REPUBLIC OF MAURITIUS

Ministry of Economic Planning and Development

CENTRAL STATISTICAL OFFICE

1990
HOUSING AND POPULATION CENSUS OF MAURITIUS

ANALYSIS REPORT

Volume X —Health, Morbidity and Mortality

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FOREWORD

The Central Statistical Office conducted a complete Housing and Population Census in 1990. This was the sixteenth census for the country. A series of tabulation reports covering various topics such as housing, demography and fertility, economic activity, education, household characteristics, migration and disability was published during the following years. At the same time, an evaluation and analysis of the census data was carried out with the help of a regional advisor from the United Nations Economic Commission for Africa (UNECA).

This report, forming part of a series of analytical reports prepared by the Central Statistical Office covers health, morbidity and mortality in Mauritius. The first and second parts of the reports are about health facilities, personnel, living conditions and hygiene. The third part deals with measures and patterns of morbidity. The last part covers trends and differentials in mortality.

I would like to convey my gratitude to the staff of local analysts for the efforts put into the analysis and preparation of this report. I also acknowledge collaboration with the Ministry of Health and specifically Mr. Brissonette, Ms Rousseti and Mr. Rujjoo (Medical Statistics Division), Mr. Sunkur and Mr. Bahadoor (Demography Division), Mr. Doremiah (Nutritionist) and Dr. Shah (Adviser on Ayurved) for their assistance in preparing some of the sectors. My thanks also go to the United Nations Population Fund (UNFPA) and the United Nations Economic Commission for Africa (UNECA) for financial and technical assistance. Finally, the analyst team and myself are most grateful to Dr. K.V. Ramachandran for his guidance and supervision.

(S. Basant Rai)

Director of Statistics

Central statistical Office

Ministry of Economic Planning and Development

PORT LOUIS

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1.1 Introduction

Though death is an inevitable episode in the life of every living being, all the same, every effort is made by the individual, the family, society and the nation to postpone death and prolong life as much as possible. Long life per se is not the only desirable goal - it should be full and fruitful. That is, life should be healthy and happy and enable one to contribute to the well being of not only self but the society and nation at large. A healthy nation is a happy nation. The World Health Organisation (WHO) defines health as a state of complete physical, mental and social well being and not merely the absence of disease or infirmity.

Ill-health and diseases are caused by several factors. These could be sociological, economic, physical, psychological, ecological, biological, etc. An understanding of these various causative factors in any situation will be helpful to the planners and policy makers in their efforts at articulating action programmes accordingly. Naturally, in this drama, both the individual and the state and society play vital roles. Hence their involvement in this joint venture is essential. Without one, the other cannot expect to achieve much.

What is the importance of prevention of diseases and prolongation of life to the individual, the family and nation should also be kept in view, as many times, it is not recognised that disease prevention and lengthening of life have economic, social, psychological and other dividends. As a matter of fact, investment in health is a direct effort at human resource development which is one of the most precious resources of a country. Once a life has been brought into the world and some amount of investment is made, it is illogical that it is snatched away leaving not enough scope for it to contribute to society because of premature exit from the scene.

One has to acknowledge that the attack on health had to be on several fronts - public health, environment, food and nutrition, education, improvements in socio economic conditions, housing, individual motivation, etc. In order to achieve some of the goals of improving the living conditions of the people, first of all, there should be a clear understanding of the problems, and methods of attacking them. Only then can plans and programmes be articulated accordingly. How the government tackled the problems and what are the results, form part of the background of this study on health, morbidity and mortality in Mauritius.

Since independence, the government has been conscious of the problems and of the actions needed to achieve the type of society aspired for. The government was aware that health for all by the year 2000 cannot be achieved by the health sector alone but needed coordinated efforts with other social and economic sectors such as agriculture, food, industry, education, housing, and public works. in line with the Alma Ata declaration on primary health where it was stressed that education concerning prevailing health problems and methods of preventing and controlling them are important as also the promotion of food supply and proper nutrition, adequate supply of safe water and basic sanitation, maternal and child health including family planning, immunisation against the major infectious diseases, prevention and control of locally endemic diseases, appropriate treatment of common diseases and injuries and provision of essential drugs. Even as far back as the develoment

plan for the years 1975-80 the government policy was explicitly stated as "provide a comprehensive health service to the population". The plan also looked into all the other sectors affecting health and living conditions of the people. In the 1980-82 plan an integrated approach to the health care system was adopted. The latest plan for 1992-94 spelt out that the overall policy objectives was to extend the range and quantity of comprehensive health services. The objective was to be achieved with the adoption of an integrated approach to health planning and health delivery which will take into account the diseases with high incidence such as cardio vascular diseases and diabetes, the increasing demand for high technology medicine and the need for greater efficiency in resources used in the sector. An Action Plan for the Health sector was to be formulated during the Plan period to address the above issues - which will examine the implications for the sector of such recent development and demographic phenomena as the changing life styles and the gradual ageing of the population.

Mere statement of policies and programmes without the political and financial commitments may not achieve the desired results. The real concern of the government can be noticed from the financial outlay for the health sector throughout the past several years. Since 1980-81 the health sector has received around 7% of the annual recurrent budget which has increased the actual amount from Rs 182 million in 1980-81 to Rs 285 million in 1984-85. In 1985-86 it was Rs 344 million, the proposed budget for 1986-87 is Rs 386 million and for 1992-94 it is Rs 602 million (3.1% of total budget).

Thus the concerns and commitments of the government are quite clear. Now, what one will have to assess from the available statistics and information is how far the targets and goals have been achieved, what remains to be done and if possible point out what problems arose on the way and what is the future.

Thus, this study of mortality in Mauritius first looks at the facilities, the services and the way people have taken advantage of them and then take a look at the morbidity and cause of death statistics and then finally consider the mortality statistics in some details.

1.2 Health facilities, personnel and supplies

1.2.1 Introduction

The provision of health care in Mauritius is through the institutional and non institutional facilities, the personnel of various types, the availability of drugs and medicines, and the accessibility of these services to the common man. From the predominantly curative orientation of health care in the past, perhaps necessitated by the overwhelming occurrence of infectious and parasitic diseases which needed immediate attention, the focus has now been changed to the preventive, protective and promotive aspects through primary health care.

In this section we take a look at the situation as regards these facilities, personnel and supplies in the past, especially just before independence, and their evolution during the last 20 - 25 years. This will enable one to interpret the morbidity and mortality statistics, to analyse the health situation, and to perhaps suggest future action programs.

1.2.2 Health facilities

Health facilities in the Island of Mauritius are provided by both the public and private sectors. The public sector provides facilities for in-patients through regional, district and specialised hospitals, and for out-patients through a network of promotive, preventive and curative institutions. In the private sector, the clinics provide facilities for both in-patients and out-patients, and sugar estates provide facilities mainly for out-patients. An analysis of the evolution of institutional health facilities in the Island of Mauritius over the period extending from 1967, the year preceding that in which Mauritius became independent, to 1990 is presented in order to show the improvements over time, and especially since independence.

1.2.2.1 In-patient facilities prior to independence

Government Hospitals

As at the end of 1967, there were in the Island of Mauritius, two regional hospitals, six district hospitals, a psychiatric hospital, a Leprosarium and a tuberculosis hospital. The two regional hospitals were Civil Hospital in Port Louis and Victoria Hospital in Plaines Wilhems. A district hospital serves the population of the district in which it is situated - one in Pamplemousses, Rivière du Rempart, Moka, Flacq, Grand Port and Savanne. Since the regional hospital also acts as a district hospital for the district in which it is situated, Black River was (and still is) the only district without a hospital.

There were three specialised hospitals in the Island of Mauritius: a psychiatric hospital, a Leprosarium and a tuberculosis hospital. The Brown Sequard Psychiatric Hospital - the largest hospital in Mauritius situated in Beau Bassin in the district of Plaines Wilhems, was (and still is) the only institution of its kind in Mauritius, although certain convents and infirmaries also received certified mental patients on the recommendations of the Central Board of Lunacy.

Private Clinics and Sugar Estate Hospitals

There were five private clinics in the Island of Mauritius - four in the district of Plaines Wilhems and one in the district of Moka. There were 24 hospitals on sugar estates, catering for the minor ailments of their employees and members of their families. More serious cases were referred to government hospitals or private clinics. Between 1967 and 1972, the number of sugar estate hospitals had been reduced by one to 23 and the decrease continued over the years, and in 1977, there were only 18 hospitals. With the passage of time, fewer and fewer sugar estates were admitting patients to their hospitals, and as at the end of 1990, there were only two that were admitting patients.

1.2.2.2 In-patient facilities after independence

Government Hospitals

The Sir Seewoosagur Ramgoolam National Hospital was inaugurated in August 1969, but provided only out-patient services. By November, it started to accommodate in-patients, and it had a bed complement of 52. However, by the end of 1970, it had become a full-

fledged regional hospital with 214 beds. The total number of beds in the three regional hospitals was then 1,216. It must be pointed out here that the tuberculosis wards in Civil and Victoria hospitals had been closed down, and all tuberculous patients, whose number had been on the decline, had been transferred to the Tuberculosis Hospital at Pointe aux Canonniers. Also, the Leprosarium had been administratively attached to Sir Seewoosagur Ramgoolam National hospital.

As at the end of 1990, the total number of beds in the three regional hospitals was 1,554. Therefore, between 1967 and 1990, the number of regional hospitals in the Island of Mauritius had increased from two to three, and their total bed complement had gone up from 987 to 1,554 i.e. by 57.4%.

In November 1969, Poudre d'Or District Hospital was closed down, and all its patients transferred to Sir Seewoosagur Ramgoolam National Hospital. This left five district hospitals in operation, and their total bed complement fell to 551, that is a decrease of 11.3% over the 1967 figure.

In February 1972, Long Mountain District Hospital was converted into an annex of Brown Sequard Psychiatric Hospital, and Moka Hospital was converted into an Ophthalmology hospital. The number of district hospitals had therefore been reduced to three (Flacq, Mahebourg and Souillac), and their total bed complement as at end of the year 1972 was 340, that is a decrease of 45.2% over the 1967 figure. In 1979, Long Mountain Hospital ceased to be an annexe of Brown Sequard Psychiatric Hospital, and was reconverted into a district hospital. The number of district hospitals was then four, and that number remained unchanged since then. As at the end of 1990, the total number of beds in the district hospitals was 318, that is a decrease of 6.5% over the 1972 figure.

As at the end of 1990, Brown Sequard Psychiatric Hospital had 887 beds (including 14 beds at its annexe for the rehabilitation of drug addicts), that is an increase of 19.5% over the 1967 figure.

With the decrease in the number of tuberculous patients, the progress in tuberculosis chemotherapy and the current thinking of treatment of patients at their own homes, the number of beds in Poudre d'Or Hospital was gradually reduced, and was 96 as at the end of 1983. The hospital had been renamed Poudre d'Or Chest Hospital, and catered also for patients with chest diseases other than tuberculosis. As at the end of 1990, the number of beds was 54, that is a decrease of 43.7% over the 1983 figure.

In 1972, when Moka District Hospital was converted into a specialised hospital for eye diseases, it had a bed complement of 65. In addition there were 12 beds reserved for the speciality of Ophthalmology at Sir Seewoosagur Ramgoolam National Hospital. In 1975, the beds at that Hospital were reduced to 6, and these were phased out in 1976. All in-patients with eye problems were treated at Moka Hospital, whose bed complement had itself been reduced to 57. As at the end of 1990, the number of beds at Moka Hospital was 53.

In 1976, the former HMS Mauritius Hospital, situated in Vacoas, was converted into a Hospital for Ear, Nose and Throat Diseases. Its bed complement of 35 has remained practically unchanged over time. Prior to the opening of the ENT Hospital, there were 26 beds reserved for ENT patients in the regional hospitals. At the end of 1990 the number of beds at the ENT Hospital was 38, that is an increase of 8.6% over the 1976 figure.

With a view to treating drug addicts and alcoholics, the National Centre for the Rehabilitation of Drug Addicts which is administratively attached to Brown Sequard Hospital became operational on 12th August 1988. As at the end of 1990, the number of beds was 14. It is situated in the ENT Hospital complex in Vacoas.

Private Clinics

Between 1967 and 1970, the number of private clinics increased by two to seven, the additional ones being located in the districts of Port Louis and Plaines Wilhems, and their total number of beds had gone up from 137 to 176. In 1988, with the opening of a new clinic in the district of Pamplemousses, the number increased to 8. Their total bed complement as at the end of 1990 was 215. It should be recalled that five clinics are situated in the district of Plaines Wilhems, one in Port Louis, and only two in rural districts, and even then, they are so located that they are within easy reach of either Plaines Wilhems or Port Louis district.

1.2.2.3 Out-patient facilities

Facilities for the Treatment of Common Diseases and Injuries

All regional, district and specialised hospitals, with the exception of Poudre d'Or Chest Hospital, have out-patient departments. Out-patient departments of hospitals offer services at two levels: the level of first contact (unsorted), and the referral level (sorted) where patients are seen by specialists. Facilities for out-patients also exist at Area Health Centres, Community Health Centres, dental clinics and a few other institutions.

Facilities for out-patients are available at the private clinics. The sugar estates provide a network of dispensaries for the benefit of their employees and members of their families.

In the public sector, apart from the out-patient departments of hospitals, facilities for the treatment of common diseases and injuries exist at Community Health Centres and Area Health Centres. In addition, Community Health Centres provide maternal and child care and family planning services. Area Health Centres provide all the facilities and services available in the Community Health Centres as well as some other services, for example dental care. As at the end of 1990, there were 26 Area Health Centres and 115 Community Health Centres in operation in the Island of Mauritius. However, the whole range of services detailed above were not yet available in a few Centres. Table 1.1 compares the availability of health services in 1967 and 1990.

MCH AND FP Clinics

In 1967, there were 27 maternal and child health clinics. At that time, family planning services were offered only by non-governmental organizations, namely the Mauritius Family Planning Association (MFPA) and Action Familiale (AF). Family planning services were integrated into the Ministry of Health in December 1972. In 1973, there were 53 clinics offering maternal and child health and family planning services, and 19 additional ones offering family planning services only. As at the end of 1983, there were 76 maternal and child health and family planning clinics, and a further 19 clinics for family planning only. By the end of 1990, there were 137 service points for maternal and child care,

and 160 service points for family planning facilities, the service points being situated mainly in Area Health Centres and Community Health Centres.

Other Out-patient Services

The Chest Clinic that was in operation in Port Louis in 1967, remained the only institution of its kind in existence in 1990. The number of dental clinics went up from 5 to 22 between 1967 and 1990. A Social Hygiene Clinic, opened in February 1973, provides treatment to patients suffering from sexually transmitted diseases.

Mobile Out-patient Services

In addition to its network of static units, the Ministry of Health provides mobile services. As at the end of 1990, there were five mobile dispensaries, two mobile dental clinics and a mobile maternal and child health and family planning clinic in operation. The mobile dental clinics serve specific groups of the population, (mainly primary school children and inmates of infirmaries and orphanages), while the mobile dispensaries and MCH and FP clinics serve people in remote and sparsely populated localities, where it could be uneconomical to have static units.

