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Ministry of Economic Planning and Development

CENTRAL STATISTICAL OFFICE

1983
Housing and Population Census
of
MAURITIUS

ANALYSIS REPORT

VOLUME III—Households and Housing Needs:
Estimates and Implications.

(ISLAND OF MAURITIUS)

FOREWORD

This report is the third of a series of analytical reports to be prepared by the team set up to work on the evaluation and analysis of the 1983 Housing and Population Census data. This team of eight Statisticians and demographers from this office and the Ministry of Health started work in 1984 under the supervision and guidance of Dr. K. V. Ramachandran, Regional Adviser at the United Nations Economic Commission for Africa. Dr. Ramachandran has already undertaken four short missions up to now to monitor the work of the analysts, which will finally culminate in the publication of analytical reports on Evaluation of age-sex data, Education, Households and Housing Conditions, Population Distribution and Migration, Economic Activity, Nuptiality and Fertility, Health, Morbidity and Mortality. The first report on evaluation of age and sex data was published in June 1985, whilst the second on the evaluation and analysis of data on education was published in June 1986.

The present report deals with the analysis of households and housing data. After describing the evolution of the housing stock and the different types of households during the recent past, it goes on to an assessment of the housing needs at the national level for the next twenty years in relation to the projected number of households. Before finalising the report discussions were held with officials of the Ministry of Housing, Lands and the Environment to seek their views and comments. It has not been possible to implement many of their suggestions because so far, no tabulations on housing conditions have been produced at the sub-regional level. Still, it is hoped that this report will be of some help to housing planners in assessing future prospects and implications at the national level.

I should like again to place on record the efforts produced by all those who assisted in the analysis of the data and the preparation of the report. My thanks also extend to the United Nations Fund for Population Activities and to the United Nations Economic Commission for Africa for financial and technical assistance. Finally the whole census team and myself are most grateful to Dr. K. V. Ramachandran for his excellent guidance and supervision.

D. Zmanay
Director of Statistics

Central Statistical Office
Rose Hill
Mauritius

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Chapter I

INTRODUCTION

1.1 The setting

Mauritius is a small island in the Indian Ocean with an area of 1,865 sq km (186,484 hectares) and a population of 967,000 persons at the 1983 census. In 1980 about 97,823 hectares were allocated to agriculture, 11,857 hectares to built up areas and 1,335 hectares to public roads (excluding farm roads). The remaining 75,469 hectares consisted of forest reserves and rain water catchment areas, reservoirs and ponds, swamps and rocks. Continuously there has been encroachment of population and housing and infrastructure on the agricultural lands and those meant for forest reserves and water sources.

For instance, substantial amount of land has been directed to housing construction from prime agricultural land as noted from the settlements in the once agricultural fields in Quatre Bornes, Coromandel etc. Migration from Port Louis to surrounding districts and to Moka and Flacq is still going on and the competition for land use is acute.

With the population continually increasing between 1972 to 1983 there was a great demand for housing which was accentuated by (i) the economic boom triggered by favourable sugar prices and (ii) the changed social structures within the community whereby the people now prefer to live in their own houses and not to share accommodation with parents, relatives etc. Side by side with quantitative increase in demand for houses, there was also a quantitative improvement with the stress on cement concrete structures and ample space for living and open space within house compounds replacing smaller huts or houses occupying very little space and at the mercy of climate especially the destructive cyclones.

The havoc wrought by cyclones has focussed the attention of the government and the people on the need for constructing houses keeping in view the climate. Mauritius lies in the line of cyclones as evidenced by the recent events. The climate of Mauritius is sub-tropical with temperature ranging from 14°C in the coldest month in July to around 30°C

in the hottest month in January. Summer lasts from November to
April (usually the time for cyclones) and winter from May to October.
Generally speaking, temperatures are 4-5 degrees lower on the central
plateau as compared to the warmer coastal plains. Rainfall which
occurs mainly in summer ranges from an annual average of 1,000 mm in
the dry western part to about 1,800 mm in the centre. Relative
humidity in summer varies from 60-70% on the dry western coast to
80-90% in the centre of the island with a slightly larger range in
winter.

But the qualitative improvement in housing seems to have
gone beyond the standards to be expected in relation to the exigencies
of the climate. This may be the result of an over-reaction to the
havoc done to housing by several violent cyclones that visited the
country since 1960. The fact that much of the damage was done to the
low standard of housing construction before the sixtees seems to be
overlooked. A direct consequence of the current practice of building
over-designed houses is that a house is getting more and more beyond the
reach of the average income earner.

The topography and soil conditions also have influenced
varying land use patterns. The land which is of volcanic origin has
a central plateau that reaches a height varying between 300 and 700
metres above sea level. The plateau slopes gently to the north but
drops sharply to the southern and western coasts. There are a number
of peaks created by volcanic action which is also responsible for the
presence, in large parts of the island, of volcanic rocks which need to
be removed or cut through before building construction can take place.
The preference for siting house construction thus is obvious.

The government is very much concerned with the twin problems
of agricultural land being used for housing construction and foreign
exchange revenues being diverted for importing building materials.
Furthermore, concern has been expressed about the impact of human
settlements and consequent land clearing in what was once agricultural
land on soil, ecology, economy and the environment.

To plan a strategy and adopt policies, it is important to
know the existing situation and future prospects on population and
housing.

This study aims to assess and analyse the data on households and housing during the period 1972-83 in order to estimate the future number and size distribution of households as a prelude to estimate the future housing requirements. Even though the rate of population growth has declined significantly, the effect of the past high fertility regime is still felt in the age structure of the population which has resulted in a considerably high growth in number of households. This has been accentuated by the tendency for the population to live in their own houses without encumbrances from relatives and others. At the same time, people's preference for large and very durable houses constructed with imported materials has meant a heavy burden on the economy and society. The study brings out that for the 2 decades 1983-93 and 1993-2003, the number of housing units needed may be even larger than what was achieved with tremendous costs during 1972-83. Two of the possible options to meet the situation could be: (i) construct only a small proportion of the needed requirements but with very durable materials as was apparently done during the 1970's and early 1980's or (ii) design housing units which are affordable to the majority of the population like 'core housing', 'site and services, etc.'.

The private sector could be encouraged to invest in housing and this measure coupled with liberalisation of laws on rent could make more rented accommodation available at reasonable prices to those households who cannot immediately afford owner-occupied dwellings. A secondary happy outcome could be reduced speculation on land also.

Decisions will have to be taken as early as possible on the approach so that the housing situation does not become difficult and affect the health and well being of the population.

1.2   Historical background

It is possible that counts of houses in Mauritius date back to 1735 when the first complete census was taken. However it was in 1871 that for the first time a count of houses was made before a population census. In fact the report for the census of 11 April 1871 states "In order that the Enumerators might become thoroughly familiarised beforehand with their respective sections, a preliminary enumeration of all houses was ordered to be gone through by them within the first 12

days of the month of March". The information collected was the location, the material of construction, the name of the principal occupier and whether he would be able to fill in the population schedule.

Thus the main **purpose** of the housing enumeration was to serve as a frame for the population census. This aim has been present in subsequent censuses although for the past few decades the Housing Census has acquired an importance in its own right in view of the wealth of housing data collected as a result of the growing interest in housing and housing conditions. Whereas in 1871 the coverage did not include tenements on the sugar estates, the situation has evolved to a stage where now every attempt is made to cover every single non-agricultural building and every housing unit. Furthermore, whereas in 1871 information was asked only on the material of construction, to-day a whole series of questions is asked to establish the stock, age and quality of different types of buildings and the adequacy of facilities provided by the housing units.

1.3   Evaluation of statistics on housing

1.3.1   Organisation of 1983 Housing Census

The census of 1972 was a joint housing and population census taken in two rounds. Two separate schedules were used and the two sets of data were subsequently matched by computer to study the housing conditions of households. However, due to the time lag between the housing and population censuses and also to possible errors of coding and punching, it was not possible to match the housing and population files for about 2,000 households.

The organisation of the 1983 census was similar to that of the 1972 census, except that no matching exercise was envisaged. The main reason was to simplify the data processing operation and to avoid the onerous task of sorting out unmatched and mismatched records. The Housing Census enumerated all households and also collected information on the total number of persons by sex in each household, apart from information on buildings, housing units and housing amenities. An analysis of housing conditions can therefore be made within the framework of the Housing Census itself.

1.3.2 Census cartography

Before the Housing Census, a detailed mapping exercise was undertaken as from 1981 to provide various base maps and census enumeration maps to fieldstaff before they went on the field. This was necessary to ensure that no part of the country was omitted and that no fieldworker tresspassed into the territory of another.

At the previous census in 1972, the Island of Mauritius had been divided into 376 enumeration areas of about 500 households each. These areas were further sub-divided in 1983 to enable better control and supervision of the fieldwork. Thus for the 1983 census there were about 2,700 smaller enumeration areas, most of them containing roughly 80 households in the rural and 100 households in the urban areas.

1.3.3 Housing Census fieldwork

The Housing Census was conducted from mid-March to May 1983 by 582 Chief Enumerators[1]/ working under 82 supervisors who were themselves answerable to 9 senior supervisors. All fieldstaff had previously been formally trained on the use of the census maps, the application of the Housing Census instructions and the actual filling in of the Housing Census questionnaire. Supervisors were asked to polish up the training of Chief Enumerators during informal group meetings; they also had to take each of their Chief Enumerators on field visits to guide them on map orientation and reading, and to acquaint them with the boundaries of the enumeration area or areas allocated to them.

In each of the areas assigned to him, The Chief Enumerator had to enumerate all buildings, including those still under construction, all housing units, all households and all commercial and industrial establishments. Data were collected on a Housing Census questionnaire which was almost entirely pre-coded. Each questionnaire applied to one housing unit.

