Bat have been successfully carried out. These birds are therefore less likely to meet the fate of the dodo.

17.4.5 In situ plant conservation will be pursued at Maccabe nature reserve and equally in respect of other natural forest areas as well as in the offshore islets. Concurrently ex situ propagation of endemic endangered plant species will be carried out in forest nurseries. Additionally a

Black River National Park will be set up to conserve the flora and fauna, along with the important scenic areas like the "Grande Gorge".

17.4.6 Management of Solid Waste

At present the 800 tonnes of solid wastes collected daily are being disposed of in open dumps. This practice has many disadvantages such as foul odour, flies, stray animals, uncontrolled leachates dispersal, and is potentially a fire hazard. Around 55% of solid waste are collected in the urban areas and the remainder in the rural areas.

National Solid Waste Management Plan

The Solid Waste Management Master Plan provides for the following:-

- (a) Construction of two Sanitary landfills - one located in the North (Mare D' Australia) and the other in the South (Mare Chicose). The landfills will provide the following facilities:

- (i) Placing of wastes in anaerobic cells,
 - (ii) Collection and safe disposal of leachate
 - (iii) Collection of methane gas for use.
-
- (b) Collection at Source (standard to be set for receptacle for collection).
-
- (c) Sorting of all recyclable waste for recycling purposes, plastics, metals, paper, textile waste, glass etc.
-
- (d) Composting of organic waste.
-
- (e) Compaction of waste at Transfer Station prior for haulage to Sanitary Landfill.

The concept adopted here is to give added value to waste and to optimally reduce waste that ends up in sanitary landfill.

17.6.7 Sewerage

17.6.1. Present Situation

125,000 m³ of waste water/day with a pollution load 60 tonnes BOD/day are produced, of which only 18% is sewer-borne, and this is exclusively

restricted to urban areas. In the rural areas, the most common disposal systems are:

Cess pit 44%

Pit Latrines 37%

In the unsewered part of urban districts and also in the rural districts, the most common method of waste water disposal is the flush toilet, connected to an absorption pit, sometimes via a septic tank.

17.6.2. Sewage Master Plan

The main features of the Sewage master plan are:

- Upgrading of existing sewerline in Plaines Wilhems, (presently overloaded),
- Creating new sewerlines in unsewered areas,
- Upgrading of St. Martin treatment works,
- New treatment works at Montagne Jacot for Port Louis North,

- New treatment works and sea outfall at Baie du Tombeau for Port Louis South,

The sewer lines will be extended to the following rural areas:

- a) Grand Baie,
- b) Mahebourg,
- c) Flic en Flac (including touristic zone),
- d) Flacq,
- e) Riviere du Rempart,
- f) Goodlands,
- g) Specific recommendations for Rodrigues.

18.0 **CONCLUSION**

18.1 The environment in Mauritius is at the crossroad of a major change. The foundation of environmental protection and improvement has been laid. Indeed the results are beginning to surface out. The current EIP projects are taking care of major environmental degradation. With the changing trend in development, further actions are needed to exercise an effluent control of environmental pollution. In the light of this a series of new projects have been identified as part of EIP phase II.

18.2 Special attention has been focused on coastal degradation to safeguard the national heritage and consequently the tourist industry and fisheries.

18.3 Development on wetlands and unstable terrain that are causing serious ecological and structural damage are also being looked into. Additionally sites of special interest, architectural and historical sites, caves, etc., are being protected and rehabilitated where required. These actions together with the ongoing environmental programme are bound to improve the Mauritian landscape.