1.2.2.4 Growth of Heath facilities

Table 1.1 giving the evolution of facilities (health institutions and beds) over the period 1967-90, indicates a tremendous growth in the health infrastructure between this period. Another important observation is that not only are the infrastructure and facilities physically accessible, but transportation is cheap, well organised and quite widespread and there are also no social or economic barriers preventing particular groups from access to the available facilities. As a matter of fact, the government facilities are free and every effort is made to cater to vulnerable sections of society - children, women, the aged, the poor etc. Table 1.2 gives the distribution of available hospitable beds by category as at the end of 1990.

Table 1.1 - Evolution of health facilities, Island of Mauritius - 1967&1990

Type of facility	1967		1990	
	Number of units	Number of beds	Number of units	Number of beds
Regional Hospital	2	987	3	1,554
District Hospital	6	621	4	318
Specialised Hospital	3	889	4	1,032
Service Points for the Treatment of Common Diseases and Injuries	43	-	127	-
Service Points for Maternal and Child care	27	-	137	-
Service Points for family Planning Services	-	-	160	-
Dental Clinic	5	-	22	-
Chest Clinic	1	-	1	-
Social Hygiene Clinic	-	-	1	-
Private Nursing Home	5	137	8	215
Sugar Estate Hospital	24	478	2	22
Sugar Estate Dispensary	24	-	25	-

Note : In 1990, the service points for the treatment of common diseases and injuries, for maternal and child care, and for family planning services were mostly centralised in Area Health Centres and Community Health Centres.

Table 1.2 - Distribution of available hospital beds(public sector) by category as at 31.12.90

HOSPITAL	Category of beds														
	General medecine	General surgery	Obstetrics	Gynaecology	Phthisiology & Pneumology	orthopaedics & Traumatology	Paedia-tries*	Ophthal-mology	Otorhino-laryngology	Psychiatry	Leprology & Dermatology	Radiotherapy	Burns	Cardiology	Total
DR. A. G. JEETOO	121	99	63	24	-	50	63	-	-	-	-	-	-	-	420
S.S.R.N.	128	87	77	33	-	51	67	-	-	-	20 @	-	-	-	463
LONG MOUNTAIN	38	-	-	-	-	-	5	-	-	-	-	-	-	-	43
FLACQ	65	-	10	-	-	-	16	-	-	-	-	-	-	-	91
MAHEBOURG	59	8	17	-	-	-	7	-	-	-	-	-	-	-	91
SOUILLAC	67	-	13	-	-	-	13	-	-	-	-	-	-	-	93
VICTORIA & P. M. O. C.	132	90	99	50	-	131	56	-	-	-	-	45	43	25	671
SUB - TOTAL (GENERAL)	610	284	279	107	-	232	227	-	-	-	20	45	43	25	1,872
BROWN SEQUARD	-	-	-	-	-	-	-	-	-	887 x	-	-	-	-	887
POUDRE D'OR (CHEST)	-	-	-	-	54	-	-	-	-	-	-	-	-	-	54
S. BHARATI (EYE)	-	-	-	-	-	-	-	53	-	-	-	-	-	-	53
E. N. T. CENTRE	-	-	-	-	-	-	-	-	38	-	-	-	-	-	38
TOTAL	610	284	279	107	54	232	227	53	38	887	20	45	43	25	2,904

Note The above figures include low beds, but exclude

(i) Cots for new borns not requiring special care

(ii) Labour beds, beds in out-patient departments and in staff dormitories

* including cots for newborns requiring special care

a at the Skin Diseases Infirmary

x including 14 beds at the National Centre for the Rehabilitation of Addicts (Vacoas)

1.2.3 Health personnel

Doctors

As at the end of 1969, there were 165 doctors in the State of Mauritius, that is one doctor for 4,997 persons. Almost 60% of the doctors (98) were in employment in the public sector, and among them there were 36 specialists. By the end of 1975, the number of doctors registered had gone up to 293, of which 65.2% were employed by the State. The number of doctors registered as at the end of 1980 was 503. It must be pointed out that up to 1980, it has been the practice for the Ministry of Health to offer employment to all doctors who wanted to join the public sector. However, in view of economic constraints and of the ever-increasing number of new doctors, that practice was discontinued. Consequently, the percentage of doctors employed by the State began to go down. The number of doctors registered in Mauritius as at the end of 1990 was 857 with a doctor: population ratio of 1:1,244. 521 doctors (60.8%) were in the public sector. Among those employed in the public sector were 158 specialists.

Dentists

As at the end of 1969, there were 22 dentists i.e one dentist for 37,474 persons in the State of Mauritius. Of these, 7 were in the public sector and 15 in the private sector. By the end of 1975, the number nearly doubled to 42 (of whom 17 were in public sector) and increased further to 59 as at the end of 1980. By the end of 1990, there were 132 dentists (of whom 37 in the public sector), that is the dentist: population ratio was 1:8,076.

Pharmacists

As at the end of 1969, there were 50 pharmacists in Mauritius. However, the distribution was very uneven between the public and private sectors: 4 and 46 respectively. The pharmacist: population ratio was then 1:16,489. There was practically no change of the situation in the succeeding years, until in 1975 when in the private sector the number went up by one only. Over the following five years the situation evolved favourably, the number of pharmacists in the public sector had gone up to 7 and that in the private sector to 62, with one pharmacist for 14,189 Mauritians. By the end of 1990, the number of pharmacists in the public sector had been increased to 9, while that in the private sector reached 118, giving a total of 127 pharmacists corresponding to pharmacist: population ratio of 1:8,394.

Nurses and Midwives

As there is no register of nurses and midwives in Mauritius, little information is available on their number engaged in the private sector. As regards the public sector, there were 882 nurses and midwives at the end of 1969, that is one for 935 persons. By the end of 1975, the number had gone up to 1,430. From 2,268 in 1983, the number reached 2,768 by 1990. The corresponding nurse/midwife: population ratios were 1:447 in 1983 and 1:385 in 1990.

Rodrigues

In the island of Rodrigues, health facilities are provided mainly by the public sector through the Queen Elizabeth II hospital at Creve Coeur and the two health centres at La Ferme and Mont Lubin. As at the end of 1990 these three institutions had a total of 150 beds - an increase of 50 beds over 1978.

Besides treatment of in-patients, these institutions also have out-patient departments. Ten community health centres located at Baie aux Huitres, Rivière Coco, Port Sud Est, Roche Bon Dieu, Petit Gabriel, Mangues, Malartic, Grand Baie, Baie Topaze and Allée Tamarin are also operational and provide minor curative services, maternal and child health care and family planning. A mobile system of dispensaries serve populations in remote and scattered areas.

Preventive health services:

Prevention of illness and spread of communicable and other diseases, is an important aspect of the health services. Some of the activities of the Health Inspectorate Division includes talks to school children and to members of the public on personal and environmental hygiene with stress on boiling water before consumption, control over sale of vegetables, fish and food offered in restaurants, meat inspection at abattoirs and private premises, spraying of breeding places of vectors etc.

In the field of family planning, the maternal and child Health Division as well as NGOs like Action Familiale and the Mauritius Family Planning Association provide free advice and services. Ante natal clinics are held at the hospital, the health centres and most of the community health centres and care is provided to pregnant women from the first contact with the health system usually from the third month of pregnancy to the time of the delivery.

An immunisation programme is in force since 1960 and the number of vaccinations performed has increased rapidly from 250 in 1960 to 2,200 in 1987 and 2,307 in 1990 covering over 90% of births. As of 1990, BCG is reported to cover all the births whereas DPT covers 90% and Measles covers 91% of births.

Health personnel:

There was a sustained increase in the number of doctors, nurses and other auxiliary staff since independence. From 2 in 1968, the number of doctors increased to 6 in 1988 and to 8 in 1990. The corresponding doctor to population ratio improved from 1:11,000 in 1968 to 1:4,700 in 1990.

The number of nurses went up from 12 in 1968 to 30 in 1981 and 61 in 1990 while the number of midwives which was 6 in 1968 increased to 8 in 1981 and 24 in 1990. The nurse and midwife combined to population ratio changed from 1:1,200 in 1968 to 1:800 in 1981 and 1:400 in 1990.

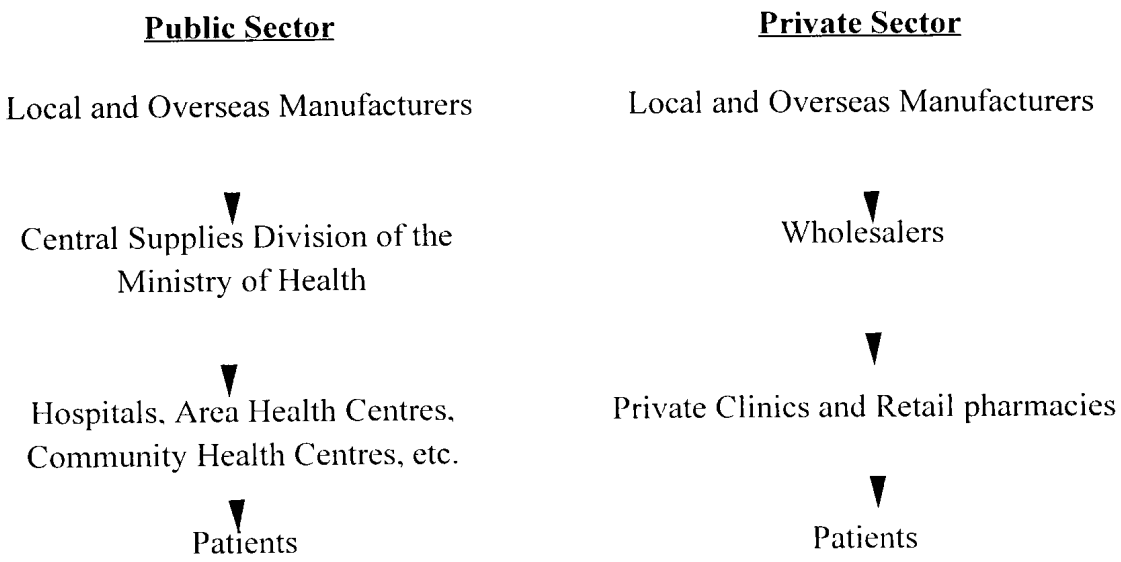
The other health personnel also increased over time so that by 1990 there was one dental surgeon, 4 dispensing staff, 3 lab technicians, 3 radiologists and 2 health inspectors.

1.3 Medical Supplies

The Ministry of Health purchases part of its supplies of medicines from the (only) local pharmaceutical manufacturer and the remainder from overseas manufacturers through an annual tender. The supplies of medicines in the private sector also come from both local and external sources. As at the end of 1990, there were nineteen wholesalers engaged in the importation of medicines, among which three had a substantial share of the market.

Channels of Distribution

The channels of medicine distribution are as diagramatically represented below:



Dispensation, availability, relative costs and affordability

In the public sector, medicines are dispensed free of charge to both in-patients and out-patients. The Ministry of Health has established its own list of essential medicines which amount to some 325. The medicines are ordered by their generic names. For long term out-patient treatment, the medicines prescribed are supplied by instalments, on a fortnightly or monthly basis. The private sector imports some 4,000 pharmaceutical products from various parts of the world, mainly from Denmark, France, Germany, Great Britain, Holland, India and Switzerland. Most of the medicines are marketed under their brand names. Medicines are dispensed free of charge in government health institutions: Hospitals, Area Health Centres, Community Health Centres, etc. In the private sector, the wholesale and retail prices of medicines incorporate profit mark-ups that are fixed by government regulations. The wholesaler is allowed a mark-up of 17% on the landed cost, and the retailer is allowed a mark-up of 27% on the wholesale price. However, it is felt that prices of medicines and drugs are high, perhaps because of high landed costs. For instance, the household budget survey in 1991/92 showed that a household spent on an average Rs 192.2 per month (3.7% of total expenditure) on medical care and health as against Rs 83.17 (2.7% of total expenses) in 1986/87 - a 131% increase. Accounting for a 50% inflation over the period, still it represents a 54% increase in real expenditure and part of is due to high cost of drugs .

All medical supplies to Rodrigues are channelled through the Ministry for Rodrigues which issues requisitions and makes the necessary payments in respect of the drugs that it purchases from the Central Supplies Division of the Ministry of Health in Port Louis.

A few authorisations also have been issued to holders of General Retailers Licence in Rodrigues for the sale of simple medicines listed in the second schedule of the General Retailers (Sale of Medicines) Regulations 1989. The regulations cater for the availability of the most common medicines. However, private medical practice is not available in the Island of Rodrigues and still reliance is on public institutions for drugs.

1.4 Other medical systems, Non-Allopathic Medicine

Some health care is provided by other systems like Ayurvedic, homeopathy and traditional practices. There are no restrictions on the practice of non-allopathic medicine in Mauritius, and practitioners of non-allopathic medicine are not required to be registered with the authorities. For these reasons, the actual number of such practitioners and the extent of the practice of such medicine are not precisely known. However, practitioners of non-allopathic medicine are not permitted to:

(i) sign a death certificate
(ii) grant sick leave; and
(iii) prescribe dangerous drugs.

Ayurvedic Medicine

Ayurvedic medicine has been practised in Mauritius since a long time. The practitioners were mainly auto-didacts for whom the practice of Ayurvedic medicine was a part-time and benevolent activity. However, in recent years, a few Mauritians, who have completed formal courses in Ayurvedic medicine in India, have been engaged full-time in the practice of this type of medicine. They themselves dispense the medicine they prescribe. After the enactment of the Ayurvedic and other Traditional Medicine Act of 1989, and inauguration of out-patient departments at Long Mountain Hospital and Sir Seewoosagur Ramgoolam Hospital in 1992, there has been an increase in the number of persons who opt for Ayurvedic medicine. In 1992-93, around 3,400 out-patients utilised the facilities for Ayurvedic medicine that were made available at SSRN and Long Mountain hospitals. Most of the patients had diabetes mellitus, hypertension and other diseases of circulatory system and rheumatism excluding the back. Cases of scabies and endocrine and metabolic diseases also constituted a large proportion of attendances.

Homeopathy

There are only one or two overseas-trained practitioners of homeopathy in Mauritius. In recent years, a number of Mauritians have received short intensive training locally, conducted by expatriates, and several "healing centres" have been opened.

Traditional Medicine

In the markets situated in densely populated areas of Mauritius there are usually one or two stalls where medicinal herbs (also flowers, grains, roots, barks) are being sold, and some of the vendors appear to have quite a good clientèle. Many Mauritians grow a few medicinal plants, for example, "ayapana" and "citronelle", in their back gardens.