1.3.4 Housing Census questionnaire

The contents of the questionnaire included location, type, year of completion and material of construction of all buildings and

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[1]/ Chief Enumerators were responsible for enumeration at the Housing Census, whilst Enumerators did the Population Census enumeration.

the number of storeys above ground floor. For each housing unit
within the building information was collected on ownership and
occupancy, the number of households in the housing unit and the number
of rooms occupied by each, the sex distribution of the persons in each
household, tenure and rent paid, if any, together with principal fuel
used for cooking. As regards amenities provided by the housing units
questions were asked on source of water supply, electricity, toilet
and bathing facilities, cooking facilities and method of refuse
disposal.

The Housing Census also enumerated all commercial and
industrial (i.e. all non-agricultural) establishments; details of
industrial activities and persons engaged by sex were asked for
establishments employing less than 10 persons.

The definitions used at the census were as follows:

(a) Geographical district: The Island of Mauritius is
divided into nine geographical districts since the time
of the French occupation. These are not administrative
units. The Island of Rodrigues may be considered as the
tenth district.

(b) Municipal Council Area (MCA): The boundaries of
Municipal Council Areas are proclaimed by law.
These MCA's are administrative areas, of which there are five,
covering the region from the north-west to the centre
of the island. Urban population is defined as the
population of Municipal Council Areas.

(c) District Council Area: There are three District Council
Areas which are the rural administrative counterparts
of the Municipal Council Areas. Although the District
Council Area does not appear on the questionnaire, it
is easily obtained by a proper combination of the geo-
graphical districts, and Enumeration Areas defined below.

(d) Village Council Area (VCA): There are 98 Village
Council Area which are smaller administrative units
within the District Council Areas; their boundaries
are also defined by law.

(e) Localities: These are names of places, usually
inhabited, but their exact boundaries are often
ill-defined. There are 719 localities in the Island
of Mauritius : 78 within Municipal Council Areas,
443 within Village Council Areas and 198 which fall
neither in MCA's nor in VCA's. The Island of
Rodrigues, which is considered as one administrative
district without MCA's or VCA's has 16' localities.

(f) Census District or Electoral Constituency: The
Island of Mauritius is divided into 20 Electoral
Constituencies for purposes of general (as distinct
from local) elections. The boundaries are defined in
the Constitution of Mauritius. The Island of
Rodrigues constitutes the 21st Electoral Constituency.

(g) Enumeration Area: For purposes of the census, the
Island of Mauritius has been divided into about 2700
Enumeration Areas each with an average of about 100
households in urban areas and 60 in rural areas. The
Island of Rodrigues was divided into 88 Enumeration Areas.
Each Chief Enumerator had to cover several of such EA's
for the Housing Census.

(h) Block: Each EA was subdivided into a number of blocks,
a block being defined as an area surrounded by well
defined and easily recognizable boundaries such as roads,
rivers, permanent tracks, mountain sides and the limit
of sugar cane fields.

(i) Building: A building was defined as any independent free-
standing structure, comprising one or more rooms and
other spaces covered by a roof and usually enclosed within
external walls. It could be used or intended for residen-
tial, commercial, industrial or agricultural purposes or
for the provision of services. Detached structures such
as w.c's, bathrooms, kitchens, garages, were not counted
as separate buildings.

The Housing Census covered all buildings used at the
time of the census for residential, commercial or industrial

purposes or for the provision of services. The
following were enumerated:

(i) all buildings used at the time of the census for
residential, commercial or industrial purposes or
for the provision of services;

(ii) all buildings intended for such use but vacant
at the time of the census;

(iii) any shelter which, although not in conformity
with the definition of a building, was being used
for habitation at the time of the census; and

(iv) buildings under construction.

The following were not enumerated:

(i) buildings used for agricultural purposes including
livestock keeping;

(ii) temporary shelters and improvised housing units not
occupied at the census;

(iii) buildings being demolished or awaiting demolition;
and

(iv) dilapidated buildings which were not inhabited at
the census.

(j) Housing Unit: A housing unit was defined as a separate
and independent place of abode intended for habitation
by one household, or one not intended for habitation
but occupied for living purposes at the time of the
census. Although intended for one household, a housing
unit could be occupied by more than one household or
part of a household at the census.

A place of abode was considered separate if
surrounded by walls and covered by a roof so that a
person or a group of persons could isolate themselves
from other persons in the community for the purpose of
sleeping, preparing and taking their meals and protecting

themselves from the hazards of climate and environment. Such a structure was considered _independent_ if it had direct access from the street or from a public or communal staircase, passage, gallery or grounds.

(k) ‘Household: A household was either (i) a person living on his own and making his own provision for food and other essentials for living, or (ii) a group of two or more persons, whether related or not, who lived together and made common provision for food and other essentials for living. Two families in the same housing unit were **considered** as one household if they had common house-**keeping** arrangements; otherwise they were considered as constituting two households. Varying degrees of common housekeeping were resolved by considering as one household if there was a regular arrangement to share at least one meal a day.

The **three** main types of household distinguished were:

(i) single households in which all members occupied a single housing unit;

(ii) combined households in which the members of one household occupied more than one housing unit; and

(iii) institutional households such as guests in hotels or inmates of convents, infirmaries, hospitals, prisons and barracks.

(**1**) Head of household: The head was the person acknowledged as such by the other members of the household. For hotels and institutions the head was the person in charge.

(m) Room: A room was defined as a space in a housing unit enclosed by walls reaching from the floor to the ceiling or roof covering, or at least to a height of two metres, and large enough to contain a bed for an adult. A room partitioned by curtains or pieces of furniture was counted as a single room.

Rooms were classified separately into those used for living purposes and those used for professional or business purposes. Rooms for living purposes included bedrooms, dining rooms, living rooms, studies, habitable attics, kitchen-dining rooms and closed verandahs. Kitchens used exclusively for cooking were not considered as rooms; neither were open verandahs, corridors, lobbies, bathrooms, toilets, stores and garages. A room was considered as being used for profession or business if it was reserved exclusively for that purpose.

1.3.5 Data processing

The 1983 Housing Census was processed on an ICL ME 29 model 37. At the input and the processing stage a number of checks were made. In the first place an input validation program was set up in the key-edit stations to detect certain types of errors. Any errors flagged were promptly corrected. Once the data was stored, a validation of the stored data was carried out to check for range errors and field incompatibilities. Furthermore at the updating of the master file stage inter-record checks were made. At all stages of the processing necessary steps were taken to correct the errors promptly. Thus the amount of errors was drastically reduced before tabulations were drawn out. The total number of errors identified and subsequently corrected represents about 2% of the 200,000 Housing Census records. However many of the errors were in the same record so that the percentages of records with errors must be considerably less.

1.3.6 Problems

(i) Each questionnaire was for one housing unit and the concept of sharing in relation to some amenities such as toilet, bathroom and kitchen applied to sharing with another housing unit and not sharing of the amenities by two households occupying the same housing unit. Some difficulty was experienced in conveying this to the Chief Enumerators.

Furthermore if two households were in the same housing unit but each had its own facility of one type or other, for example a kitchen inside the housing unit and another outside, then Chief Enumerators were instructed to record the better facility as available to the housing unit.

(ii) Some difficulty was experienced by fieldstaff in applying the definition of household in some cases where members of one household were occupying two housing units.

(iii) Although instructions were given to enumerate and number all buildings, some difficulty was experienced in demarcating one building from another in the densely built commercial areas of the capital. This would not have been a problem on its own since the main interest was in housing. However some households living at the back of commercial establishments may have been missed in spite of the extra care and resources deployed, and to this extent the housing information may also be deficient.

1.4   Housing situation: public and private sectors

The housing situation has evolved both in quantity and in quality. In 1952 for a population of about 501,500 there were about 83,774 dwellings of which about 61% were hovels and huts while in 1983 for a population of 963,570 there are about 191,700 housing units with barely any huts. These changes have been brought about both by the effort of the public and private sectors.

There is at present a serious shortage of accommodation. This shortage started in 1960 when two major cyclones, Alix and Carol, hit the island and damaged as many as 25,000 housing units. The increase in households and the visit of cyclone Gervaise in 1975 which destroyed 8,000 dwelling units as estimated by Central Housing Authority (C.H.A.) has increased the dimension of the housing problem.

The government policy has been to ease up the housing situation of the low income group. The Sugar Industry Labour Welfare Fund (S.I.L.W.F.) was set up to do all such things as appear requisite and advantageous for or in connection with the advancement and promotion of the welfare of workers and their children, where a

"worker" means a port employee or a person employed by a sugar miller or a sugarcane planter and includes a retired worker. In this connection "workers" were given loans, interest free, for the purpose of financing the construction of concrete houses for personal occupation. The loans are repaid usually over a period of 20 years. At the end of 1982 there were 3,844 houses built by the Fund.

The Central Housing Authority (C.H.A.) was set up in 1960 by Ordinance No. 32 of that year as the organisation responsible for the execution of the Cyclone Housing Scheme on behalf of the Government of Mauritius. The scheme aimed at a uniform level of assistance by replacing the small houses, which had been destroyed, by a standard improved dwelling, which when subsidised, the majority of the homeless families could afford. By the end of 1982 the C.H.A. had built 18,262 houses.

The Mauritius Housing Corporation (M.H.C.) established in 1962, under ordinance No. 36 of 1962, now governed by Act No. 6 of 1974, started its activities in January 1963. Its main objective was to help as many Mauritians as possible to own their homes, through housing loans. In 1983 the M.H.C. had given about 8,500 loans amounting to about 300 million rupees and had also built 203 houses and flats by themselves.

The government further encouraged insurance companies to make available housing loan schemes to their staff and clients. The terms are usually different for the different companies.