Chinese Traditional Medicine and Acupuncture

Chinese traditional medicine, based on plant and animal products, is also being practised on a limited extent in Mauritius. Acupuncture, which had been performed in the private sector since long, has recently been popularised in a series of courses for doctors in both the public and private sectors, with the help of experts from the People's Republic of China. Quite a few doctors in the public service are now practicing acupuncture for certain specific morbid conditions.

Health and Faith

Deliverance from disease or infirmity through religious observances is at times sought by Mauritians of all origins. Sessions are sometimes discretely and privately arranged, while at other times, specially when expatriates are involved, they are held in public places (cinema halls, football stadiums) and are backed by massive advertising campaigns.

Witchcraft

There are Mauritians of all walks of life who indulge in witchcraft for health reasons, but because the practice is illegal, it is generally shrouded in a veil of secrecy. There are some who are real addicts of this practice, while others resort to it as a last measure, after having tried every possible non-occult means, and when all hope of recovery seems forlorn.

CHAPTER 2 - Living conditions and Environment

2.1 Housing, environment and hygiene:

The quality of life is enhanced or marred by the type of environment one lives in. The immediate concern is that of housing - the quality, availability and the amenities and facilities provided.

The housing situation in the island of Mauritius has improved considerably between the early fifties and sixties and now. For instance, in 1952 around 80% of dwellings were substandard and only 4% could be considered to be of long life but in 1983, 54% of residential buildings had concrete walls and roof and in 1990 it had increased to 71%.

Improvements in the availability of amenities have been spectacular. The percentage of dwellings having access to running water increased from 8% in 1952 to 99% in 1983 and only 1.5% of households depended on tank wagon, well or river in 1990 as against 3.1% in 1983. Also in 1990, 56% of households had water inside their housing unit in contrast to 40% in 1983. Less than 6% of households made use of public fountains in 1990 as against 17% in 1983.

The situation regarding other amenities and facilities also showed tremendous improvement over time. For instance electricity was available to 70.1% of households in 1972, 91.1% in 1983 and 96.9% in 1990. Again in 1972, there were 34% of households with flush toilet which increased to 47.4% in 1983 and 62.7% in 1990. Whereas 50.6% of households used pit latrine in 1983 it was only 36.5% in 1990. The households which had bathing facilities improved from 84.2% in 1983 to 94.5% in 1990. Even availability of kitchen improved from 94.7% in 1983 to 97.5% in 1990. Refuse disposal which had indicated some problem in 1983 improved from 61.3% in 1983 to 68.4% in 1990. Lesser and lesser number of households were using wood/charcoal for cooking which decreased from 54.5% in 1983 to 26.3% in 1990 and correspondingly gas which was used only in 5.1% households increased tremendously to 50.3% in 1990.

Environment:

Human existence has been a constant struggle against a hostile environment. It can be said that in Mauritius an upper hand was achieved about three to four decades ago by which time medical, technological and scientific advances had helped clear the environment of dangerous vectors and housing situation had improved. Infrastructure for transport and communication had been provided and the country had moved from an agricultural economy to an industrial one. All these had impact on health and living conditions of the people. Morbidity and mortality decreased significantly between the fifties and sixties and continue to fall. However, not all development has been conductive for better life. Government is aware of the situation.

According to the National Development Plan, 1992 - 1994, even though Mauritius has avoided environmental problems of the type experienced by developed countries, threats to

the country's natural resources, including land which is in short supply are growing. These are mainly due to

(1) land use patterns and spatial development occuring in the absence of a detailed physical development plan

(2) indiscriminate dumping of solid waste

(3) release into fresh water bodies of effluents by industry and

(4) excessive use of fertilisers and perhaps pesticides by the agriculture sector.

Several steps have been taken to address emerging issues including the creation of a National Environment Commission, promulgation of an Environment Protection Act and creation of a separate Ministry of Environment and Quality of Life.

Public health, environmental sanitation and hygiene:

An important way the government is addressing the issue of health is through the school health vigilance. All pupils in Standard I are seen by a doctor in all schools. Standard III and CPE class have vision test. All Standard I and CPE students are vaccinated against BCG, Polio, diphteria and tetanus. All cases identified in Standard I for follow up action are looked after during stay in Primary School. During hygiene survey, cases reported by teachers are looked after. Another important aspect is ensuring the health of workers in their work sites.

In addition, principal health inspectors in the regions and senior health inspectors assisted by their staff take charge of environmental sanitation and control food hygiene by visiting hospitals, establishments like hotels and other food processing and serving places to ensure quality. They also do health education. Inspection of public places like institutions, animal breeding places and other possible environmental hygiene problem areas also are geared to protect the population from hazards. The carrying out of rodent control, disinfecting harbours, planes etc to control spread of imported diseases, vigilance on passenger arrivals etc are also focussed on ensuring the health and living quality of the people of Mauritius.

Thus the impact on morbidity and mortality has been quite considerable and the heavy toll of life from environmental factors have been almost eliminated.

In Rodrigues also there was marked improvement in housing and living conditions between 1983 and 1990. For instance piped water which was accessible only to 50.9% of households in 1983 increased to 61% in 1990. Similarly electricity which was available only in 19.7% households in 1983 increased to 70% in 1990. Again toilet facilities increased from 83.4% in 1983 to 90.9% in 1990, bath-room from 43.8% to 62.6%, kitchen facility from 94.5% to 95.1% and refuse disposal from 27.3% to 40.4% between 1983 to 1990.

However with the 30% households still without access to safe water, 9% of households with no toilet and a high 82% with non water seal pit latrine and a substantial 59% of households who dumped refuse in the backyard or roadside, there is a serious public health problem needing attention. Added to this, the overcrowding as measured by persons

per room remained at the same level of 15% of households with 3 or more persons per room in 1990 as in 1983.

2.2 Food, Nutrition and Life Style

Food is one of the basic necessities of life. For the proper functioning of the human organism not only food in sufficient quantity is needed, but certain essential food factors also should be present in adequate amount. Again for optimum ingestion of food for proper growth and development the pre requisite is that the food is wholesome and that the person has no infestation by worms and other parasites and in fact is free from infections and other factors which may hamper absorption of food and nutrients by the body.

Food consumption and nutritional status are indications of levels of living. Economic and social development and progress are unthinkable and meaningless without the elementary and basic necessities of life being provided to the people.

Thus the first priority is to provide food of good quality and ensure that vulnerable segments like infants, children and lactating mothers are provided with food rich in nutrients.

Another priority is to control the environment and eliminate infestation by worms and parasites and check spread of infections. Education of the people and especially the mothers on good food, living habits, hygiene etc and bringing to the attention of the people the harmful effects of smoking, drinking, drugs etc will also be necessary to ensure good health. Also an active life with sufficient exercise will improve the health and well being of the population.

Food habits and consumption pattern

The traditional diet of rice and wheat flour supplemented by animal and leguminous products and vegetables still continues but trend towards larger quantities of animal products and lesser amounts of vegetables and fruits have been noted. Also success of fast food outlets indicates that people are more and more attuned to eating outside, with possibilities of compromising on quality. Especially fatty and salty food have shown increase in consumption and even school children are depending more on lunch bought (66.6% children) than being brought from home. The most popular food was salted snacks followed by sweets/chocolates and confits. The changed life style with more and more women engaged in economic activities outside home, higher incomes and exposure to media all have contributed to this negative development.

Despite more and more women being engaged outside the home, the 1995 nutrition survey noted that still 89% of children aged 0-35 months have been breastfed and 32.2% were breast feeding at time of survey and mean durations of breastfeeding was 6.5 months in Island of Mauritius.

In Rodrigues 96.3% of children aged 0-35 months were breast fed with mean duration of exclusive breastfeeding of 17.7 weeks. 66.3% of children were breastfed for at least one year and average durations was 12-18 months. 85% of children received supplementary food - baby cereals (most popular 28.3%) followed by infant formula (18.8%).

More school children bought food (76.9%) at school and most popular being fried cakes (78.6%), sweets/chocolates (55.5%) and confits (30.6%).

The quantity and quality of food consumed by the households showed an improvement during the 80s as revealed by the household budget survey 1991/92. For instance, an average household spent Rs 2,121.98 on food and beverages in 1991/92 as against Rs 1,158.26 in 1986/87 - an increase of 83%. Total household income also increased but by 72% only. Accounting for an estimated 50% inflation, the food budget still showed a net gain of 22%. In the food basket animal protein like chicken, beef, fish, meat, cheese etc showed significant increases during 1980/81 to 1986/87 and 1986/87 to 1991/92. The nominal average household consumption per capita doubled from Rs 649 in 1986/87 to Rs 1,218 in 1991/92 while average household size declined by about 10% from 4.7, giving even a higher share per capita in 1991/92. This has been reflected in the nutrition survey of 1995 where the health and nutrition of children and adults (male and female) showed improvements in many respects from the previous survey of 1985. For instance iodine deficiency was not found among any of these groups and iron deficiency also was negligible. In 1985 iron deficiency was a serious problem in children - 51% of which had haemoglobin less than 11 g/Hb.

As compared with 6.8% of children aged 0-5 years who were severely malnourished in 1985, in 1995 it was only 2.2%. 82.3% were of normal weight in 1995 as against only 73.8% in 1985. Again severe stunting was noted only on 2.5% in 1995 against 8.9% in 1985 and severe wasting was only among 3.5% of children in 1995 compared with 6.1% in 1985. Obesity which was a problem with 5.8% in 1985 showed a decrease to 3.0% in 1995. Malnutrition which was 24% in 1985 had declined to 16.4% in 1995 and chronic malnutrition reduced to less than half from 21.5% in 1985 to 10.1% in 1995. However, acute malnutrition reduced only marginally from 16.2% in 1985 to 14.8% in 1995.

Among the adults severe malnutrition was negligible (1.8%) but over nutrition as indicated by over weight or obesity was around 40%. The waist hip ratio (WHR) was high among 37.6% of males and 31.6% of females and even among those with normal BMI (Body mass index), 33% of men and 29% of women had high WHR. In 1985 only 22.8% of men and 27.6% of women were over weight and 3.4% of men and 10.4% of women were obese. In 1995 the corresponding figures were 30.5% (over weight), 5.5% (obese) among men and 31.5% (over weight), 10.6% (obese) among women.

In Rodrigues, among children under 5 years severe malnutrition was noted on 1.5% of children with 85.3% normal and 5.1% over weight. Severe stunting was reported on 2.4% with 89.8% normal and severe wasting was 1.5% with 83.5% normal and 7.5% obese compared to 1985, malnutrition and stunting showed decline where as wasting showed an increase.

As in Island of Mauritius, in Rodrigues also severe anaemia among children aged 3-6 years was not found and only 3.9% had moderate anaemia. Among pregnant women 7.1% had moderate anaemia and 29% had mild anaemia. Again iodine deficiency was not a problem but anaemia was still a problem among children perhaps brought in by worms infestation.

The survey on diet, nutrition and life style of youth in Mauritius (1988) indicated that the daily food consisted of rice, bread, pulses and meat.

On an average the consumption of rice was 310 gms and bread 72 gms among the young (8-17 years) and 351 gms rice and 78 gms bread among the older persons (18-29 years). Most of them drank also milk and ate fruits but vegetables and fruit consumption seemed rather low. The food was found to be adequate to meet energy, protein, calcium, niacin and vitamin B12 requirements but deficient in folate, vitamin C and dietary fibre. It provided only 50% of the requirements of iron, Vitamin A, thiamin and riboflavin. At the same time the diet was high in sodium (200% of NCD guidelines) and cholesterol content also was a high 198 mg. This coupled with the finding that a substantial number (44% of males and 4% of females aged 22-24) were smoking and another 45% (aged 15-24) took also drinks with a 10-15% of them drinking 2 or more times weekly makes the problem even more significant. Again, 55% of those aged 15-24 were sedentary and only 5% had modest to heavy work. Even walking for 1 hour per day was done by only 76% of younger boys and 62% of younger girls, very few had other types of exercises like cycling, jogging, swimming etc. Among the older persons (18-24 years) only 50% had modest exercise for 2-3 hours per day and 24% of males and 4% of females were involved in hard work for less than 2 hours and extremely few (6% male and 1% female) did very hard work. On the whole, majority were engaged in lighter activities.

Despite the above, 98% of those aged 5-24 had no diseases like high BP, heart ailment, diabetes or gout. The BMI among those aged 11-17 was 17.7 for males and 17.9 for females and among those 18-24 it was 20.3 for males and 19.6 for females. Obesity was noted in 1.3% of younger and 5-6% among older persons. At the same time 45-50% of the younger ones were under weight but among the older it was less (10% male and 20% female). Malnutrition among those aged 5-10 years as measured by under weight was 18%, stunted was 12% and wasted was 22%.

Haemoglobin level was under 10g/Hb among 31% and another 10% had it less than 11g/Hb, 27.9% had haemoglobin below 12g/Hb. Among males anaemia decreased from 11.4% to 6.5% from age 5-9 to age 13-18 years, but there was no significant change among females whose average was 11.4g/Hb. Elevated levels of total plasma cholesterol was observed among 22% of those aged 5-24 years and was higher (30.5%) among the younger (5-17 years) than among the older (18-24 years).

2.3 Effect of family planning (FP) and maternal and child health (MCH) services on maternal and child health

In Mauritius, like in most less developed countries where declining mortality was not accompanied by declining fertility, the main purpose of FP was to reduce population growth which was assuming alarming proportions in the fifties and sixties and adversely affecting economic growth and development. Improvement in maternal and child health came as a by-product whose importance was soon recognised and consolidated by the integration of FP services with the Maternal and Child Health Services of the Ministry of Health in 1972.

The principal aim of FP is to reduce births. Fewer births mean fewer pregnancies and therefore fewer maternal deaths because of pregnancy and related complications. FP services also make pregnancy less risky when associated with maternal and child care services which help prevent or diagnose and treat health problems such as haemorrhage, infection and toxaemia generally accounting for the majority of maternal deaths. Furthermore FP services provide a cheaper and safer alternative to illegal abortion which is often carried out under high risk conditions with consequent complications involving either prohibitive hospital costs for treatment or leading to frequent deaths. Tietze and Lewit have estimated that abortion -

related deaths contribute 42.2% of maternal mortality in Mauritius in the early 80's and this estimation remains valid at present.

Maternal health has also benefitted from fewer births which mean that a woman has to spend less time in tending and caring for children. More resources can be devoted to each member of the family, including the mother who, when resources are scarce, generally sacrifices her own needs for food, clothing and health care in favour of the children. The spacing of births gives the mother sufficient time to recoup her depleted resources after a birth, which is particularly relevant in Mauritius where the health and nutrition status of many mothers is still wanting in many respects. In fact studies have shown that nutrition and health of women working in the export processing zone sector has deteriorated. Spacing also leads to reduction in high parity births which are particularly risky both to health and life.