No in-depth study of the role of the informal sector in housing production has been carried out in Mauritius. However in 1978 PADCO (Planning and Development Collaborative International) carried out a survey which revealed that in that sector labour was generally provided by the households' male members, assisted by friends and relatives who are not remunerated. When skilled labour was necessary, workers from the formal sector were hired and were employed on weekends and evenings. Building materials were assembled over a considerable period of time as and when financial means permitted before construction would start. To mobilise finance, savings were done through the informal 'cycle' system, a traditional system of rotating

savings.

The cost of constructing a house has reached a prohibitive level. Most people are getting their homes constructed in concrete and most of the materials with the exception of sand and stones are imported. Labour cost too has risen up drastically. People are finding that owning a home is getting out of their reach unless the cost of housing is decreased.

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Chapter II .

<u>BUILDINGS</u>

2.1   Introduction

The construction industry of which construction, maintenance
and repair of residential and non-residential buildings form the major
part in Mauritius (62% in 1971, 73% in 1979 and 65% in 1983) plays a
vital role in the economic and social development of the country.
Building construction is labour intensive and provides employment to
appreciable numbers of both skilled and unskilled workers. Also,
principally, it provides one of man's basic needs - shelter.

Since independence, government has spent considerable sums
of money in the construction industry. For instance, during 1971-74,
the construction component of gross domestic fixed capital formation amounted
to about 57% and it was planned that it would increase to 60% during
the Five Year Plan of 1975-80. During 1980-83 also this high percentage
was maintained inspite of the down turn in the economy in the second
half of 1979.

Even though the rate of growth of population in the island
of Mauritius has slowed down considerably and is anticipated to de-
crease further, socio-economic and demographic factors have caused
the average household size to decline as well from 5.3 in 1972 to
4.8 in 1983. Since for a given population size, the number of house-
holds would be larger when the average household size is smaller, this
fall in household size necessitates planning the provision of house-
hold level consumption items like housing for a larger number of house-
holds than if the average size had remained at its 1972 level. This
fact, coupled with the high possibility for further reduction in
household size results in accelerated need for housing.

Generally speaking, the performance of the building construction
sector of the economy seems to have been satisfactory. However, since
housing eats away funds which are needed for other more productive
sectors, there cannot be much bigger growth in the construction of
dwelling units especially since government policies and **programmes**
spelt out for 1984-86 aim at containing investment in housing without
reducing the number of units to be built. This makes it imperative
that in order to cater to the emerging needs of the population of the

island, at least during the next 20 years, estimates and projections
of population, households, housing units and buildings be worked out
in order to plan rationally the allocation of the available funds to
meet the situation.

In order to match population and household growth with
building and dwelling unit construction one has perforce to study
the present stock of dwelling units, the current shortage necessitating
sharing and doubling up, their location, quality (construction material)
and probable life (year of construction). An assessment needs also to
be made of the pace of construction of new dwellings and the maintenance
and use (vacancy rate) of existing ones.

Provision of mere shelter does not satisfy modern man's
quest for a reasonable standard of life. Quality of life is determined
not only by the quantitative aspect of housing (adequate shelter for
all), but is very much related to the availability and accessibility
to the households of some of the daily requirements for a healthy life
like protected water supply, safe waste disposal, healthy environment,
electricity, etc. Again, an important index of overcrowdedness in
housing is the density of persons per room or living space. A
consideration of the adequacy of shelter should therefore also keep
in mind the size of the dwelling unit (number of rooms for living
space and for other activities like cooking, bathing, etc.).

Thus, in addition to studying the number, location,
condition (overcrowding, doubling up, construction material, year of
construction, vacancy), building of new dwelling units and size and
characteristics of units (number of rooms, facilities for cooking,
bathing, toilets) one should also assess the quality of shelter in
terms of the availability of basic daily requirements (water, electri-
city, sewage disposal) and try to rectify any known lacuna in these
necessities of life.

In order to achieve this, it is necessary to have the
requisite data, analyse them and interpret the findings. These are
being considered in subsequent sections.

2.2   Sources of data

          For planning purposes it is of utmost importance to know the
actual state of the housing stock and that of the building industry.
The housing census provides a mine of information towards this end.
Another source is the municipalities and the Ministry of Works which
issue building permits. Surveys and protracted studies carried out
by agencies like MATIM (Mission d'Aménagement du Territoire à l'Ile
Maurice) also provide valuable information.

          The latest housing census was carried out between 14th
March and 31st May 1983. Its main aim was two fold (i) to provide
a frame to carry out the population census and (ii) to collect infor-
mation on buildings such as type of building, characteristics of
building, ownership, occupancy, availability of amenities, household
size, number of rooms, rent paid and fuel used for cooking.

          The earlier census of 1972 was very similar to that of
1983 and covered the same topics as regard buildings and housing
units. Detailed tables were prepared based on the data collected
and these were published in the 1972 Housing Census of Mauritius,
Preliminary Report and Volume IV (Housing) for the island of Mauritius.
Volume VII (Households) presented relevant information on households
in housing units. However, unfortunately no attempt was made to ·
analyse or interpret the information for the 1972 Housing Census.

          From the 1983 Housing Census also two statistical volumes
(Volume IV on housing and living conditions and Volume VI on households)
were published. But, in addition, a large number of detailed tables
were obtained for the preparation of an analysis report on housing.
This is a first attempt in the country to prepare analytical reports
on various demographic and socio economic and geographic characteristics
of the population and hence may not be as detailed as one would wish it
to be. Every effort is nevertheless made to analyse the available
information, interpret the results so that they may be useful to planners
and policy makers.

          It is important at this stage to mention that in the 1972
census, the intention had been to study housing conditions by matching
the households enumerated at the Population Census with the corresponding

housing units identified at the Housing Census taken two to three
months earlier. The reasoning was that the enumeration of households
and persons is better at the Population Census. However, because of
movements of households and the formation of new households between
the two enumerations it was not possible to match 2,038 households,
i.e., slightly more than 1%.

To avoid the problems of matching the two sources in 1983,
especially as regards data processing procedures, it was decided that
the study of housing conditions would be done exclusively on data
collected at the Housing Census. Extra efforts were therefore made
to ensure that the enumeration of households at the Housing Census
was complete and that the number of persons in each household was
reported as accurately as possible. It may be mentioned that these
efforts seem to have been rewarded since an evaluation of the Housing
Census and the Population Census indicated that the difference between
the two sources was only 0.14% with respect to population size and 0.67%
as regard household numbers. Most of these differences can be
explained by population growth and formation of new households during
the interval between March/April 1983 when most of the Housing
enumeration was concentrated, and 2-3 July which was the reference
night for the Population Census. Thus in 1983 a clear demarcation
between what tables should be based on Housing Census and what should
come from Population Census, but bearing on households and housing, was
made and there is no ambiguity about the information so presented. The
basic philosophy behind this was the fact that the housing census was
the only source of information on buildings and housing whereas the
population census concentrated on population and households.

For further details on the 1983 Housing Census especially
on the field operations, the concepts, definitions etc. reference is
made to the Methodological Report, Volume I of the 1983 Census of
Mauritius. Similar information for the 1972 Census also was prepared
but not published but some of the salient features are mentioned in
the introductory sections of Volumes IV and VII already referred to.
A brief resumé is given in section 1.5 of this report.

2.3   Stock and flows

Any study on housing should first look into the situation regarding the existing stock of buildings, what proportion of these are used for residential purposes, their geographic location, the pace at which buildings are lost to the inventory due to dilapidation, conversion or vacancy and the rate of replacement by construction, repair, maintenance and conversion of nonresidential to residential use.

Table 2.1 shows that in 1983 there were 168,919 buildings of which 158,871 were residential or partly residential. In 1972, the corresponding figures were 131,557 buildings and 123,912 residential or partly residential buildings indicating an increase of 37,362

Table 2.1 – Number of buildings classified by use (residential/non residential) 1972 and 1983

Year	All buildings	Residential and partly residential				Non Residential buildings	N.S.
		Total	Wholly Residential	Partly Residential	Hotel & Institution		
1972 No.	131,557	123,912	119,451	4,328	133	7,348	297
%	100.0	94.2	90.8	3.3	0.1	5.6	0.2
1983 No.	168,919	158,871	153,491	5,171	209	10,048	–
%	100.0	94.1	90.9	3.1	0.1	5.9	–

buildings and 34,959 residential buildings in the 11 year period i.e. an average annual geometric growth rate of 2.3% for buildings and 2.2% for residential buildings. Virtually, the percentage of residential buildings among all buildings remained constant. With a population increase of around 1.4% during the period, the accretion to the building and housing stock has been significant, indicating an improvement in the availability of residential buildings for the people during the period.

How has this been achieved in spite of the adverse conditions created by the cyclones which during this period destroyed around 14,000 dwellings? It is known that between the 2 Censuses, a total of 45,000 permits for new residential buildings were issued in addition to the

10,000 dwelling units constructed by para-statal organisations and around 3,000[1] more units constructed without permit (even in spite of the law, existing since 1972, necessitating the obtaining of a permit to construct a building). Assuming that 1.2 housing units are found in a building (based on 1972 and 1983 Census results), we thus obtain that during the 11 year period a total of about 55,000-60,000 buildings were constructed but only 35,000 additional buildings were found in 1983 as compared with 1972. As mentioned earlier due to cyclones occurring during 1972-1983, around 11,000 buildings were lost to the inventory. Thus the net addition should have been about 44,000-49,000. What is the reason for the 9,000-14,000 buildings not found in 1983 after accounting for the new constructions and the destruction by the cyclones.