Increasing age at marriage and planning of pregnancies to occur at those ages where risks to mother and child are the lowest have also contributed to improvements in health and mortality. Within the socio-cultural context of Mauritius, early marriage was a common practice during the first half of this century. The proportion of currently married female population in the 15-19 age-group had reached a peak of about 40% in the 1950's. The economic development in the last 30 years has completely changed the face of this country in terms of employment opportunities, educational facilities, health services, the role of women in society and in social norms. Marriage patterns among the youth has changed too. From 39.9% of the women aged 15-19 recorded as currently married at the time of the 1952 census, the level dropped to 27.8% in 1962, 12.4% in 1972, 10.5% in 1983 but slightly increased to 10.8% in 1990.

Simultaneously, the age-specific fertility rate of the 15-19 age-group dropped from 107.3 in 1962 to an estimated level of 44.2 in 1992. A similar picture of a drop in fertility is seen among those aged above 35 over the age range and by birth order. That child-bearing is being condensed in the years where the procreative-risk is the minimum is a clear indication of the impact of planned pregnancy on health of both the mother and the child.

However, whilst it is true that FP services have helped tremendously towards safeguarding women from traditional causes of ill-health and death it is still not known to what extent the use of contraception itself, particularly of the hormonal type, hinders the health and well-being of a woman. It is only a few decades since currently available methods of family planning have been in use and it is only now that some of their side-effects are coming under scrutiny. Hormonal contraceptives such as the pill and injectables are associated with some endocrinological disorders as well as having an effect on the circulatory system. The UK based Medical Research Council study on the effect of long-term pill use on the cardio-vascular system points to the do's and dont's in contraceptive technology. Sacho and others point out that pregnancy prevention in the USA is the cause of as many deaths as pregnancy itself. Tietze and others have found that in developed countries "a total of 1.5 deaths per 100,000 oral contraceptive users aged 25-29 could be expected from the side-effects and the pregnancies associated with method failure" whilst "the lowest risks are associated with barrier methods of contraception and early abortion as a back-up for method failure". Mauritius may be very different from the developed countries in many respects including levels of education, fertility, mortality and contraceptive use, but it is significant to note that the second round of contraceptive prevalence survey conducted by the Ministry of Health in 1991 showed that better educated women were drifting towards more "natural methods of birth control in spite of their lesser efficiency". This more educated group is exactly the one which more readily accepted FP when it became available. Hence education is a factor which better equips women not only to seek the methods of controlling their

fertility but also to reject such methods when there is any indication that they could be a threat to health. With the population and health problems under better control and health awareness acute as a result of better education it is to be expected that users of FP will be more discriminating in the methods they adopt.

Emphasis may have to shift from the pill to other methods for woman at 35 years and above and resources may need to be devoted towards improving the efficiency of the latter methods or developing new methods. The population having already accepted FP and succeeded in using it for achieving certain desirable goals is unlikely to abandon it, but ignoring the indicated need for methods which are "safe" from the health point of view may increase the gap between desired and completed family size.

There is still in Mauritius a high risk group of women with poor education and health status coupled with high fertility for whom the trade off from the FP services in terms of better health and lower mortality outweighs the risks involved in using currently available methods of contraception. It cannot be denied that FP services coupled with MCH services must have played an important role in the faster female mortality decline, as compared to males between 1972 and 1983. But there still remains much to be done in the way of improving the services offered by the FP and MCH services. Although these services have since 1989 been integrated in the primary health care services and often provided in the same building, the structures and precise scope of action of the different services are not well defined which leads to lack of co-ordination between the personnel of the different services and inefficient use of the personnel, with highly qualified personnel engaged in activities which could well be performed by para medical persons thus leaving more time for doctors to devote their attention to problems that need their attention.

Maternal and child health services are also an important element in the fight against infant mortality. These services were started in the late fifties and consolidated in the subsequent years. Thus in the early seventies curative services were provided in hospitals and dispensaries, preventive services in health offices and only promotive services in the maternal and child health centres. Furthermore midwifery services could not cope with their main objective of domiciliary confinement with the result that 40% of home deliveries were still performed by unqualified persons till the 70's leading to a high neonatal death rate, almost 50% of total infant deaths.

By the middle of the 1980's maternal and child health services had been improved and were available at health centres, primary care units and MCH/FP clinics. However, since 1989 an integrated approach has been adopted where all services are provided in a team spirit. In this context 26 Area Health Centres and 106 Community Health Centres apart from hospitals have been established in the Island of Mauritius to provide primary health care services as specified in the Alma-Ata Conference.

In 1992 only 0.09% of all births were delivered at home by traditional midwives and another 21 deliveries or 0.09% of all births were carried out at L'Escalier Area Health Centres in the Island of Mauritius. These figures compare favourably with the 1964 situation when about 74% of all births occurred in homes. Above 96% of all births were carried out in hospitals in 1992 and even most of the remaining 3.5% had the benefit of services of trained birth attendents.

In spite of these improvements slow foetal growth, foetal malnutrition and immaturity still accounted for 26.5% of deaths under one year of age in 1992. It is therefore necessary not only to extend maternal and child health services to as wide a population as possible but

also to devote more attention to the nutritional status of the mother, and provide skilled assistance at the time of birth and adequate infant care.

Health education programmes go to some extent towards this aim and it is to be welcomed that the maternal and child health services have been integrated with the family planning services available in all Area Health Centres, Community Health Centres, Family Health Clinics and Family Health Services Centre.

The Mauritius College of the Air is currently engaged in the preparation of education and information programmes aimed at improving the nutritional and health status not only of mothers and babies but the population at large. One of the principal subjects covered is the need and necessity of breastfeeding babies as an insurance against disease and premature death. The two CPS Surveys showed that the percentage of children ever breastfed has gone down from 86.1% in 1985 to 71.8% in 1991 or a decrease of about 17%.

Child care which starts in the maternal and child health centres is continued in the school system through the school health services which includes routine activities such as vaccination (poliomyelitis, diphteria, pertussis, tetanus); screening of new entrants for the detection of defects and their treatment; follow-up and review of school children with defects; surveys to detect and treat cases of scabies and worms; cleanliness surveys; and vision tests and referred to specialists when necessary.

Although originally it was improvement in mortality, and child mortality in particular, that led the population towards family planning services as a means to control fertility, the positive effects of FP services on child health and infant mortality soon became evident especially when associated with MCH. This positive interaction between services and improved child survival is now well documented. Before delivery, regular visits to the FP and MCH clinics ensure that the mother is given the necessary facilities, care and immunization to optimise the chances of the child being born healthy and surviving the first few years of life. It is known that these chances are increased considerably if the children in the family are not large in number, are not born close together in time, and if the birth occurs when the mother is between 20 and 35 years of age.

FP and MCH services have given women in this country not only the necessary antenatal care facilities but also the possibility of realising all the conditions of smaller families, spaced births and pregnancies at most favourable ages of the reproductive period. 82% of pregnant women had undergone antenatal care in government static clinics in 1992. This percentage exclude figures from regional hospitals and private clinics. This shows that at present these services are better utilised than in the 1980's where only about 57% of pregnant women were attending antenatal clinics by the fourth month according to a survey carried out in 1981 by the Mauritius College of the Air.

Family Planning plays an important role in determining fertility levels and trends by allowing women to control their childbearing experience. The population of Rodrigues comprising mostly of creole origin were more reluctant to adopt family planning. Family Planning was introduced for the first time in Rodrigues in 1964 by Action Familiale, a non-government organisation advocating natural methods of contraceptives. In the early 80's M.F.P.A set up a clinic at Port Mathurin and its contraceptive supplies include pills, condoms, injectables and IUD.

The Ministry of Health provides FP services in almost all its health points. At present the M.O.H provides family planning services in about 14 clinics.

According to the service statistics M.O.H is the most important provider of family planning services in Rodrigues followed by A.F and M.F.P.A. Data on current users of contraceptives shows that whereas in 1989 3,132 women were receiving services in government facilities, AF catered to 1,764 women and MFPA to 451 women. There was general increase in number of women served by these three sources, but it was more in the services provided by NGOs so much so that in 1994 whereas government facilities accounted for 3,341 women, AF had 1,976 and MFPA had 1,227 women in their roster.

According to statistics of the M.O.H there were 6,544 users at the end of 1994 compared to 4,552 in 1985. Contraceptive methods have changed overtime. The pill and rhythm method still remains the two most popular methods of contraception used although their share have been reduced in favour of other methods such as injectables, barrier and I.U.D. Of the total users of 6,544 as at end of 1994, 30% were in rhythm followed by 29% on pill and 18% on injectable as against 36% in rhythm, 30% on pill, and 20% on injectable in 1985.

Two rounds of Contraceptive Prevalence Survey carried out in 1985 and 1991 in Rodrigues reveal that prevalence of contraceptive use among married women in the age group 15-44 has increased from 54% to 70% between the two surveys. This shows that contraceptive use in Rodrigues has increased quite significantly between the two surveys compared to Mauritius where the prevalence has remained almost same i.e 75% between the two surveys. In 1991 it was seen that overall 56% of women in Rodrigues use a supplied method compared to only 44% of women in Mauritius.

According to the 1991 survey, Ministry of Health is the most important supplier of contraception (62%), followed by M.F.P.A (20%) and Action Familiale (17%).

However, it was seen that the percentage of planned births which is 52% is much lower than in Mauritius island which is 79%. Almost 28% of births in Rodrigues are reported to be mistimed and 20% are unwanted.

Comparing the data from the two surveys show that while the proportion of births that are mistimed more than doubled from 13 to 28% between 1985 and 1991, the proportion that are unwanted decreased slightly from 24 to 20 per cent.

Thus, it seems that F.P programmes in Rodrigues need to be further strengthened with special emphasis in I.E.C to help women to better plan their pregnancies and also improve the efficient use of contraceptives.

CHAPTER 3 - Morbidity

3.1 Introduction

The types and incidence of ill-health and diseases of the people in a community or an area is a reflection of their living conditions and the way they manage their lives. Morbidity statistics are an important complement to mortality statistics in the study of the health status of a country and its evolution over time. Useful as mortality statistics are, they do not provide an adequate indicator of health and do not reveal the burden of ill-health in a country. There are diseases which are responsible for a lot of human suffering, and which absorb a large amount of health resources, and yet do not occupy a prominent place in mortality statistics because they do not often lead to death. Fatality rates vary considerably from one disease to another, and for particular diseases, they may decrease considerably over time, as better cures become available. A study of morbidity in addition to mortality therefore provides a much more comprehensive picture of the health scene than the study of mortality alone.

3.2 Sources of morbidity statistics in Mauritius and their limitations

The main sources of morbidity statistics in Mauritius are, as in many other countries, hospital in-patient data and records of attendances at dispensaries. Another important source is the notification of communicable diseases to the sanitary authorities. There are other less comprehensive sources pertaining to specific population groups or areas of concern, such as the statistics of the school health services, occupational health unit, epidemiological surveillance, etc.

The statistics compiled from hospital in-patient data have their limitations but still are useful. The compilation of out-patient statistic formerly covered both the distribution of first attendances (i.e new cases) and of total attendances by cause. Then for a number of years, only the distribution of total attendances by cause was available. For more recent years, only the distribution of first attendances by cause is available. For a number of years now, it has not been possible to obtain the distribution of out-patient attendances at out-patient departments of hospitals by cause.

Over and above these weaknesses, the more universal shortcomings of morbidity statistics are: comparability over time through improvements in diagnostic means (e.g laboratories, X-ray facilities) and changes in classification brought about by improved diagnoses.

In spite of these difficulties, valuable information on the evolution of morbidity patterns can be gathered from an examination of data from the sources just discussed. In-patient data from government hospitals, despite non coverage of private clinics, concern the gross majority of in-patients (some in-patient data from private clinics have become available recently). The 1990 figures show that a total of 16,986 cases were treated as in-patients in private clinics and 130,165 in government general hospitals. Since in-patients data from private clinics are only available from the recent past, it is not proposed to discuss these in the following analysis. As regards data on attendances at dispensary service points, they are

worth examining since they can be considered to provide a fairly good picture of the out-patient morbidity situation.

3.3 Morbidity patterns

3.3.1 The Pre independence and immediate post-independence

The morbid condition, apart from malaria, that was cause for grave concern in the thirties was helminthiasis, more particularly ankylostomiasis (hookworm). The striking feature was the predominance of exogeneous causes - malaria, ankylostomiasis, tuberculosis, diarrheoa, colitis and enteritis, and dysentery, which can all probably be ascribed to difficult living conditions and poor sanitation.

By 1955, malaria had been checked to a large extent, and infectious and parasitic diseases like ankylostomiasis, tuberculosis and dysentery were much less prominent causes - a sign of progress in sanitation and living conditions. On the other hand, the rise of anaemia as a cause of both admissions to hospitals and of first attendances at dispensaries is striking. The hospital in-patient statistics by broad causes for 1967, just prior to independence, suggest that progress in combatting diseases arising out of environmental conditions was continuing.

The general hospitals in-patients morbidity statistics for 1975 bear witness to some fairly important transformations. The newly acquired pre-eminence of "Accidents, poisoning and violence" derives partly from the regression of other causes and partly from an increase in the incidence of this modern plague of developed societies. The same seems to hold for heart diseases, hypertensive diseases, and in general for diseases of the circulatory system.

3.3.2 Recent periods

The principal causes of general hospitals discharges for the years 1983 and 1990 are given in Table 3.1 (Morbidity statistics relating to specialised hospitals are generally not available). As stated earlier, patterns of morbidity, barring any epidemic, change very slowly, so that although referring to two specific years, they are indicative of the situation prevailing in the eighties. A large proportion of cases were complications of pregnancy, childbirth, and the puerperium. Diseases of circulatory, digestive and respiratory systems contributed also a sizeable proportion. Injury and poisoning were not only large, but also showed an increase between these two years.

Women who delivered normally constituted 12.6% of all cases treated as in-patients in (government) general hospitals in 1990. 1.1% of cases treated were for complications of abortion, and a further 8.7% for other complications of pregnancy, childbirth and the puerperium, so that in all, nearly a quarter of all cases treated in general hospitals were in connection with pregnancy, childbirth, and the puerperium. Heart diseases (excluding "Hypertensive diseases" and "Acute rheumatic fever" and "Diseases of pulmonary circulation") were responsible for 3.9% of cases treated, while bronchitis (chronic and unspecified), emphysema and asthma were responsible for 3.6%. Table 3.2 gives further details.

Statistics by cause of attendance are not available for those attending out-patient departments of hospitals, but are available only for Area Health Centres, Community Health

Centres and mobile dispensaries. Despite these limitations, they provide a fairly good picture of the morbidity situation characterising the first contact of the public with the health system. Table 3.3 reveals that influenza topped the list with 13.9% of first attendances in 1990. In second place was superficial injury, contusion and crushing with intact skin surface, with 7.2%. In third place was gastritis and duodenitis with 5.3% followed by symptoms involving head and neck with 5.2% and abdominal pain and colic with 4.9%. The distribution of first attendances at AHC's, CHC's and mobile dispensaries in 1990 by Chapter of the International Classification is given in Table 3.4.