In Mauritius during 1972 there were 8,000 buildings (around 7%) which were constructed with flimsy and non-durable materials like straw, mud and thatch etc. which have a very short life span in addition to being unhygienic and unsafe to limb and life. Another 65,000 buildings (53%) were only slightly better. Only 24% (30,000 buildings) were of good quality (built with cement, concrete and other very durable materials) and another 20,000 buildings (16%) were of inter- mediate quality. The Ministry of Works estimated the life of buildings constructed with various types of materials as presented in Table. 2.2. Using these estimates in conjunction with the proportion of buildings with the various building materials, the mean life length of a building in the country in 1972 was calculated to be about 37 years, i.e., a dilapidation rate of 2.7% per year. With this dilapidation rate, at the end of the 11 year period in 1983, it would be expected that out of the 124,000 buildings only 70%, i.e., 87,000 would remain or a depletion of 37,000 units. Taking out the 11,000 lost through cyclones, which may mostly have been lost lost even otherwise because a majority

[1] This figure is quoted by the latest development plan. However in 1978 PADCO in a Shelter Sector Assessment Study (SSSA), estimated that about 25%-30% of new constructions are not picked up by building permits. But the present percentage of illegal construction might be 20% of total no. of new constructions giving a value of 9,000 units.

Table 2.2 - Buildings by category by wall and roof materials
           and life length

Category	Wall Material	Roof Material	Life length (Years)
I	Concrete	Concrete	60
II	Concrete	Wood/iron/tin	40
III	Concrete	Other	15
IV	Wood/iron/tin	Wood/iron/tin	30
V	Other	Other	15

Source : Ministry of Works

of them belonged to the categories "deteriorating" and "dilapidated", we obtain about 26,000 buildings remaining which may have been lost through wear and tear. Adding the number of new constructions, it is found that the total at the 1983 Census should have been 142,000-147,000 as against the reported 159,000. Apparently, during 1972-83, improvements took place in the quality of buildings culminating in an increased life span and reduced losses. As a matter of fact, in 1983 the average length of life of a building in the island was estimated as around 47 years or a dilapidation rate of only 2.1%. This rate would have given the estimated number of losses during 1972-83 to be 29,000 instead of 37,000. With this rate of dilapidation and construction the estimated number of buildings in 1983 would be between 150,000-155,000 as against the enumerated 159,000. Thus, more or less it can be deduced that the statistics available for the 2 censuses, the information from the Ministry of Works and other related data are consistent, and that in fact the rate of construction of buildings has been creditable and the improvement in the quantitative aspects satisfactory inspite of the rather adverse conditions consequent on the 2 cyclones which affected a large number of buildings, dwelling units and people.

However, when looking at the more detailed information from the 2 Censuses on the year of completion of buildings, some apparent inconsistencies seem to emerge. For instance, according to the 1972 Census, out of 124,000 residential and partly residential buildings about 40,000 were reported to have been completed before 1960 and 78,000 after 1960. If we assume that the 6,000 buildings for which

year of completion was not reported as having been constructed before 1960, then 46,000 buildings were completed before 1960 and 78,000 between 1960 and 1972. In 1983 the information provided indicates that 31,000 (plus the 2,000 whose year of construction was not known) were completed before 1960, some 48,000 between 1960-72 and 77,000 after 1972 (see Table 2.3). Assuming a 2.5% loss every year among constructions prior to 1960, 2% loss for those

Table 2.3 - Residential and partly residential building by year of completion, 1972 and 1983

Census	Year of completion					
	Before 1960	1960-72	1973-74	1975-79	1980-81	1982-83
1972	45,582$^{1/}$	77,708	N.A.	N.A.	N.A.	N.A.
1983	33,359$^{2/}$	48,000$^{3/}$	8,000$^{3/}$	35,321	15,734	17,487$^{4/}$

1/ Includes 6,091 buildings whose year of completion was not reported.

2/ Includes 2,262 buildings whose year of completion was not known.

3/ The actual numbers were 38,000 between 1960-68 and 18,000 between 1969-74. Since in 1975-79 it was 35,000, it was taken that between 1969-72 it would be 10,000 and that between 1973-74 it would be 8,000 keeping in mind the increased tempo of construction.

4/ Includes 7,220 buildings incomplete but inhabited.

built between 1960-72, it can be estimated that in 1983 the survivors of those found in 1972 should be 33,000 among those completed before 1960 and 61,000 among those built between 1960-72. This gives a total of 94,000 which together with the reported 56,000-61,000 new constructions gives 150,000-155,000, which tallies very well with the reported 159,000. However, a discrepancy is observed when year of completion is considered, especially the periods 1961-72 and 1972-83. It is noted that only 48,000 buildings are reported as having been completed between 1960-72 as against the expected 61,000. Also only 56,000-61,000 are expected among the recent construction in contrast with the 77,000 reported for 1972-83. Thus there is an apparent shifting in the reported year of completion of buildings. Why did this happen? There is a subtle distinction between "year of construction" and "year of completion" of a building. Even though a building may have

been constructed originally at any particular time in the past, at
the census time, the year of completion pertains to the recent date
at which major renovation/alteration/additions/repairs/maintenance
were carried out to the building. Thus apparently there is continuous
maintenance activity especially to older buildings and this results
in the shift of buildings with one age to those with more recent
construction. It would seem that around 13,000 buildings which were
actually in the inventory as being completed during 1960-72 may have
been transferred to the period 1972-83.

Moreover, it is the practice especially in recent years, to
build houses over a period of years perhaps due to economic pressures. Spe-
cifically, additions or improvements are spread over a period of years.
That is one important reason why the census enquired about "year of
completion" rather than "year of construction" of a building. Also,
usually there is some lapse of time between the issue of a building
permit and the completion of the building. Another point that needs
to be mentioned is that there were 36,000 households who were living
in rented accommodation at the 1983 Census. Many of these households
would be living in buildings part of which would be occupied by the
owner, but a large number would be occupying whole buildings on their
own, and would be able to offer only tentative estimates of the year
of completion of the building, if at all. In addition there is the
problem of memory decay in respect of reporting the age of very old
buildings, and hence the data on age of buildings need to be treated
with some caution.

Even though the performance of the house building sector
seems satisfactory during the 1972-83 period, the rate of construction
has not been uniform. According to the various development plans, it
is estimated that during 1972-74 only around 8,000 residential buildings
were built whereas during 1973-79 it went up to about 35,000, and
during 1972-83 it was 58,000. The sugar price boom of 1974, the
emergency and welfare programmes on housing consequent on the 1975
and 1979 cyclones and the increased public allocations for the cons-
truction sector in general contributed to the upsurge in the construc-
tion of residential buildings after 1975. Will this tempo be kept up?
What will be the future rate of residential building construction? A
partial answer emerges from the table giving the number of residential
buildings constructed in recent years and the number of buildings under

construction at any point in time. Whereas in 1972 there were only 1,803 buildings under construction, in 1983 this number increased by more than five fold to 9,471.

For instance, from Table 2.3, we note that 35,000 buildings were reported as completed in 1975-79, i.e., an average of 7,000 per year as against 16,000 in 1980-81 with an average of 8,000 per year and 17,000 in 1982-mid 1983 with an average of about 11,000 per year. In contrast with an increasing trend of investment in housing till 1979 (when it peaked) there was a down turn and in 1983 it was less than 60% of that of 1979, and was comparable to that of 1976 when investment was 327 million rupees. According to the 1984-86 Development Plan, investment in housing sector increased so rapidly during the 1976-83 period that it caused severe strain on domestic fixed capital formation in other productive sectors. With this prognosis, it seems that for the period 1983-2003, the rate of construction of residential buildings will be much less than that of the 1972-83 period. What will be the implication of this on the housing situation in the island is a question which will be looked into in the later sections.

2.4   Geographic location

At the macro level, it is obvious that there has been marked improvement in the quantitative aspect of housing. However, since this may mask some of the possible inequalities between geographic regions because housing may be concentrated in one or two specific locations as against the needs of the people at other locations, it is necessary to analyse the availability of residential buildings with respect to population at the various spatial locations. Unfortunately in 1972, data was not tabulated in respect of housing statistics separately for the urban and rural areas. At both periods information is however available at the district level.

Table 2.4 shows the percentage distribution of residential buildings alongside percentage distribution of population for the 9 districts in 1972 and 1983, and by urban-rural residence in 1983.

Table 2.4 - Percentage distribution of residential buildings and
          population 1972 and 1983 by district, urban, rural

District	1972		1983	
	Residential Building %	Population %	Residential Building %	Population %
Port Louis	13.4	16.2	12.0	13.8
Pamplemousses	9.1	8.3	9.9	9.4
Riv.du Rempart	8.8	8.1	9.1	8.4
Flacq	11.5	10.8	11.3	11.1
Grand Port	10.3	9.8	9.8	9.6
Savanne	6.7	6.4	6.2	6.1
P. Wilhems	30.3	31.3	31.3	31.4
Moka	6.0	5.9	6.0	6.3
Black River	3.8	3.2	4.3	3.8
Urban	–	–	40.3	41.7
Rural	–	–	59.7	58.3

It can be noted that in 1972 and to a large extent in 1983
also, the urbanised districts of Port Louis and Plaines Wilhems had
proportionately more population than their share of residential
buildings. At the other extreme, Black River had at both periods
disproportionately larger percentage of residential buildings than
its share of the population would call for. However, the main reason
for this could be the relatively larger number of seaside bungalows
used as secondary residence. In fact the proportion of housing units
which were reported as secondary residence was 7% for Black River
against a national average of 1%.

Table 2.5 presents the percentage change in the number of
buildings and residential buildings during the period. In tune with
the findings of the previous table, Port Louis had the smallest change
whereas Black River had the highest. Table 2.6 indicates that Port
Louis had a fall in its population size and Black River had the highest
rate of population change. Differentials in national growth rates and
internal movements explain the vast differences in population changes
of the various districts during the period. These aspects will be
considered in detail in later chapters.