The evolution of morbidity patterns as revealed by statistics of admissions to government hospitals and attendances at dispensary service points is characteristic of a country on the path of development. The regression of diseases of exogeneous origin and the rising importance of the ills of modern society: cardiovascular diseases, accidents, poisoning and violence, diabetes and cancer, are the consequences of transformed conditions of living. Increasingly, health care will have to be directed at reducing the toll of these latter causes. At the same time, new challenges to health, such as AIDS, will have to be faced. The vulnerability of Mauritius to the common ailments of the past, as evidenced by the recrudescence of malaria in the late seventies and early eighties should however be borne in mind. The upsurge of infective hepatitis in 1980, which abated immediately afterwards, only to return with renewed vigour four years later, culminating in 1,629 notified cases in 1985, is another reminder of the fragility of progress in the field of health.

Table 3.1 - General hospital discharges (including deaths) by I.C.D. Chapter, Island of Mauritius - 1983&1990

I.C.D. Chapter(1975 revision)	Discharges			
	1983		1990	
	No.	%	No.	%
1. Infectious and Parasitic Diseases	5,898	6.1	4,385	4.0
2. Neoplasms	1,368	1.4	1,386	1.3
3. Endocrine, Nutritional and Metabolic Diseases, and Immunity Disorders	2,492	2.6	3,957	3.6
4. Diseases of the Blood and Blood-forming organs	790	0.8	938	0.9
5. Mental Disorders	700	0.7	1,562	1.4
6. Diseases of the Nervous system and Sense Organs	1,095	1.1	1,571	1.4
7. Diseases of the Circulatory System	7,996	8.3	10,279	9.4
8. Diseases of the Respiratory System	6,533	6.8	7,298	6.7
9. Diseases of the Digestive System	6,480	6.7	8,370	7.6
10. Diseases of the Genitourinary System	6,308	6.5	6,779	6.2
11. Complications of Pregnancy, Childbirth and the Puerperium	24,091	25.0	24,616	22.5
12. Diseases of the Skin and Subcutaneous Tissue	3,519	3.7	3,640	3.3
13. Diseases of the Musculoskeletal system and Connective Tissue	3,163	3.3	3,727	3.4
14. Congenital Anomalies	466	0.5	302	0.3
15. Certain Conditions Originating in the Perinatal Period	1,747	1.8	2,963	2.7
16. Symptoms, Signs and Ill-defined conditions	12,319	12.8	13,268	12.1
17. Injury and Poisoning	11,388	11.8	14,392	13.2
Total	96,353	100.0	109,433	100.0

Table 3.2 - Certain principal causes of general hospital discharges (including deaths), Island of Mauritius - 1990

Causes (I. C. D. 1975 revision)	Number of discharges			
	Male	Female	Total	
			No.	%
1. Normal delivery	0	13,835	13,835	12.6
2. Complications of pregnancy, childbirth and the puerperium (excluding abortion)	0	9,525	9,525	8.7
3. Heart diseases (excluding "Hypertensive disease", "Acute rheumatic fever" and "Diseases of pulmonary circulation")	2,299	1,959	4,258	3.9
4. Bronchitis (chronic and unspecified), emphysema and asthma	1,749	2,212	3,961	3.6
5. Hypertensive disease	1,751	2,104	3,855	3.5
6. Ill-defined intestinal infections (colitis, enteritis, gastro-enteritis, diarrhoea)	1,905	1,894	3,799	3.5
7. Abdominal pain	1,781	1,736	3,517	3.2
8. Diabetes mellitus	1,312	2,032	3,344	3.1
9. Gastritis and duodenitis	1,744	1,224	2,968	2.7
10. Fractures	2,019	915	2,934	2.7
11. Cellulitis and abscess	1,438	962	2,400	2.2
12. Acute respiratory infections (excluding pneumonia and influenza)	1,029	1,041	2,070	1.9
13. Ankylosing spondylitis and other dorsopathies	1,232	771	2,003	1.8
14. Intracranial and internal injuries, including nerves	1,227	566	1,793	1.6
15. Poisonings and toxic effects	860	892	1,752	1.6
16. Open wound and injury to blood vessels	1,273	365	1,638	1.5
17. Noninflammatory disorders of vagina	0	1,520	1,520	1.4
18. Abortion	0	1,256	1,256	1.1
19. Cerebrovascular diseases	734	437	1,171	1.1
20. Pyrexia of unknown origin	578	512	1,090	1.0
21. Chest pain	623	440	1,063	1.0
22. Malaise and fatigue	447	609	1,056	1.0
23. Nausea and vomiting	459	582	1,041	1.0
24. Renal colic	770	233	1,003	0.9
25. Rheumatism, excluding the back	523	479	1,002	0.9
26. Dislocations, sprains and strains	665	282	947	0.9
27. Appendicitis	451	490	941	0.9
28. Epilepsy	591	314	905	0.8
29. Anaemias	342	545	887	0.8
All other causes	17,248	14,651	31,899	29.1
Total	45,050	64,383	109,433	100.0

Note: The above figures include all deaths but exclude cases without a definite final diagnosis on discharge.

Table 3.3 - Certain principal causes of first attendances for the treatment of common diseases and injuries at area health centres, community health centres and mobile dispensaries, Island of Mauritius - 1990

Cause (I.C.D. 1975 revision)	First attendances			
	Male	Female	Total	
			No.	%
1. Influenza	43,148	48,718	91,866	13.9
2. Superficial injury, contusion and crushing with intact skin surface	27,126	20,460	47,586	7.2
3. Gastritis and duodenitis	16,677	18,089	34,766	5.3
4. Symptoms involving head and neck	15,127	19,320	34,447	5.2
5. Abdominal pain and colic	14,633	17,731	32,364	4.9
6. Scabies	14,561	15,375	29,936	4.5
7. Infectious colitis, enteritis, gastro-enteritis, diarrhoea	13,240	14,078	27,318	4.1
8. Laceration and open wound	15,118	11,036	26,154	4.0
9. Pyrexia of unknown origin	8,641	10,300	18,941	2.9
10. Hypertensive disease	8,783	9,469	18,252	2.8
11. Diseases of the eye and adnexa	8,053	9,344	17,397	2.6
12. Avitaminoses and other nutritional deficiency	6,150	10,054	16,204	2.5
13. Diseases due to helminths	7,105	8,224	15,329	2.3
14. Anemias	4,613	9,618	14,231	2.2
15. Symptoms involving respiratory system & other chest symptoms	6,376	7,373	13,749	2.1
16. Diseases of the ear and mastoid process	5,947	6,858	12,805	1.9
17. Chronic diseases of tonsils and adenoids	5,671	7,125	12,796	1.9
18. Diabetes mellitus	6,030	6,660	12,690	1.9
19. Chronic bronchitis, emphysema and asthma	5,549	6,481	12,030	1.8
20. Rheumatism, excluding the back	5,036	6,668	11,704	1.8
21. Acute bronchitis and bronchiolitis	4,337	4,767	9,104	1.4
All other causes	65,616	85,028	150,644	22.8
Total	307,537	352,776	660,313	100.0

Table 3.4 - First attendances for the treatment of common diseases and injuries at area health centres,community health centres and mobile dispensaries - by I.C.D. chapter, Island of Mauritius - 1990

Cause (I. C. D. 1975 revision)	First attendances			
			Total	
	Male	female	No.	%
1. Infections and Parasitic Diseases	35,872	38,712	74,584	11.3
2. Neoplasms	105	116	221	0.0
3. Endocrine, Nutritional and Metabolic Diseases, and Immunity Disorders	12,337	16,933	29,270	4.4
4. Diseases of the Blood and Blood-forming Organs	4,700	9,713	14,413	2.2
5. Mental Disorders	135	119	254	0.0
6 Diseases of the Nervous system and Sense Organs	14,199	16,461	30,660	4 6
7 Diseases of the Circulatory System	9,441	10,233	19,674	3 0
8. Diseases of the Respiratory System	72,210	82,851	155,061	23 5
9 Diseases of the Digestive System	21,601	24,101	45,702	6.9
10 Diseases of the Genitourinary System	1,877	4,366	6,243	0.9
11. Complications of Pregnancy, Childbirth and the Puerperium	0	1,784	1,784	0.3
12. Diseases of the Skin and Subcutaneous Tissue	13,414	16,414	29,828	4.5
13. Diseases of the Musculoskeletal System and Connective Tissue	15,061	20,621	35,682	5.4
14. Congenital Anomalies	85	120	205	0.0
15. Certain conditions originating in the perinatal period	25	158	183	0.0
16. Symptoms, Signs and Ill-defined Conditions	57,218	72,126	129,344	19 6
17. Injury and Poisoning	49,257	37,948	87,205	13.2
Total	307,537	352,776	660,313	100.0

Morbidity in Rodrigues:

Analysis of mortality causes and differentials cannot be comprehensive without a proper assessment of the levels, trends and causes of morbidity. Unfortunately, the data required is scant in Rodrigues. For 1975, available data indicate that the largest causes of admission and attendance at out-patient departments of hospitals were:- scabies, infections of skin and subcutaneous tissue (11.2%), Enterites and other diarrhoea diseases (10.3%), helminthiasis (6.0%), Anaemia (3.6%), Acute respiratory infections (4.0%), influenza (4.5%), other respiratory diseases (3.6%), kwashiorkor and other nutritional deficiency and avitaminosis (2.4%). The pattern clearly portrays the general problems of malnutrition, poor housing and living conditions associated with poor sanitation, lack of safe water supply, bathing and sewerage facilities. In the absence of improved conditions, these diseases turn into recurrent epidemics since infections spread easily through contact with contaminated food, water etc.

Admissions to the 3 health institutions increased steadily from 3,442 in 1968 to 4,119 in 1975, 8,821 in 1984 and 8,928 in 1992. At the same time, attendance of out-patient departments of these 3 institutions increased from 55,857 in 1968 to 58,302 in 1975, fell to 43,211 in 1984 and increased again to 56,666 in 1990.

The principal causes of first attendance at area and community health centres reported for 1990 showed that out of the 9,772 males and 9,538 females, the highest proportion i.e (9.8% male and 9.3% female) had scabies, another 8.5% male and 8.9% female had influenza, 9.6% male and 5.7% female had laceration and other wound, 7.8% male and 5.1% female had superficial injury, contusion and crushing with intact skin surface, 5.1% male and 5% female had infectious colitis, enteritis, gastro enteritis, diarrhoea and 5.1% male and 4.7% female had helminthiasis. Thus we note that a majority of the admissions are still concerned with infections and reflect the poor environmental hygiene and sanitation. However, since the total number of attendances is about 5-6 times the number for which reports are available, it may be possible that the situation depicted by the data may not give a true picture of the prevailing morbid conditions.

CHAPTER 4 - Mortality

4.1 Introduction

Mortality plays an important role in demography being one of three factors affecting population change. In the past when both fertility and mortality were high, it was mortality which determined growth rate and again in recent years with both being low, once more the role of mortality will assume importance consequent on ageing of the population. Mortality data serve as indicators of socio-economic and health progress as well, since they are sensitive indicators of differences within a population. This will enable identification of target groups for special health and other intervention programmes.

This chapter deals with mortality levels, trends and differentials. Some attention is also devoted to cause of death and life-table mortality measures.

4.2 Mortality levels and trends

4. 2 .1 Evolution with time

The evolution of mortality since 1951 is shown in table 4.1 which gives the crude death rates for the Republic and its two main islands. For Rodrigues, the death rates for any given year are calculated by averaging the total no. of deaths for three years and centering on the mid-period population to avoid wide fluctuations due to the small Rodriguan population and the smaller number of deaths occurring during any given year.

Table 4.1 - Crude death rate and Infant mortality rate, 1951 - 1990

Year	Rep. of Mauritius		Isl of Mauritius		Isl of Rodrigues	
	CDR	IMR	CDR	IMR	CDR	IMR
1951-1955	14.6	82.0	14 7	81 3	11 1	109 4
1956-1960	11.7	69 6	11 6	68 2	14 5	115 2
1961-1965	9 3	61 3	9 2	60 4	11 8	86 6
1966-1970	8 5	67 2	8 5	66 3	11 2	89 7
1971	7 7	52 3	7 7	51 7	9 0	74.2
1972	7 9	65 1	7 9	63 8	9 3	75.4
1973	7.8	63 8	7 7	63.3	10 1	75.7
1974	7 3	46 4	7 3	45 6	9 8	71 9
1975	8 1	50 1	8 0	48.7	8 1	59.6
1976	7 7	40 2	7.8	40 7	7.8	57 2
1977	7 8	45 6	7 8	45 0	7.2	48.1
1978	7 1	34.7	7 1	33 9	8 2	56 4
1979	7 2	34 1	7.2	32.9	8 3	51.1
1980	7.2	32 9	7 1	32 3	8.6	57.1
1981	6.8	35 4	6.7	33.6	7.7	53 1
1982	6.6	30 4	6 6	29 4	7 0	56.7
1983	6.5	27.0	6 5	25 6	6 4	51 6
1984	6.6	24 8	6 6	23 1	6 5	53 7
1985	6 8	25 1	6.8	23.8	6.1	51 9
1986	6 6	27.3	6 7	26.3	5 6	48 8
1987	6 5	25.2	6 6	24 2	5.2	42.4
1988	6 6	22 5	6 6	22 0	5 5	44.4
1989	6 8	22 8	6 8	21 6	5.5	40 7
1990	6 6	20 4	6 7	19.9	5.8	40.7

Mortality in the Republic and its main island has declined gradually over time falling from an average of 15 deaths per 1,000 population during 1951- 1955 to an average of 9 in the period of 1961- 1965. Since then mortality has further gone down to around 7 deaths per 1,000 population in the last decade due to a continuous improvement of economic conditions and intensive eradication programmes against epidemics and killer diseases. In Rodrigues as well, mortality has improved tremendously since the 1950's. However, the improvement in mortality was not as smooth as in the island of Mauritius. From the early 1950's to the period 1956 - 1960, there was an increase in the crude death rate from 11.1 to 14.5 as a result of dysentery and gastroenteritis epidemics. From 1960 onwards however, the fall in mortality has been gradual with the crude death rate coming down to around 5-6 deaths per 1,000 population in 1990, a level lower than that for island of Mauritius because of the relatively younger age structure.

4 .2 .2 Trends and differentials by age and sex since 1983 census

4.2.2.1 Republic of Mauritius

The age-specific death rates by sex for 1983 and 1990 are given in table 4.2. As shown in the table, there has been a general improvement in male mortality at the ages 0-29 years and 55 years and above from 1983 to 1990. However, male mortality has deteriorated for the intermediate ages 30-54 years. In the case of females, the improvement from 1983 to 1990 has been more general, that is among all ages.

Table 4.2 - Death rates by age group and sex, Republic of Mauritius and Island of Rodrigues - 1983 & 1990

Age Group	Republic of Mauritius				Island of Rodrigues			
	1983		1990		1983		1990	
	Male	Female	Male	Female	Male	Female	Male	Female
0	31.32	24.69	25.45	18 58	61 43	52 71	41 79	35.59
1-4	1.55	1 55	0.88	0 80	5.02	6.06	0.88	1.75
5-9	0.55	0 46	0.33	0.29	0.74	0.65	0.32	0 47
10-14	0.46	0.44	0.47	0.33	0 94	0.39	0.73	0.17
15-19	0.97	0.89	0.73	0.66	1.33	0.41	0.80	0.30
20-24	1.32	1.07	1.06	0 88	2 04	1.60	1 95	0.26
25-29	1.70	1 09	1.66	0.83	2.41	1.43	0.81	0 30
30-34	2.36	1 25	2.62	1.13	2 12	1.04	1.98	0 93
35-39	3.78	1.81	3 95	1 44	1 57	1.63	2.83	1.79
40-44	5.92	2.89	6.47	2.40	3 70	4.13	5.68	5.48
45-49	9.70	3.99	9.57	3 89	6 85	2 06	6.68	2.86
50-54	14 56	6.13	15.46	5.89	7.44	6 00	12.98	5 65
55-59	22.09	10.71	20 87	9.65	16.62	10 44	16.63	9.59
60-64	34.89	17.26	32.93	15 93	22.53	19.38	30.12	12.32
65-69	50.23	26.76	47.19	25 94	36.20	16.06	36.82	23.62
70-74	80.84	47.08	69.03	42 53	78.57	31.92	58 96	34.06
75-79	113.14	70.56	99.30	64 68	102.56	69 64	101 12	70.75
80-84	170 70	104 60	153.04	102.18	123 08	106 25	123.08	96.00
85+	277 90	195.21	229 59	177 66	260 00	281 25	342.86	171.93

The death rates by sex indicate that female mortality is better than for males at all ages. However, fig. 1 denotes that female mortality between ages 15-19 to 30-34 is rather

high as compared with younger and older ages. A comparison of death rates by sex(m_x values) from life tables for the Republic and m_x values from West Model life tables(with the same mortality level) indicate that at younger ages, mortality in the Republic is generally better but worsens at older ages. The relatively high expectation of life at birth of the country could to a large extent be due to low mortality at younger ages especially low infant mortality. Thus there is excess mortality at certain ages which can be reduced by suitable action programmes.

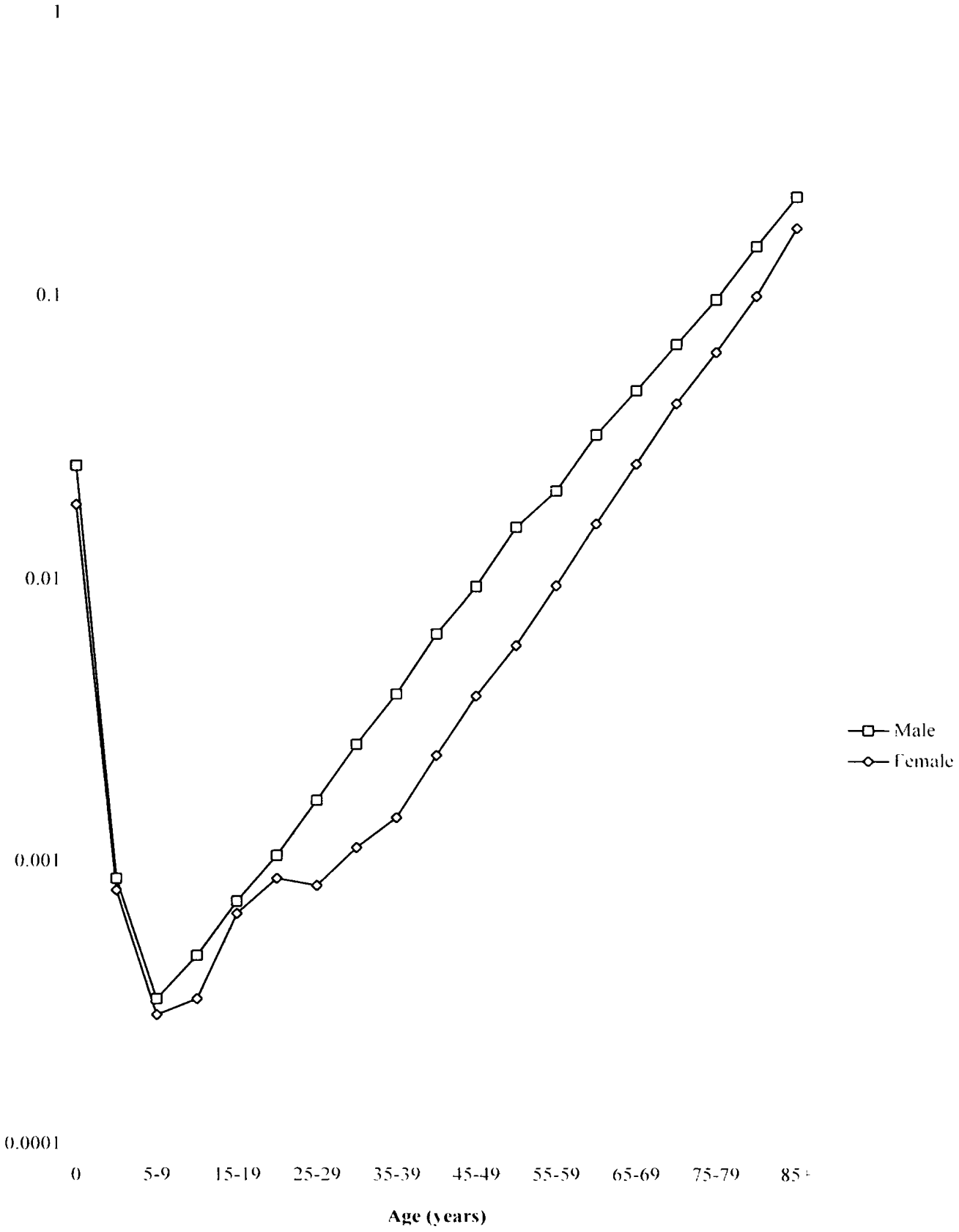
4.2.2.2 Island of Mauritius

The age specific death rates for the island of Mauritius show similar features as for the Republic.

4.2.2.3 Island of Rodrigues

The age specific death rates for Rodrigues(table 4.2) have been calculated by averaging deaths over five years centred on 1990 in order to reduce wide fluctuations in the rates. The data show an improvement in mortality among Rodriguans aged below 35 years. However, a general deterioration is observed among males aged 35-69 and 85+ years and among females in the age bracket 35-49 and 65-79 years.

Figure 1 - Comparison of male and female death rates, Republic of Mauritius - 1990



4.3 Causes of death

4.3.1 Republic of Mauritius

Table 4.3 gives the cause specific death rates by sex for 1983 and 1990. A noticeable feature of the table is that diseases of the circulatory system is still the leading killer group; representing 41% of all deaths in 1990. Considering its evolution over time, little progress has been achieved in curbing down mortality due to that group of diseases.

Other causes of death which have gained importance from 1983 to 1990 are diseases from Group III (endocrine nutritional and metabolic diseases and immunity disorders), Group XIV (congenital anomalies) and Group II (neoplasms) respectively. From the table, it also appears that deaths due to diseases from group V which includes mental disorders, drugs and alcohol dependence have increased dramatically for males - from a rate of 3 per 100,000 mid-year population in 1983 to 17 in 1990. Detailed age data by cause indicate that between age 15-34, a large number of deaths(about 45% of all deaths in that age group in 1990) are reported due to injury and poisoning. Part of it may be due to road accidents and other accidents due to working conditions but some are also reported as suicides. In fact, the number of suicides and self inflicted injury have increased significantly during the period 1983 to 1990.

On the other hand, there has been further improvement in mortality due to various causes namely to infectious and parasitic diseases and diseases of Group XV (certain conditions originating in the prenatal period).

4.3.2 Island of Mauritius

The cause specific death rate by sex for the island of Mauritius are almost the same as that for the Republic.

4.3.3 Island of Rodrigues

In Rodrigues as well, diseases of the circulatory system constitute the major cause of mortality both for males and females. However, as opposed to the island of Mauritius where this specific death rate is almost constant since 1983, in Rodrigues the toll of diseases of the circulatory system has doubled from 1983 to 1990. The deterioration is more prominent for females; from a rate of 95 in 1983 to 232 in 1990.

As in the main island there has been a general increase in deaths due to neoplasms, congenital anomalies and mental disorders. From table 4.3, it can also be discerned that there is a continuous decline in the death rates due to infectious and parasitic diseases falling from 74.5 in 1983 to 19.5 in 1990 for males and a faster pace for females , i.e achieving the level of the island of Mauritius. Another important feature to be noted from the data is the fall in the death rate due to ill-defined causes which is an indication of the improved quality of cause of death statistics.

Table 4.3 - Cause specific death rates by sex, Republic of Mauritius and Island of Rodrigues - 1983 & 1990

Group	Cause	Republic of Mauritius				Island of Rodrigues			
		1983		1990		1983		1990	
		Male	Female	Male	Female	Male	Female	Male	Female
I	Infectious and parasitic diseases	28.26	17.51	20.03	12.65	74.51	60.50	19.51	9.74
II	Neoplasms	45.69	47 35	59.54	60.04	10.07	18.15	35.12	35.05
III	Endocrine nutritional and metabolic diseases and immunity disorders	18.24	29.24	43.47	39.46	6.04	30.25	9.76	36.99
IV	Diseases of the blood and blood forming organs	3.61	7.16	8.32	5.10	2.01	6.05	1.95	3.89
V	Mental disorders	3.01	0.60	17.01	1.32	4.03	4.03	23.41	0.00
VI	Diseases of the nervous system and sense organs	9.02	7.56	8.51	5.66	18.12	6.05	17.56	7.79
VII	Diseases of the circulatory system	328.44	252.65	315.83	232.02	132.91	94.78	234.14	231.70
VIII	Diseases of the respiratory system	91.58	67.44	71.07	51.54	106 73	84.69	95.61	44.78
IX	Diseases of the digestive system	47.29	15 12	41.20	14.91	44.30	10.08	46.83	5.84
X	Diseases of the genito urinary system	20.84	16.71	27.41	16.05	14.10	10.08	13.66	7.79
XI	Complictaions of pregnancy, childbirth and the puerperium	0.00	2.19	0.00	2.83	0.00	4.03	0.00	3.89
XII	Diseases of the skin and subcutaneous tissue	0.00	0.20	0.00	0.76	0.00	0.00	0.00	0.00
XIII	Diseases of the musculoskeletal system and connective tissue	0.80	1.59	0.57	1.13	0.00	0.00	1.95	1.95
XIV	Congenital anomalies	3.61	3.58	10.40	6.23	18.12	6.05	15.61	27.26
XV	Certain conditions originating in the perinatal period	42.28	30 04	37.99	25.49	82.57	56.46	52.68	42.83
XVI	Symptoms, signs and illdefined conditions	33.26	34.22	47.06	50.22	142.98	179.47	17.56	33.10
XVII	Injury and poisoning	64.13	31.63	65.02	29.45	46.32	12.10	50.73	25.31
All Causes		740.05	564 79	773.40	554.86	702.84	582.78	636.07	517.91

4.3.4 Principal cause of death by age and sex

As discussed above, deaths are mainly caused by diseases of the circulatory system. Consequently it is important to analyse this cause of death in more details. Table 4.4 gives the evolution of the cause specific death rates from 1983 to 1990 for males and females separately.

For males, the specific death rate shows an increase for those aged 35-44 years. In the case of females, there seem to be a direct correlation between the slight deterioration in female mortality noticed at the age-groups 30-34 and 50-54 years; and the increase in the specific death rates due to diseases of the circulatory system. Comparison of results of the non communicable diseases surveys of 1987 and 1992 indicated that there was a slight increase of Diabetes Mellitus and obesity but a decrease of hypertension and high cholesterol. Also thanks to IEC activities, cigarettes smoking and abusive alcohol consumption showed a decrease, which may have effect on morbidity and mortality in the years to come.

Table 4.4 - Deaths and death rates due to diseases of the circulatory system, Republic of Mauritius - 1983 & 1990

(a) Male

Age group	Deaths		Rates per 1,000 pop	
	1983	1990	1983	1990
under 30	45	23	0.14	0.07
30-34	24	18	0 6	0.38
35-39	33	61	1.19	1.48
40-44	54	78	2.61	2.59
45-49	82	87	4 12	3.97
50-54	127	129	7.62	6.99
55-59	224	158	12 68	10.07
60+	1,050	1,117	33.98	28 86

(b) Female

Age group	Deaths		Rates per 1,000 pop.	
	1983	1990	1983	1990
under 30	20	8	0.06	0 03
30-34	6	13	0.15	0 28
35-39	14	18	0 49	0.45
40-44	29	25	1 36	0 82
45-49	35	26	1 74	1.14
50-54	46	59	2 79	3 01
55-59	109	83	6 09	5.04
60+	1,011	997	25 67	20.42

4.4 Infant mortality

Infant mortality rate is often taken as an indicator of the level of development of a country given that the effectiveness of health care and the environmental conditions have a direct bearing on the health of infants. The infant mortality rate is defined as the number of infant(child aged below 1 year) deaths per 1,000 live births during the year.

There has been a significant progress in the reduction of infant mortality in the country as a whole. As shown in table 4.1 the infant mortality rate for the Republic and the island of Mauritius fell from around 80 in the early fifties to 20 in 1990, i.e showing a fourfold decrease.

Table 4.5 - Principal causes of infant deaths, Republic of Mauritius - 1990

Cause of infant deaths	Deaths	
	Number	%
Hypoxia, birth asphyxia and other respiratory conditions	133	28.8
Slow foetal growth, foetal malnutrition and immaturity	130	28.1
Congenital anomalies	50	10.8
Septicaemia and infections specific to the perinatal period	39	8.4
Ill-defined intestinal infections (colitis, enteritis, gastro-enteritis, diarrhoea)	16	3.5
Pneumonia	15	3.2
Meningitis	7	1.5
Bronchitis	4	0.9
Asthma	4	0.9
All other causes	64	13.9
Total	462	100.0

In Rodrigues also, there has been a progress though not to the same extent as for the island of Mauritius. Infant mortality in Rodrigues fell from around 110 in the fifties to around 40 in 1990; a level which calls for future improvement.

Detailed causes of infant deaths for the year 1990 are given in table 4.5. The two principal causes were:

(i) hypoxia, birth asphyxia and other respiratory conditions(exogenous)

(ii) slow foetal growth, foetal malnutrition and immaturity(the so-called endogenous causes).

These accounted for nearly 60% of the total number of infant deaths. Whereas the endogenous causes may be difficult to control, the exogenous causes may easily be reduced. Similarly a large number of deaths still due to infectious and environmental conditions could be eliminated and thereby reduce infant mortality. Almost half of the deaths could thus be avoided and reduce the IMR to levels comparable with developed countries.