Table 2.5 - Districtwise percentage change in buildings between 1972 and 1983

District.	All Buildings	Residential & Partly Residential				Non-Residential
		Total	Wholly Residential	Partly Residential	Hotel & Institution	
Port Louis	15.2	14.9	14.8	15.1	83.3	24.2
Pamplemousses	38.9	38.7	39.5	9.7	42.9	47.9
Riviere du Rempart	33.3	33.3	33.0	42.6	228.6	41.8
Flacq	26.7	26.2	26.1	28.6	75.0	37.0
Grand Port	22.1	21.8	22.0	16.5	(-)12.5	31.1
Savanne	19.3	18.6	19.3	0.04	(-)25.0	32.8
P.Wilhems	32.5	32.5	32.9	21.8	53.9	39.6
Moka	28.4	27.6	27.4	39.7	-	42.8
Black River	46.1	45.6	45.8	26.9	171.4	60.7
Whole Island	28.4	28.2	28.5	19.5	57.1	36.7

Table 2.6 - Percentage change in population between 1972 and 1983 by district

District	Port Louis	Pample-mousses	Riv.du Rempart	Flacq	Grand Port	Savanne	Plaines Wilhems	Moka	Black River	Whole Island
% Population Change 1972-83	-0.2	31.2	20.9	20.9	15.4	10.9	17.5	25.9	40.8	17.0

2.5   Qualitative aspects

Buildings differ one from the other. At one extreme there may be a structure built with flimsy materials like straw, mud or thatch and at the other there could be one with strong foundation and constructed with reinforced cement concrete. Even though both may serve as a residential place, it is admitted that not only is the former more susceptible to the effects of the elements (especially in a country like Mauritius with its history of cyclones), it is also unsafe and unhygienic. Thus a mere quantitative sufficiency in building stock and their replenishment, is not adequate to conclude that the housing situation in an area is satisfactory.

In Mauritius, prior to 1960, statistics show that a large percentage of the residential buildings (80% in 1952) were substandard. Only a small proportion (4% in 1952) were considered to be of long life. In 1962,

immediately after the havoc brought by cyclones Alix and Carol, it was reported that 25% of the residential buildings were 'rustic' (huts made with straw, mud, thatch or other flimsy materials).

In 1972, the situation seemed to have improved so much that only 7% of units were substandard and around 40% were of long life. The census of 1983 indicated that only less than 2% of units were substandard and more than 60% were of long life (Table 2.7). How has this quantitative transformation taken place in the short span of 30 years? The mechanism seems to have worked in 2 ways. Firstly during the 60's the cyclones destroyed most of the substandard units and then it seems that the cyclones in the 70's wiped out almost all remaining structures of this type as they couldn't stand the fury of nature. Side by side with their destruction, the replacement construction activity being cognisant of the need of better quality structures in the context of the occasional fury of nature, concentrated on building with durable materials like stone, bricks, cement, concrete, etc. so much so that the basic policy of government was spelt out as "to enable the population to obtain dwellings of sound structures....." There was also a 'strong cyclone phobia' in Mauritius, with the resultant tencency to construct reinforced concrete houses with very large safety margins. Construction of new buildings became more and more with cement, concrete and other very durable materials as can be noted both in 1972 and in 1983 (Table 2.7). For instance, after 1968 the construction of residential structures with straw, mud or thatch almost came to an end and even buildings with wood, tin or iron also diminished. Out of 97,000 buildings in 1983 with cement, concrete etc. around two thirds (61,000) were completed after independence (1968).

A recent development seems to be the vertical extention of buildings by constructing one or more storeys to buildings. Such multi storey buildings save valuable land and could be cost effective in terms of provision of amenities and facilities like electricity, water, waste disposal etc. In 1972 only 223 buildings were reported with 2 or more storeys and only 41 had three or more storeys. In 1983 these numbers had increased to 475 and 93 respectively i.e. a more than doubling in the period. Encouragement for more construction of multi-storeyed flats by provision of incentives, concessions etc. may, in the long run, save the huge costs at present reported as being incurred in the construction

Table 2.7 - Type of construction material for wall/roof by year of completion[1], 1972 and 1983 (000 buildings)

Construction material	Before 1960		1961-68		1969-74[2]		1975-79		After 1980		All years	
	1972	1983	1972	1983	1972	1983	1972	1983	1972	1983	1972	1983
Straw, mud and thatch	3	-	5	2	-	-	-	-	-	-	8	2
Wood, iron and tin	25	18	31	13	9	5	-	8	-	5	65	49
Cement, concrete and stone	11	13	24	23	8	13	-	27	-	21	43	97
All types	39	31	60	38	17	18	-	35	-	26	116	148

Year of Construction

1/ Excluding those with year of completion not stated

2/ For 1972 the year of completion is 1969-72

of bungalows. Even though initially there may be an inertia for
people to accept the idea of living in such flats with perhaps reduced
privacy and certainly curtailed conveniences, the idea could catch up
with people especially if the cost of such accommodation comes within
the reach of the low and middle income groups. Appropriate policy
instruments and some education will save some of the anticipated future
situations with escalating land prices, high cost of imported buildings
materials, depletion of prime agricultural land and other effects on
the environment, economy and society.

Thus side by side with quantitative improvements, there were
appreciable qualitative upgrading of the building stock in the country
and a large investment went into providing adequate shelter to the
people. Whether this pace can be kept up will depend upon several
factors - demographic, socio-economic and political. Consideration
of some of these will be taken up in later chapters.

A residence is not merely a physical building but it also serves
as a place where man spends a large part of his life. Thus the charac-
teristics of a residence should include also the availability of and
accessibility to many of the amenities, facilities and services like
electricity, protected water, safe waste disposal, healthy environment,
adequate space and free moving air, proximity to schools, health
facilities, etc. Some of these will be considered in the next chapter
dealing with housing units.

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Chapter III

HOUSING UNITS

3.1   Introduction

From the analysis of the data on buildings, it has been observed that during the period 1972-83 there was tremendous progress both in the quantitative and qualitative aspects. Since about 94% of all buildings are of residential type, this has implied that the spill over has been mostly beneficial to the housing sector.

In this section the analysis is taken one step further to a consideration of housing units within buildings. These are the basic structures where the households and population live and hence deeper analysis of this aspect is essential to understand the mechanism and dynamics of the provision of shelters in the island.

3.2   Location, stock and flows

According to the 1972 Census there were 156,446 housing units of which most were conventional dwelling units and only less than 0.3% were either improvised or were not intended for habitation. This gives for the 123,912 buildings a ratio of 1.26 housing units per building.

In 1983 there were 191,676 housing units in the 158,871 residential buildings giving 1.21 housing units per building - a slight decrease of housing units per building. However, if only occupied housing units are taken which were 182,843 in number, the ratio of housing units per building reduces further to 1.15.

Considering all housing units in 1983 and comparing with the situation in 1972 it is clear that there has been an increase of about 35,000 housing units or an exponential increase of 1.9% per year. Compared with the 1.4% growth of population this is very good. These figures give an average of 3,200 housing units added to the inventory per year during intercensal interval 1972-83.

This phenomenal growth in housing units has been achieved by the accelerated and concerted efforts in the provision of shelter

after independence and especially after the devastating cyclones of the 1970's. As mentioned in an earlier section 45,000 building permits (equivalent to about 54,000 housing units) were issued between 1972 and 1983. Adding the 10,000 dwelling units constructed by the parastatal organisations and the estimated 3,000-9,000 units built without permit, the total addition to the housing inventory comes to 67,000-73,000. However 14,000 units were destroyed by cyclones; an additional 22,000 units may have been lost through dilapidation since in 1972 there were a large number of buildings which were constructed with non-durable materials, and the life of an average building was estimated as between 35 and 40 years. Thus the net addition could be between 31,000 and 37,000 which is quite close to the observed increase of 35,000. The addition of 67,000-73,000 housing units during the 11 years period for an estimated average population of 891,000 during 1972-83 is equivalent to the construction of 7 units per 1,000 population. This is quite adequate for a population growing at 1.4% since the UN recommendation is only 4.5 to 5 dwellings per 1,000 population (UN methods of estimating housing needs ST/SUA/SER F/12, New York 1967).

Thus at the macro level the data seems to be consistent and shows that the improvement in housing has been substantial.

Looking at tables 3.1 and 3.2 it seems that there are some spatial inequalities in housing with respect to population size

Table 3.1 - Distribution of total available Housing Units by district and percentage change between 1972 & 1983

PERIOD	Whole Island	DISTRICT								
		Port-Louis	Pample-mousses	Riv.du Rempart	Flacq	Grand Port	Savanne	Plaines Wilhems	Moka	Black River
1972(No.)	156,446	27,001	12,663	11,794	15,539	15,251	10,191	49,465	8,963	5,529
1983(No.)	191,676	28,743	17,264	15,214	19,112	17,633	11,137	63,223	11,437	7,913
% Change in Housing Units	22.5	6.5	36.3	29.0	22.6	15.6	9.3	27.8	27.6	43.1
% Change in Population	17.0	- 0.2	31.2	20.9	20.9	15.4	10.9	17.5	25.9	40.8

Table 3.2 - Percentage distribution of population and Housing Units
by district, 1972 and 1983

| District | Percentage distribution | | | |
| | Population | | Housing Units | |
	1972	1983	1972	1983
Port Louis	16.2	13.8	17.3	15.0
Pamplemousses	8.3	9.4	8.1	9.0
Rivière du Rempart	8.1	8.4	7.5	7.9
Flacq	10.8	11.2	10.0	10.0
Grand Port	9.8	9.6	9.8	9.2
Savanne	6.4	6.1	6.5	5.8
Plaines Wilhems	31.3	31.4	31.6	33.0
Moka	5.9	6.3	5.7	6.0
Black River	3.2	3.8	3.5	4.1
Whole Island	100.0	100.0	100.0	100.0

and change even though in every case housing growth has been faster
than population growth. But Port Louis, Savanne, Grand Port and Flacq
had comparatively lower increase in housing units compared to other
districts. However, they also had more or less lower growth in popu-
lation. The high growth both in population and housing units noted for
Pamplemousses, Moka, and Black River indicates population movement into
these areas in recent years and the accelerated construction of housing
to cater for these people.

Another way of looking at the data is through the relative share
of population and housing in the districts as in Table 3.2 Port Louis,
Grand Port, and Savanne, showed decreases in their share of population
and also of housing. At the same time, Pamplemousses and Black River
showed larger shares in their population in 1983 than in 1972 which was
reflected also in the share of housing.

The high growth of housing units in areas like Black River may
be due not only to a larger share of secondary residences which are
not occupied all the time, but also because of inward migration of
population with corresponding housing construction.

Three distinct patterns are discernible from the growth
of housing units which are more or less reflections of the patterns
of population growth:

Group 1 (lower than average): Port Louis, Savanne and Grand Port.

Group 2 (near about average): Flacq, Plaines Wilhems and Moka.

Group 3 (much above average): Rivière du Rempart, Pamplemousses and
Black River.

Flacq had a relatively larger population change than is shown
by housing change and Plaines Wilhems and Rivière du Rempart had larger
changes in housing units than population implying a faster improvement
in housing conditions in these 2 districts.

The reasons for slower changes in population and housing in the
first group of districts can easily be identified. For instance, Port
Louis being the administrative and commercial centre of Mauritius, the
available land will be subject to competition from various users - housing,industry
commerce, administration, infrastructure, utilities and amenities.
Generally, housing cannot outbid the other better off or more powerful
competitors. Consequently, the obvious choice is for the people to
move into less populated, less developed or cheaper localities. In
this case the neighbouring low density districts of Black River
(density 144 per sq. km), Pamplemousses (512 per sq km), Moka (269 per
sq km) and lower Plaines Wilhems could have attracted the migrants. The
population density of Port Louis in 1983 was 3,165 per sq km.For instance,
around 9,000 persons who resided in Port Louis in 1978 were residing
in other districts in 1983. After the civil unrest in 1968, it is known
that a large number of people moved out into the other districts. Oh
the other hand, the loss of population and the slow growth in housing
in Savanne and Grand Port could be because of their being mostly agri-
cultural districts with very little of infrastructure. Around 1,500
persons who resided in each of these 2 districts in 1978 were reported
as residing elsewhere in 1983. There could have been out- migration
throughout the period 1972-83 from these 2 districts to the other better
developed districts, especially Plaines Wilhems.

Among the second group of districts, Flacq seems to have experienced out-movement whereas Plaines Wilhems and Moka had gained population from other districts. Perhaps the balance between population in-movement and housing construction must have been quite good in these districts. Actually during 1972-83, there was very high house building activity in these districts, and migration may have been a cause, and a consequence as well, of these developments.

Among the third group, Black River stands out with the highest rate of change both in population and housing. It had the highest in-migration rate based on the residence status of its population during 1978. As mentioned earlier, preponderance of secondary residences consequent on its natural beauty may have resulted in accelerated growth in housing as well. As a matter of fact, tourist development activities have been planned for Black River and building of tourist residences in anticipation of the visitors is but to be expected.

In an attempt to explain some of the observed patterns of change in availability of housing, Table 3.3 presents some selected indices for the districts obtained from the population consuses of 1972 and 1983. These are the population change, density and migration between 1978 and 1983.

Table 3.3 - Population change, migration, and density by district,

District	Population[1]			Population density/Km²		Migration 1978-83	
	1972	1983	% Change	1972	1983	No.	Rate
Whole Island	826,199	966,863	17.0	443	525	-	-
Port Louis	133,996	133,702	(-) 0.2	3,172	3,165	(-)8,649	- 6.5
Pamplemousses	68,948	90,466	31.2	390	512	2,821	4.1
Rivière du Rempart	66,995	80,993	20.9	459	555	(-) 258	- 0.4
Flacq	89,050	107,670	20.9	302	366	(-)1,429	- 1.6
Grand Port	80,719	93,180	15.4	314	382	(-)1,278	- 1.6
Savanne	53,011	58,789	10.9	219	243	(-)1,550	- 2.9
Plaines Wilhems	258,699	303,993	17.5	1,287	1,512	6,790	2.6
Moka	48,610	61,209	25.9	213	269	1,866	3.8
Black River	26,171	36,861	40.8	102	144	2,190	8.4

[1] According to Population Census

3.3   Ownership and type of housing units

The ownership of housing and the type of units are important considerations in the policy options of any government concerned with the provision of shelter for its people. If public funds are to be utilised for a large share of the provision of housing and if the type of units provided are individual bungalows, then the implication on the financial side is immediate. However if only a small and decreasing segment of the population (the **very** low income, destitute or other vulnerable group) are to be provided for and if group accommodation like flats are acceptable, then the strain on the economy may not be as large.

In 1972, 94.6% of all housing units were privately owned and in 1983 this increased to 97.6%. This change has been brought about by the policy of the government to encourage people to own their houses by providing loans, subsidies and other incentives like reduction in taxes etc. For instance CHA used to let their buildings in the beginning; later, this policy was changed and facilities were given to tenants to opt for a hire purchase system if they so desired and many took advantage of this possibility.

According to the 1984-86 development plan, "the whole approach to public sector housing has been redefined in the light of past trends in the housing sector. The main objective of this new approach is full cost recovery without, however, unduly penalising prospective home owners. This means that beneficiaries of public sector housing will be given houses and loans which they can afford to pay given their different levels of income".

Inspite of the high proportion of housing units being privately owned, still the question of tenure and ownership of occupied units should be looked into to see how the people are being housed.

In 1972 only 52.3% of households were owners of their houses, 30.7% were tenants, 1.2% subtenants and 15.1% were occupying free accommodation, as against 66% owners, 18.3% tenants, 0.1% subtenants and 15.4% free in 1983. As can be seen, a large proportion of tenants have moved to become owners and they took advantage of offers by the public

sector to convert tenancy into ownership. Even in the two urbanised districts of Port Louis and Plaines Wilhems where the percentage of tenants were 60.6 and 35.7 in 1972, there was a drop to 38.8% and 23.2% respectively in 1983.

Tables 3.4 (a) and (b) and 3.5 give the details of ownership by district by private and public sector housing. As expected, tenants are more in public housing, as are also the "free" accommodated households when one keeps in mind that government provides free housing to some of its employees like the Police, army, etc.

Table 3.4(a) - Households by geographical district and tenure, 1972 and 1983

Geographical district	Total Households		Owner		Tenant		Sub-tenant		Free		Other & not-stated	
	1972	1983	1972	1983	1972	1983	1972	1983	1972	1983	1972	1983
All districts	154,184	197,689	80,626	130,417	47,371	36,291	1,891	172	23,248	30,396	1,048	413
Port Louis	26,236	29,006	7,836	13,562	15,917	11,266	122	35	2,224	4,078	137	65
Pamplemousses	12,222	17,632	7,641	13,275	2,139	1,974	10	8	2,334	2,362	98	13
Rivière du Rempart	11,636	15,691	7,874	12,809	1,065	738	52	2	2,581	2,132	64	10
Flacq	15,716	20,200	10,610	14,906	2,170	1,671	120	4	2,665	3,599	151	20
Grand Port	15,085	18,471	8,977	12,661	3,189	2,117	90	19	2,654	3,640	175	34
Savanne	10,047	11,736	5,725	8,159	1,806	1,219	257	1	2,208	2,344	51	13
Plaines Wilhems	49,427	65,306	24,413	41,439	17,663	15,142	1,130	88	5,950	8,394	271	243
Moka	8,763	12,175	5,087	8,489	1,998	1,349	63	4	1,542	2,327	73	6
Black River	5,052	7,472	2,463	5,117	1,424	815	47	11	1,090	1,520	28	9

Table 3.4 (b) - Percentage distribution of households by geographical district and tenure 1972 & 1983

Geographical district	Tenure									
	Owner		Tenant		Sub-tenant		Free		Other Not stated	
	1972	1983	1972	1983	1972	1983	1972	1983	1972	1983
All district	52.3	66.0	30.7	18.3	1.2	0.1	15.1	15.4	0.7	0.2
Port Louis	29.9	46.8	60.6	38.8	0.5	0.1	8.5	14.1	0.5	0.2
Pamplemousses	62.5	75.3	17.5	11.2	0.1	0.0	19.1	13.4	0.8	0.1
Rivière du Rempart	67.7	81.6	9.2	4.7	0.4	0.0	22.2	13.6	0.5	0.1
Flacq	67.5	73.8	13.8	8.3	0.8	0.0	16.9	17.8	1.0	0.1
Grand Port	59.5	68.5	21.1	11.5	0.6	0.1	17.6	19.7	1.2	0.2
Savanne	57.0	69.5	18.0	10.4	2.5	0.0	22.0	20.0	0.5	0.1
Plaines Wilhems	49.4	63.4	35.7	23.2	2.3	0.1	12.0	12.9	0.6	0.4
Moka	58.1	69.7	22.8	11.1	0.7	0.0	17.6	19.1	0.8	0.1
Black River	48.8	68.5	28.2	10.9	0.9	0.2	21.6	20.3	0.5	0.1

Table 3.5 - Households in privately owned housing unit by Geographical
district & tenure, 1983

Geographical district	Tenure					
	Total	Owner	Tenant	Subtenant	Free	Other
All districts	193,971	130,376	33,880	94	29,401	220
Port Louis	28,244	13,551	10,719	13	3,913	48
Pamplemousses	17,160	13,270	1,584	5	2,295	6
Riviere du Rempart	15,655	12,808	724	1	2,112	10
Flacq	19,944	14,904	1,466	3	3,553	18
Grand Port	10,085	12,659	1,975	9	3,415	27
Savanne	11,704	8,155	1,201	1	2,337	10
Plaines Wilhems	63,947	41,431	14,295	51	8,079	91
Moka	11,931	8,188	1,224	2	2,213	4
Black River	7,301	5,110	692	9	1,484	6

Regarding the type of housing unit Table 3.4 (b) shows the percentage
distribution of units in 5 categories over the period 1972-1983.