4.5 Child mortality

Child (aged 1-4 years) mortality has declined gradually over the years as shown in table 4.6 . The decline has been at the level of both the islands of Mauritius and

Rodrigues. In Rodrigues, however there can still be further improvement -its 1990 child mortality rate being twice the corresponding rate for the island of Mauritius and possibilities do exist to reduce the rates further.

Table 4.6 - Child mortality rate, 1952-1990

Year	Republic of Mauritius	Island of Mauritius	Island of Rodrigues
1952	13.6	13.7	21.9
1962	6.8	6.6	19.8
1972	6.8	6.4	12.8
1983	1.5	1.4	5.3
1990	0.8	0.7	1.5

The leading causes of child deaths in 1990 (table 4.7) were congenital anomalies and ill-defined intestinal infections which represented around 37% of all child-deaths.

Table 4.7 - Principal causes of child deaths, Republic of Mauritius - 1990

Causes of child deaths	Deaths	
	Number	%
Congenital anomalies	11	18.6
Ill-defined intestinal infections (colitis, enteritis, gastro-enteritis, diarrhoea)	11	18.6
Injury and poisoning	7	11.9
Neoplasms	7	11.9
Pneumonia	6	10.2
Septicaemia	4	6.8
All other causes	13	22.0
Total	59	100.0

4.6 Maternal mortality

As shown in table 4.8, maternal mortality rate has fallen to low levels since 1983. This may be the result of fewer cases of complications of clandestine abortions. Still the rate is much higher than in most developed countries.

Table 4.8 - Maternal mortality rate, Republic of Mauritius, 1952-1990

Year	1952	1962	1972	1983	1990
Rate	34.0	15.5	17.7	5.2	6.6

1/ deaths per 10,000 live births

4.7 Old-age mortality

The age-specific death rates for ages 60 years and above (table 4.2) have been improving since 1983. However, because of the gradually ageing population of the Republic the proportion of deaths occurring to persons aged 60 years and above has been increasing from 56% (3,670) in 1983 to 61% (4,267) in 1990. In 1990, mortality among the elderly was mainly due to diseases of the circulatory system which accounted for nearly 50% of all deaths.

4.8 Life-table mortality measures

The life table gives a summary of the current level and pattern of mortality experienced in a country. It gives a better picture of mortality than the other standard summary measures such as the crude death rate or standardised death rate.

In Mauritius, there is good mortality data from vital registration and population data from censuses are of very high quality. This has made possible the computation of a series of abridged life-tables. The 1990 life-tables for the Republic, the islands of Mauritius and Rodrigues are shown in tables 4.9 to 4.11.

Table 4.9 - Abridged Life Table by sex - Republic of Mauritius, 1989 - 1991

Male

Age	m(x)	q(x)	l(x)	d(x)	L(x)	T(x)	e(x)	Survival Ratio [2/] [3/] [4/]	Mortality Level [5/]
0	0.02513	0.02335	100,000	2,335	98,132	6,557,363	65.57	0.97594	23
1-4	0.00085	0.00333	97,665	326	389,836	6,459,231	66.14	0.99652	23
5-9	0.00031	0.00157	97,340	152	486,271	6,069,395	62.35	0.99814	23
10-14	0.00047	0.00236	97,188	229	485,364	5,583,124	57.45	0.99700	23
15-19	0.00073	0.00365	96,958	354	483,907	5,097,760	52.58	0.99575	23
20-24	0.00097	0 00485	96,605	469	481,851	4,613,853	47.76	0.99345	22
25-29	0.00166	0.00825	96,136	793	478,695	4,132,002	42 98	0 98974	21
30-34	0.00247	0.01229	95,342	1,172	473,782	3,653,307	38.32	0.98354	20
35-39	0 00418	0.02067	94,171	1,947	465,986	3,179,524	33.76	0.97463	19
40-44	0.00612	0.03016	92,224	2,781	454,165	2,713,538	29.42	0.96159	18
45-49	0.00961	0.04691	89,442	4,196	436,722	2,259,373	25.26	0.93800	17
50-54	0 01619	0 07782	85,246	6,634	409,647	1,822,651	21.38	0.90896	16
55-59	0.02224	0.10536	78,612	8,283	372,355	1,413,003	17.97	0.87187	16
60-64	0.03327	0.15357	70,329	10,800	324,646	1,040,649	14.80	0.81852	16
65-69	0.04804	0.21446	59,529	12,767	265,729	716,002	12.03	0.75257	17
70-74	0.06767	0.28939	46,762	13,533	199,980	450,274	9.63	0.66891	19
75-79	0.09682	0 38977	33,230	12,952	133,769	250,293	7.53	0.46555	22
80-84	0.14815	0.54054	20,278	10,961	73,986	116,525	5.75		
85+	0.21902	1.00000	9,317	9,317	42,539	42,539	4.57		

Note. An average of the deaths registered between 1.7.1989 and 30.6.1991 and the mid year population for the year 1990 have been used in calculating the life table

1/ Excluding Agalega and St Brandon

2/ Survival ratio from birth to age (0-4)

3/ Survival ratio from age (0-4) to age (5-9)

4/ Survival ratio from age 75+ to age 80+

5/ From Coale-Demeny West Model Life Tables

Table 4.9 - Abridged Life Table by sex - Republic of Mauritius ,1989 - 1991 (cont'd)

Female

Age	m(x)	q(x)	l(x)	d(x)	L(x)	T(x)	e(x)	Survival Ratio	Mortality Level 5/
0	0 01884	0 01762	100,000	1,762	98,590	7,339,190	73.39	0.98163 2/	23
1-4	0 00073	0 00287	98,238	282	392,226	7,240,599	73.70	0 99715 3/	23
5-9	0 00026	0 00132	97,956	129	489,416	6,848,373	69.91	0.99864	23
10-14	0 00031	0 00156	97,827	152	488,752	6,358,957	65.00	0.99750	22
15-19	0.00069	0 00343	97,674	335	487,532	5,870,206	60.10	0.99588	22
20-24	0 00097	0 00482	97,339	469	485,522	5,382,674	55 30	0.99555	22
25-29	0 00082	0 00409	96,870	396	483,361	4,897,152	50.55	0.99484	22
30-34	0 00125	0 00625	96,474	603	480,864	4,413,791	45 75	0.99338	22
35-39	0.00140	0.00699	95,872	670	477,683	3,932,927	41.02	0.99029	22
40-44	0 00251	0 01246	95,202	1,186	473,043	3,455,244	36.29	0.98402	22
45-49	0 00395	0 01954	94,015	1,837	465,485	2,982,202	31.72	0.97537	22
50-54	0 00605	0 02981	92,178	2,748	454,022	2,516,717	27 30	0.96174	22
55-59	0 00962	0 04697	89,430	4,201	436,650	2,062,695	23 06	0.93889	21
60-64	0 01579	0.07594	85,230	6,472	409,968	1,626,045	19.08	0.90171	21
65-69	0 02609	0 12248	78,757	9,646	369,671	1,216,078	15.44	0.84233	22
70-74	0 04389	0 19777	69,111	13,668	311,386	846,406	12.25	0.76668	23
75-79	0 06448	0 27763	55,443	15,393	238,735	535,020	9 65	0.55378 4/	24
80-84	0 09938	0 39800	40,051	15,940	160,402	296,285	7.40		
85+	0 17743	1 00000	24,110	24,110	135,883	135,883	5 64		

Note An average of the deaths registered between 1.7 1989 and 30 6 1991 and the mid year population for the year 1990 have been used in calculating the life table

1 Excluding Agalega and St Brandon

2 Survival ratio from birth to age (0-4)

3 Survival ratio from age (0-4) to age (5-9)

4 Survival ratio from age 75- to age 80-

5 From Coale-Demeny West Model Life Tables

Table 4.10 - Abridged Life Table by sex - Island of Mauritius, 1989 - 1991

Male

Age	m(x)	q(x)	l(x)	d(x)	L(x)	T(x)	e(x)	Survival	Mortality [4]
0	0.02451	0.02278	100,000	2,278	98,177	6,561,520	65.62	0.97651 [1]	23
1-4	0.00084	0.00327	97,722	319	390,076	6,463,342	66.14	0.99656 [2]	23
5-9	0.00032	0.00159	97,402	155	486,575	6,073,267	62.35	0.99818	23
10-14	0.00045	0.00224	97,247	217	485,692	5,586,691	57.45	0.99706	23
15-19	0.00073	0.00365	97,030	354	484,264	5,100,999	52.57	0.99594	23
20-24	0.00090	0.00447	96,676	432	482,299	4,616,735	47.75	0.99362	22
25-29	0.00167	0.00831	96,244	799	479,221	4,134,436	42.96	0.98972	21
30-34	0.00247	0.01226	95,444	1,170	474,296	3,655,215	38.30	0.98350	20
35-39	0.00420	0.02080	94,274	1,961	466,468	3,180,919	33.74	0.97456	19
40-44	0.00613	0.03017	92,313	2,785	454,602	2,714,451	29.40	0.96152	18
45-49	0.00964	0.04705	89,528	4,212	437,107	2,259,849	25.24	0.93797	17
50-54	0.01618	0.07775	85,315	6,633	409,993	1,822,741	21.36	0.90873	16
55-59	0.02237	0.10593	78,682	8,335	372,571	1,412,748	17.96	0.87178	16
60-64	0.03317	0.15314	70,347	10,773	324,802	1,040,177	14.79	0.81849	16
65-69	0.04818	0.21501	59,574	12,809	265,847	715,376	12.01	0.75082	17
70-74	0.06857	0.29269	46,765	13,688	199,604	449,529	9.61	0.66687 [3]	19
75-79	0.09699	0.39030	33,077	12,910	133,110	249,925	7.56	0.46740	22
80-84	0.14795	0.54002	20,167	10,891	73,609	116,815	5.79		
85+	0.21471	1.00000	9,277	9,277	43,206	43,206	4.66		

Note An average of the deaths registered between 1.7.1989 and 30.6.1991 and the mid year population for the year 1990 have been used in calculating the life table

1 Survival ratio from birth to age (0-4)

2 Survival ratio from age (0-4) to age (5-9)

3 Survival ratio from age 75+ to age 80+

4 From Coale-Demeny West Model Life Tables

Table 4.10 - Abridged Life Table by sex - Island of Mauritius, 1989 - 1991 (cont'd)
Female

Age	m(x)	q(x)	l(x)	d(x)	L(x)	T(x)	e(x)	Survival Ratio	Mortality Level 4/
0	0 01826	0 01709	100,000	1,709	98,633	7,342,477	73.42	0 98219 1/	23
1-4	0.00071	0.00279	98,291	274	392,462	7,243,843	73.70	0.99723 2/	23
5-9	0.00026	0.00128	98,017	126	489,734	6,851,382	69 90	0.99867	23
10-14	0.00031	0.00154	97,892	150	489,083	6,361,648	64.99	0.99747	22
15-19	0 00071	0.00353	97,741	345	487,845	5,872,565	60.08	0.99580	22
20-24	0 00098	0.00487	97,397	474	485,798	5,384,720	55.29	0.99549	22
25-29	0.00083	0.00414	96,923	402	483,610	4,898,922	50.54	0.99476	22
30-34	0 00127	0 00634	96,521	612	481,076	4,415,312	45 74	0.99346	22
35-39	0 00135	0.00675	95,909	647	477,928	3,934,236	41 02	0.99053	22
40-44	0 00246	0.01222	95,262	1,164	473,400	3,456,308	36.28	0.98411	22
45-49	0 00396	0.01960	94,098	1,844	465,880	2,982,908	31.70	0.97539	22
50-54	0 00603	0 02972	92,254	2,742	454,414	2,517,028	27.28	0.96194	22
55-59	0 00955	0.04665	89,512	4,176	437,120	2,062,613	23.04	0.93886	21
60-64	0.01588	0.07635	85,336	6,515	410,394	1,625,493	19 05	0.90115	21
65-69	0 02626	0 12322	78,821	9,712	369,826	1,215,099	15.42	0.84147	21
70-74	0.04415	0.19880	69,109	13,739	311,197	845,273	12.23	0.76640	23
75-79	0 06431	0.27703	55,370	15,339	238,502	534,075	9.65	0.55343 3/	24
80-84	0 09887	0.39639	40,031	15,868	160,485	295,573	7.38		
85+	0.17887	1.00000	24,163	24,163	135,089	135,089	5.59		

Note. An average of the deaths registered between 1 7 1989 and 30.6 1991 and the mid year population for the year 1990 have been used in calculating the life table

1 Survival ratio from birth to age (0-4)

2 Survival ratio from age (0-4) to age (5-9)

3 Survival ratio from age 75 - to age 80+

4 From Coale-Demeny West Model Life Tables

Table 4.11 - Abridged Life Table by sex - Island of Rodrigues, 1988 - 1992

Male

Age	m(x)	q(x)	l(x)	d(x)	L(x)	T(x)	e(x)	Survival Ratio	Mortality Level 4/
0	0 04179	0 03816	100,000	3,816	96,948	6,623,228	66 23	0.96179 [1]	22
1-4	0 00088	0 00345	96,184	332	383,945	6,526,280	67 85	0.99570 [2]	23
5-9	0 00032	0 00160	95,853	154	478,827	6,142,335	64 08	0.99748	23
10-14	0.00073	0.00365	95,699	349	477,623	5,663,508	59.18	0.99619	22
15-19	0 00080	0.00398	95,350	379	475,802	5,185,885	54.39	0.99317	22
20-24	0 00195	0 00970	94,971	921	472,551	4,710,084	49.60	0 99312	22
25-29	0 00081	0.00403	94,050	379	469,301	4,237,533	45.06	0.99306	22
30-34	0 00198	0.00985	93,671	923	466,046	3,768,232	40.23	0.98805	21
35-39	0 00283	0.01407	92,748	1,305	460,477	3,302,185	35 60	0.97901	20
40-44	0 00568	0 02800	91,443	2,561	450,813	2,841,708	31.08	0.96962	20
45-49	0 00668	0 03283	88,882	2,918	437,116	2,390,895	26 90	0.95240	19
50-54	0 01298	0 06287	85,964	5,405	416,308	1,953,779	22.73	0.92892	19
55-59	0 01663	0.07984	80,559	6,432	386,718	1,537,471	19.08	0.89131	19
60-64	0.03012	0 14006	74,128	10,382	344,684	1,150,753	15.52	0.84675	19
65-69	0 03682	0.16858	63,746	10,746	291,863	806,069	12.65	0.79131	21
70-74	0 05896	0.25693	52,999	13,617	230,954	514,206	9 70	0.68055	20
75-79	0 10112	0 40359	39,382	15,894	157,176	283,252	7 19	0.44510 [3]	21
80-84	0 12308	0 47059	23,488	11,053	89,808	126,076	5.37		
85+	0.34286	1.00000	12,435	12,435	36,268	36,268	2.92		

Note: An average of the deaths registered for the years 1988 - 1992 and the mid year population for the year 1990 have been used in calculating the life table