Table 3.6 - Percentage distribution of buildings by type
1972 and 1983

Type of building	1972	1983
I used as wholly one housing unit	**59.8**	66.9
II containing more than one housing unit	35.9	29.1
III Partly residential	4.0	3.7
IV improvised housing units	0.3	0.2
V not intended for habitation but used as such	0.0	0.1

From the table it can be noted that there is an increase
of 7 percentage points in the proportion of buildings used wholly
as one housing unit and a corresponding decrease of buildings containing
more than one housing unit. This is consistent with what was seen'
earlier that in 1972 there were 1.26 housing units per building as
against 1.21 in 1983. In other words, more and more residential
buildings are built which contain only one housing unit for occupation
by the owner.

3.4   Quality of buildings

3.4.1   Housing amenities, facilities and services

          Shelter is an important basic human need for protection
against the elements and even for survival. Shelter is needed not
only for mere protection but also to reconcile and resolve all
diverse requirements and thus to satisfy economic, social and psycho-
logical needs of man. This shelter is the basic unit of production
and reproduction. It should offer effective protection from disease
and death-dealing agents which may attack him if the environment
surrounding his habitation is unhygienic. It is well known that the
incidence of infectious diseases is higher in unhygienic shelters and
the death and debility rates also are higher among the poorly
sheltered. Even protected water supply, safe waste disposal, adequate
living space, lighting and ventilation are important factors to be
taken into consideration in the choice of shelter as they are known to
be directly related to morbidity and mortality and hence working
capacity, productivity and the very quality of life.

          Thus any qualitative evaluation of the housing situation
should include consideration of the availability of and accessibility
to facilities like protected drinking water and safe waste disposal
(toilet, refuse disposal); services like electricity and amenities
like bathrooms and kitchen.

          Table 3.7 indicates the percentage distribution of occupied
housing units with some of the necessities of a healthy life as
obtained from the 1972 and 1983 Censuses. Since 97% available housing
units are occupied and it is more meaningful, in any case, to delve
deeper into the existing conditions among these units, the considera-
tion has been concentrated only in such occupied units. The picture
for all units may not be too far different.

Table 3.7 - Percentage distribution of occupied housing units by geographical districts and by available amenities, 1972[1] and 1983

Geographical Districts	Available amenities											
	Piped water		Electricity		Toilet		Bathroom		Kitchen		Refuse disposal	
	1972	1983	1972	1983	1972	1983	1972	1983	1972	1983	1972	1983
All districts	99.1	99.1	70.1	93.2	97.3	98.7	71.9	85.4	91.2	94.4	74.1	62.8
Port-Louis	99.5	99.9	75.0	95.5	99.2	99.3	94.5	96.2	89.4	95.1	96.5	78.1
Pamplemousses	97.4	97.4	57.1	89.4	96.4	98.9	65.9	84.6	88.6	93.7	77.4	72.7
Rivière du Rempart	99.6	99.0	59.1	90.2	94.6	97.2	53.4	87.6	84.8	92.1	54.3	59.9
Flacq	98.6	99.5	44.3	87.0	92.8	96.7	46.0	67.8	89.2	90.2	70.7	54.8
Grand Port	99.2	99.5	62.7	91.7	96.1	98.3	59.4	68.5	90.9	90.6	74.1	57.5
Savanne	99.6	99.1	62.0	92.0	96.4	98.2	55.9	69.4	91.0	91.7	74.0	60.3
Plaines Wilhems	99.6	99.5	83.0	97.2	99.4	99.8	84.1	94.7	94.6	97.2	69.3	60.9
Moka	97.8	98.3	68.6	93.4	97.5	93.7	57.0	79.5	93.5	95.7	63.2	47.4
Black River	97.1	96.3	41.6	84.9	93.0	97.4	48.5	79.3	89.5	94.0	73.4	69.7

1/ For 1972 Census, 'Not stated' has been excluded

In 1983 there was a marked improvement in the availability of piped water, electricity, toilet facility, bathroom and kitchen as compared with 1972. Also the non availability of these are only for a small segment of the units. However, between districts there were some appreciable differences. For instance, piped water was available to more than 98% of units in every district except Pamplemousses and Black River. Electricity was not as widespread as water supply and was not available to more than 10% of units in Pamplemousses, Flacq and Black River. Toilet facilities were slightly **worse** than water supply but the differences between districts were much less. Similarly kitchen facilities were more **often** found than bathrooms.

There has been a convergence in the availability of the amenities between districts but districts like Black River, Flacq, Grand Port, Savanne and Pamplemousses will have to be given special attention to extend these necessities in order for them to catch up with the others.

An important message arising out of table 3.7 is the alarming deterioration in the disposal of refuse over time. Safe disposal of refuse is as important as provision of protected water, toilets etc. because carelessness in the cleanliness of the environment can encourage the thriving of disease carrying agents like rats, cockroaches, flies, mosquitoes and other vectors. There is need for immediate attention and appropriate action before the situation gets beyond control.

There have been other qualitative improvements between 1972 and 1983 in the provision of water and toilets. Table 3.8 clearly shows that more and more households have piped water inside their premises. As regards toilets, the flush type has increased whilst pit and other inferior types of toilets have decreased.

Table 3.8 - Percentage of households with type of water supply and toilet, 1972 and 1983

Type of water supply and toilet	Percentage of households	
	1972	1983
Piped water : Inside	27.2	40.6
Outside	71.8	58.5[1]/
Well and river, rain	1.0	0.9
Flush toilet	33.5	48.9
Pit water seal	3.5	5.1
Pit other	58.1	44.5
Pail	1.2	0.3
No toilet	2.5	1.2
Not stated	1.2	-

1/ Includes 40.4% piped water outside, but on premises, 17.4% from piped water from public fountain and 0.7% filtered water from tank wagon.

Some further details on toilet facilities and refuse disposal at district level are given in Tables 3.9 (a) and (b) and 3.10. It can be noted that between 1972 to 1983 there was definite improvement in toilet facilities in every district. However, the situation in regard to refuse disposal deteriorated in many cases like in Port Louis, Pamplemousses, Moka and Black River.

3.4.2 Living space

For a healthy life, man needs sufficient space and over crowding and congestion tell upon his mental and physical well being. An index quality of life is the density of persons per housing unit and persons per available living room. Table 3.11 shows the average number of persons per occupied housing unit in 1972 and 1983 by district. It can be seen that in every case there has been an improvement even though in the case of Savanne it has been only marginal.

A housing unit is a heterogenous entity and may have one room or several rooms and hence an average as given in Table 3.11 may mask some of the serious problems. Thus a better measure is the

Table 3.9(a) - Occupied housing units used as principal residence by geographical district and toilet facilities, 1972

Geographical District	Total number of housing units	Flush toilet		Pit latrine				Pail	None	Not shared
		Not shared	Shared	Water seal		Other				
				Not shared	Shared	Not shared	Shared			
All districts	149,499	33,431	17,611	3,130	2,011	49,369	35,898	3,435	3,923	141
Port-Louis	25,933	7,701	11,887	308	236	2,065	2,842	631	189	24
Pamplemousses	11,720	1,062	116	105	75	5,869	4,038	36	408	11
Rivière du Rempart	10,946	594	135	235	74	5,334	3,961	17	593	3
Flacq	15,005	1,062	142	548	277	8,323	3,525	49	1,071	8
Grand Port	14,505	1,293	262	470	281	7,445	4,210	30	498	16
Savanne	9,758	1,135	112	274	84	4,531	3,264	10	341	7
Plaines Wilhems	48,050	18,243	4,584	403	401	10,627	10,854	2,621	261	56
Moka	8,648	1,501	214	624	386	3,704	1,980	27	205	7
Black River	4,934	340	159	213	147	1,971	1,224	14	357	9

Toilet Facilities

Table 3.9(b) - Occupied housing units used as principal residence by geographical district and toilet facilities, 1983

Geographical District	Total number of housing units	Toilet facilities								
		Flush toilet		Water seal		Pit latrine Other		Pail	None	Not stated
		Not shared	Shared	Not shared	Shared	Not shared	Shared			
All districts	182,343	72,972	17,683	6,333	2,845	53,649	26,527	508	2,326	-
Port-Louis	27,548	12,216	9,196	346	359	2,072	2,955	225	179	-
Pamplemousses	16,114	4,410	539	559	245	7,160	2,998	19	104	-
Rivière du Rempart	14,183	2,840	424	516	158	7,254	2,542	32	402	-
Flacq	18,469	2,423	425	1,007	284	9,060	3,637	21	512	-
Grand Port	16,951	4,066	624	342	312	7,372	3,424	23	283	-
Savanne	10,751	2,865	225	844	269	4,649	1,696	14	169	-
Plaines Wilhems	60,824	36,639	5,732	1,227	841	9,644	6,432	141	118	-
Moka	10,999	4,121	274	755	272	4,055	1,366	15	141	-
Black River	6,999	2,342	244	217	105	2,383	1,477	18	213	-

Table 2.10 - Occupied housing units used as principal residence by geographical district and means of refuse disposal, 1972 and 1983

Geographical District	Total housing units		Means of refuse disposal									
			Receptacle with cover		Receptacle without cover		Enclosure made of bricks/stone		Ash pit		Other and Not stated	
	1972	1983	1972	1983	1972	1983	1972	1983	1972	1983	1972	1983
All districts	149,499	182,843	7,441	11,270	27,108	22,277	21,276	22,728	55,018	58,441	38,656	63,127
Port-Louis	25,933	27,548	2,674	5,253	17,510	9,546	125	728	4,729	6,192	895	5,829
Pamplemousses	11,720	16,114	159	71	325	517	433	578	8,144	10,554	2,659	4,394
Rivière du Rempart	10,946	14,188	96	136	367	745	463	445	5,015	7,172	5,005	5,690
Flacq	15,005	18,469	76	203	160	733	1,057	723	9,307	3,463	4,405	8,347
Grand Port	14,505	16,951	227	495	1,770	2,120	2,220	893	6,527	6,232	3,761	7,211
Savanne	9,758	10,751	30	637	745	1,150	1,128	596	5,322	4,078	2,533	4,290
Plaines Wilhems	48,050	60,824	4,055	4,248	5,394	7,124	14,994	18,482	8,199	7,201	14,908	23,769
Moka	8,648	10,999	100	194	314	314	665	154	4,390	4,559	3,179	5,778
Black River	4,934	6,999	24	33	23	28	191	129	3,385	3,090	1,311	2,819

density per living room because for the purpose of safeguarding the health and privacy of the occupants, it is widely accepted that the number of persons per room should be maintained as low as possible. No international standards have been **adopted** regarding density of occupation although certain countries have adopted legal standards which determine the maximum number of occupants