1 Survival ratio from birth to age (0-4)

2 Survival ratio from age (0-4) to age (5-9)

3 Survival ratio from age 75+ to age 80+

4 From Coale-Demeny West Model Life Tables

Table 4.11 - Abridged Life Table by sex - Island of Rodrigues, 1988 - 1992 (cont'd)

Female

Age	m(x)	q(x)	l(x)	d(x)	L(x)	T(x)	e(x)	Survival Ratio	Mortality Level 4/
0	0.03559	0 03271	100.000	3,271	97,383	7,275,573	72.76	0.96515 [1]	21
1-4	0.00175	0.00682	96,729	660	385,192	7,178,190	74.21	0.99406 [2]	21
5-9	0 00047	0.00236	96,069	227	479,708	6,792,998	70.71	0.99855	22
10-14	0 00017	0.00083	95,842	79	479,014	6,313,290	65.87	0 99883	23
15-19	0 00030	0 00151	95,763	145	478,454	5,834,276	60.92	0.99860	24
20-24	0 00026	0 00129	95,618	124	477,782	5,355,822	56.01	0.99859	24
25-29	0 00030	0.00152	95,495	145	477,111	4,878,040	51.08	0.99692	23
30-34	0.00093	0.00464	95,350	442	475,642	4,400,929	46.16	0.99323	22
35-39	0.00179	0 00890	94,907	845	472,424	3,925,287	41.36	0 98207	20
40-44	0 00548	0 02705	94,063	2,544	463,952	3,452,862	36.71	0 97930	21
45-49	0 00286	0 01418	91,518	1,298	454,346	2,988,910	32 66	0.97903	23
50-54	0 00565	0 02785	90,220	2,512	444,820	2,534,564	28.09	0 96281	22
55-59	0 00959	0 04681	87,708	4,105	428,276	2,089,744	23 83	0.94688	22
60-64	0 01232	0 05974	83,602	4,995	405,525	1,661,468	19 87	0.91516	22
65-69	0 02362	0 11152	78,608	8,767	371,122	1,255,943	15.98	0 86711	23
70-74	0.03406	0 15694	69,841	10,961	321,803	884,822	12.67	0 77736	23
75-79	0 07075	0 30058	58,880	17,698	250,155	563,019	9.56	0.55569 [3]	24
80-84	0 09600	0.38710	41,182	15,941	166,056	312,864	7.60		
85+	0 17193	1.00000	25,241	25,241	146,807	146,807	5.82		

Note An average of the deaths registered for the years 1988 - 1992 and the mid year population for the year 1990 have been used in calculating the life table

1 Survival ratio from birth to age (0-4)

2 Survival ratio from age (0-4) to age (5-9)

3 Survival ratio from age 75+ to age 80+

4 From Coale-Demeny West Model Life Tables

4.8.1 Life expectancy at birth by sex

Expectation of life at birth reflects a population's mortality experience at all ages. As shown in table 4.12, there has been a tremendous improvement in the life expectancy at birth since 1952. The greatest increase in life expectancy occurred between 1952 and 1962 when the values for life expectancy were relatively low. As the life expectancy improves over time, the rate of increase slows down, e.g. in the period 1952-1962 the average yearly increases was 0.93 year whereas in 1983-1990 it was only 0.20 year.

Table 4.12 - Expectation of life at birth by sex, Republic of Mauritius, 1952-1990

Year	Expectation of life at birth (years)		
	Male	Female	Female - Male
1952	49.8	52.3	2.5
1962	58.7	62 0	3.3
1972	61.0	65 9	4 9
1983	64.4	71 7	7.3
1990	65.6	73.4	7.8

Considering the data by sex, it can be seen that mortality continues to be more favourable to females. In fact, female longevity has been increasing at a faster rate than for males with the result of an ever-widening gap between their life expectancies from 2.5 years in 1952 to 7.8 years in 1990.

Table 4.13 - Life expectancy by age and sex at each census and sex differences in life expectancy Republic of Mauritius, 1962 - 1990

Exact age yrs	Male				Female				Female - Male			
	1962	1972	1983	1990	1962	1972	1983	1990	1962	1972	1983	1990
0	58.7	61.0	64 4	65.6	62.0	65.9	71.7	73.4	3.3	4.9	7.4	7.8
1	62.1	64 0	65.3	66.1	64.6	68.4	72.4	73.7	2.5	4.4	7.1	7.6
5	59.9	61 4	61.6	62.4	62.9	66.1	68 8	69 9	3.0	4 7	7 2	7.6
10	55.3	56.7	56.8	57.5	58.4	61 5	63 9	65 0	3 1	4 8	7.1	7.6
15	50.6	52.0	51.9	52 6	53 7	56.7	59 1	60 1	3.1	4 7	7 2	7.5
20	45.9	47.3	47.2	47.8	49.2	52 0	54 3	55.3	3 3	4.7	7.1	7.5
25	41 3	42.5	42.5	43.0	45.0	47.4	49 6	50.6	3 7	4.9	7 1	7 6
30	36.7	37.9	37.8	38.3	40 7	42 9	44.9	45.8	4.0	5 0	7 1	7 4
35	32.2	33.3	33 2	33 8	36.5	38.5	40.1	41.0	4 3	5 2	6.9	7.3
40	27.9	28 8	28.8	29.4	32 3	34 0	35.5	36.3	4 4	5 2	6.7	6.9
45	23.7	24.5	24 6	25 3	28 1	29.6	31 0	31 7	4 4	5 1	6.4	6.5
50	19.8	20.5	20 7	21 4	23 8	25 3	26 5	27 3	4.0	4 8	5.8	5.9
55	16.4	16.8	17 1	18.0	20 0	21.3	22.3	23 1	3.6	4.5	5 2	5 1
60	13.4	13 5	13 8	14.8	16 3	17 5	18.4	19 1	2.9	4 0	4 6	4 3
65	10.9	10 8	11 0	12.0	13 3	14 0	14 8	15 4	2.4	3 2	3 8	3.4
70	8.8	8.5	8.5	9 6	10 5	10 9	11 6	12 3	1 7	2 4	3 1	2.6
75	6 9	6.8	6.6	7.5	8.4	8 4	9 0	9.7	1.5	1 6	2 4	2 1
80	5 6	5.7	4.8	5 8	6.8	6 6	6 9	7.4	1 2	0 9	2 1	1.6
85+	5 5	4.9	3.5	4 6	5 8	5 2	5.0	5 6	0 3	0 3	1.5	1.0

1962 figures exclude the Sino Mauritian community

Table 4.14 - Percentage increase in expectation of life by age Republic of Mauritius, 1962-1990

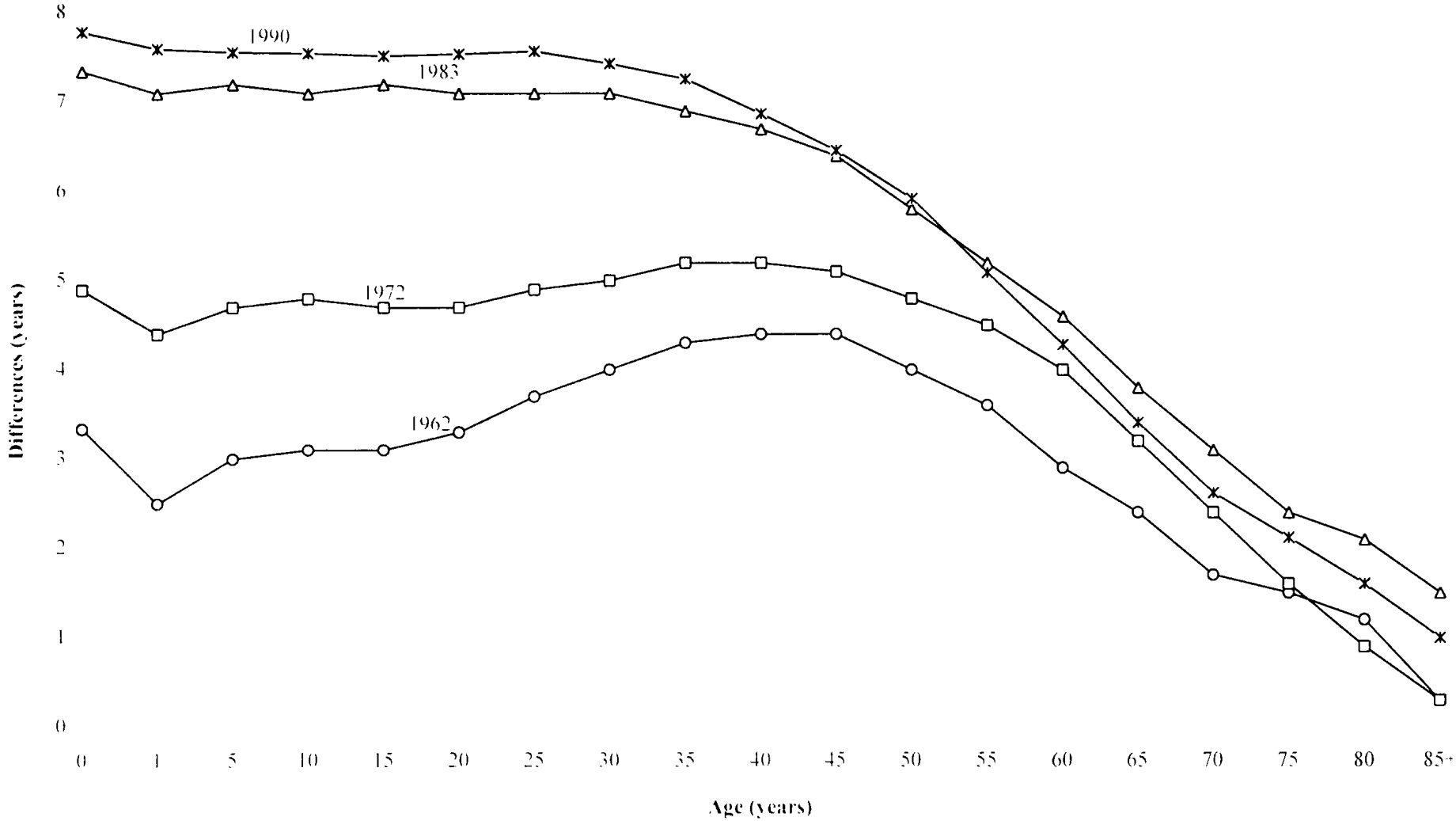
Exact age (years)	M a l e			F e m a l e		
	1962-1972	1972-1983	1983-1990	1962-1972	1972-1983	1983-1990
0	4.0	5.5	1 9	6 3	8 8	2 4
1	3.1	2 0	1 2	5.9	5.8	1.8
5	2.5	0 3	1.2	5.1	4.1	1 6
10	2.5	0 2	1 1	5.3	3 9	1 7
15	2.8	-0 2	1 3	5.6	4 2	1 7
20	3.1	-0 2	1 2	5.7	4 4	1 8
25	2.9	0 0	1 1	5.3	4 6	1 9
30	3.3	-0.3	1 4	5 4	4 7	1.9
35	3.4	-0.3	1 7	5 5	4 2	2.3
40	3 2	0.0	2.2	5 3	4 4	2 2
45	3 4	0 4	2 7	5 3	4 7	2.3
50	3 5	1 0	3.3	6 3	4 7	3 0
55	2 4	1 8	5 1	6 5	4 7	3 4
60	0 7	2.2	7 2	7 4	5 1	3 7
65	-0.9	1 9	9 4	5 3	5 7	4 3
70	-3.4	0.0	13 3	3.8	6.4	5 6
75	-1.4	-2.9	14 1	0.0	7.1	7.2
80	1 8	-15 8	20 8	-2 9	4 5	7 2
85+	-10 9	-28.6	31 4	-10 3	-3 8	12.0

Life expectancy has increased at all ages since 1962 both for males and females as shown by table 4.13 and table 4.14. The increase in longevity has on the whole been more for females than for males except in the last intercensal period 1983-1990 where a

reverse trend is shown for ages 45 years above. This could be due to the fact that expectation of life at older ages for males have been regressing during the 1962-1972 and 1972-1983 intercensal periods and that they have been catching up during the 1983-1990 intercensal period.

Table 4.13 gives the differences between male and female life expectancies and Figure 2 pictures the differences graphically. As shown in both the table and the graph, the sex differentials are higher at the young ages 0-35 years with the peak at age zero: above age 35, the gap narrows down with increasing age.

Figure 2 - Difference between male and female life expectancy by age, Republic of Mauritius, Census years 1962 - 1990



4.9 Mortality differentials

An understanding of the factors determining mortality levels cannot be accomplished without studying mortality differentials. In the next few paragraphs, differentials are discussed by sex, age and region.

4.9.1 Mortality differential by sex

As discussed in the previous paragraphs, there are clear indications that mortality is more favourable to females than to males. This is shown in both the age-specific death rates (Figure 1 and in the life expectancies by sex (tables 4.12 and 4.13).

4.9.2 Mortality differential by age

There are differences in mortality due to age as indicated by the J-shaped age curves of mortality for 1990 (Figure 1). For 1990, the death rates (table 4.2) are high during infancy but decline rapidly during the early years of life and reach the lowest point between the ages of 5-9 years. Beyond that age-group, the death rates gradually increase with increasing age. However between age 15 and 45, the rates are rather too high as compared with younger and older ages. This is explained by the high incidence of NCD and deaths due to lifestyle and stress.

4.9.3 Mortality differential by region

The adjusted death rates in table 4.15 indicate that mortality is at a lower level in the Island of Rodrigues than in the Island of Mauritius. When the life expectancies at birth for both islands are compared, it is observed that Rodriguan males have a higher life expectancy at birth than males of the island of Mauritius whereas among females the reverse is true.

Table 4.15 - Adjusted death rates by region, Republic of Mauritius - 1990

Region	Adjusted death rate
Plaines Wilhems	5 89
Moka	6 21
Black River	6 26
Savanne	6 60
Grand Port	7 12
Riviere du Rempart	7 15
Pamplemousses	7 24
Flacq	7 39
Port Louis	7 47
Island of Mauritius	6 65
(Urban)	(6 21)
(Rural)	(7 10)
Island of Rodrigues	6 21
Republic of Mauritius	6 64

The infant mortality rate being lower in the island of Mauritius than Rodrigues has surely contributed towards raising the life expectancy at birth in the island of Mauritius but its effect is offset by higher mortality at older ages. The level of influence of infant mortality on life expectancy at birth is shown by the amount of expectation of life gained after surviving through the crucial age zero. For instance, gains are higher for Rodrigues indicating that infant mortality is higher in Rodrigues and therefore has a bigger influence on expectation of life at birth.

Within the island of Mauritius, Plaines Wilhems is by far the district with the lowest mortality and Port Louis the highest.

Urban/rural mortality differential in the island of Mauritius has been analysed by considering the districts of Port Louis and Plaines Wilhems as urban; and the remaining districts as rural. As expected, the level of mortality in the urban region is better though it includes Port Louis.This is because the weight of Port Louis in terms of population size in total urban population is only about one third.