Table 3.11 - Density per occupied housing unit by district, 1972-1983

Period	Whole Island	Port-Louis	Pample-mousses	Riviere du Rempart	Flacq	Grand Port	Savanne	Plaines Wilhems	Moka	Black River
1972	5.47	5.08	5.80	6.11	5.94	5.55	5.49	5.28	5.64	5.20
1983	5.25	4.82	5.54	5.74	5.78	5.47	5.48	4.94	5.58	5.19

Table 3.12 - No. of living rooms per housing unit by number of housing units, households, persons and by density per room, 1983

No. of living rooms per housing unit	Housing units No.	Housing units %	Households No.	Households %	No. of persons	Density per room
1	16,672	9.12	25,753	13.0	52,066	3.12
2	36,847	20.15	45,484	23.0	162,547	2.21
3	39,034	21.35	41,623	21.0	200,283	1.71
4	47,802	26.14	46,108	23.3	268,555	1.41
5	19,719	10.79	18,282	9.2	118,579	1.20
6	14,467	7.91	12,777	6.5	98,528	1.14
7	4,145	2.27	3,700	1.9	28,790	0.99
8	2,432	1.33	2,231	1.1	17,542	0.90
9	846	0.46	756	0.4	6,281	0.82
10 or more	879	0.48	482	0.2	6,579	0.46
N.S.	-	-	493	0.2	-	-
Total	182,843	100.0	197,689	99.9	959,750	1.45

per dwelling. In these countries the maximum density allowed ranges from 1.4 to 2.2 persons per room. In Mauritius no such standard exists but it is generally considered that 3 or more persons per room is overcrowding.

From table 3.12 it can be seen that about 77% of housing units had up to a maximum of 4 rooms while about 88% had up to a maximum of 5 rooms The average no. of rooms per housing unit was 3.58.

Clearly 13% of households (about 5% of population) live in congested surroundings which account for 9% of total housing units. Table 3.13 gives the number and percentage of occupied housing units with the indicated number of persons per room. Even though on an average there were only 1.45 persons per room, which is quite reasonable, 34.3% of housing units had more than 2 persons per room and 12.5% had 3 or more persons per room. Hence planning for housing should keep in mind the household size composition especially in respect of provision of living space for its occupants.

Table 3.13: Number and percentage of housing units with indicated density per room, 1983

Density	Housing Units	
	No.	%
Less than 1 person per room	33,571	18.4
Less than 1.5 persons per room	88,124	48.2
2 or more persons per room	62,795	34.3
3 or more persons per room	22,763	12.5
Average no. of persons per room	1.45	-

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CHAPTER IV

POPULATION AND HOUSEHOLDS

4.1 Introduction

Even though individuals need shelters for their health and well being, only a very few individuals stay alone. All human activities involve participation in groups and in every society living arrangements are made for groups of people - the most important of such groupings is the 'household' or 'family'. Since a majority of the population in any society will be living in such groups, it is essential to study these groups because there are significant variations in the patterns of living arrangements from one culture to another and also over time. Social, cultural, economic, physical and psychological factors play important roles in the determination of who decide to live together in one shelter. Households thus become prime units of consumption, production and reproduction. Households also provide not only the frame for collection of information concerning the activities of their members, but they can also be the basic for estimation of future needs of consumption items - one of the most important being housing.

A household occupies usually a single housing unit and is therefore the most relevant concept for use in analysis of housing, trends and planning for future needs. It is also the unit of consumption used in various studies such as cost-of-living etc.

Furthermore, the family formation and the life cycle of the family play a major role in the determination of housing needs. They show how the family size and composition undergo changes which have widespread social and economic effect on the family.

In order to estimate future housing needs with as little margin of error as possible, a thorough analysis of households - their growth, size, composition and structure need be undertaken to understand the anatomy of this important human organisation.

The number and growth of households will be considered first. Their size distribution, composition (membership) and structure (age, sex) will then be studies in order to come to some idea regarding the past trend future prospects of household formation.

4.2 Households

4.2.1 Type, number and growth

In Mauritius, as in most other countries, a small proportion of its population is enumerated in hotels and institutions. In 1972 as well as in 1983 this number was around 5000 individuals. On the other hand, private households and population therein, increased by respectively 44,480 and 140,664. From now on consideration will be given only to private households as these are the ones constituting most of the population and housing policy is geared to meet only private household aspirations. Hence, it is noted that growth of household was much faster (2.32% exponential rate) than growth of population (1.45% exponential rate). This naturally resulted in a drastic fall in average household size from 5.29 in 1972 to 4.81 in 1983, i.e. by around half a person. In 1983 urban household size was 4.5 and the rural 5.0. Table 4.1 gives details

Table 4.1 - Private households, by household size and Urban/rural classification,

Household size	1972		1983					
			Urban		Rural		Total	
	No.	%	No.	%	No.	%	No.	%
Households								
1 person	12,341	8.0	6,094	6.9	5,900	5.3	11,994	6.0
2 persons	16,759	10.8	10,253	11.6	9,777	8.8	20,030	10.0
3 persons	18,561	12.0	14,504	16.4	14,949	13.4	29,453	14.8
4 persons	19,867	12.8	18,115	20.5	19,559	17.6	37,674	18.9
5 persons	19,986	12.9	14,386	16.3	18,817	16.9	33,203	16.6
6 persons	18,350	11.8	9,892	11.2	15,197	13.6	25,089	12.6
7 persons	15,616	10.1	6,344	7.2	10,839	9.7	17,183	8.6
8 persons	12,984	8.4	3,710	4.2	6,842	6.1	10,552	5.3
9 persons	8,087	5.2	2,227	2.5	4,216	3.8	6,443	3.2
10 and 10+ persons	12,681	8.2	2,812	3.2	5,279	4.7	8,091	4.1
Total	155,232	100.0	88,337	100.0	111,375	100.0	199,712	100.0

This increase of about 44,000 households was more or less accomodated by the net addition of 35,000 housing units.

If households grow at the same rate as observed in 1972-83, then by 1993 there will be more than 51,000 additional households needing not less than 51,000 housing units, if no improvement in standard of accomodation is anticipated and there is no further destruction of existing units by nature and by wear and tear. As a matter of fact, with the existing stock of buildings with their structural characteristics as given in Table 2.7, it is expected that 1.5-2.0% of the buildings will need replacement every year and hence at the end of 1993 there will be a loss of 15 - 20% of existing units i.e. near 30,000 - 40,000. Hence the total units needed will be 81,000 - 91,000 which is more than what was achieved with tremendous sacrifice of finance and materials during 1972 - 1983. These are rough estimates.

In order to estimate the future housing needs more precisely, it is therefore necessary to look at the future prospects of population growth, its age - sex structure, the composition of households, rural-urban patterns etc. and how households are formed and what will be the likely future scenario.

4.2.2 Size distribution

Households vary significantly from one to another in their size. There can be one person households while at the same time some people may be living in very large households of 10 or more members. Thus a look at the size distribution of households is very important as it determines the average size of a household and for a given population, the number of households. Table 4.1 shows that between 1972 and 1983 there was a fall in one and two person households and in large households (of 7 or more persons). Naturally 3 - 6 person households showed a spurt. The fall in small households was more than compensated by the rapid fall in large households and this resulted in the fall in average size from 5.3 to 4.8. As expected, urban areas had proportionately larger number of one person and small households and much less of large households. There is a clear half a person difference between urban and rural areas and with continued urbanisation, this trend in household size can be anticipated to persist. However, if family size reduction consequent on reduction of fertility is more in urban than in rural areas, then perhaps this difference may

increase. There are several opposing forces acting on the household size configuration - some favouring a reduction and others tending to increase it. Fall in fertility is clearly a factor in the reduction of household size. Improving mortality may initially tend to increase household size but when mortality has reached very low levels, as in Mauritius, its effect on household size will be determined more by children leaving the parents' home to form new households. Since households are formed by adults, mostly by married males or single/ widowed females, the future course of household formation is very much conditioned by the age- sex-marital status composition of the population. Migration may affect household size in either way. When a member of a household moves out due to job or other reasons, he reduces the size of his original household and forms a new one or small sized household. The larger proportion of one or small sized households in urban areas is usually due to migration. In situations of acute housing shortage, the migrant may double up with an existing household in his destination area and thus increase its household size. The former is perhaps more probable than the latter in Mauritius. Economic reasons also play a very crucial role in household composition and size and some of the doubling up of households in the housing units found in Mauritius may be the consequence of the high cost of buying an accomodation or of renting one. Sociological factors like joint and extended families may not be very important in the present context of the island with everyone looking for privacy and comfort.

To understand the mechanism behind the drastic fall in the household size it is necessary to look into the types of households in the island and who the usual members of households are. This will be done in the next section.

4.2.3. Composition of households

In 1983 there were 162,000 (81%) one family households, 20,000 (10%) households had more than one family nucleus and 17,000 (9%) had no family nuclei (one person households). For the 200,000 households there were 207,000 family nuclei i.e. 1.04 family nuclei to a household. Against this, in 1972 there were 155,000 family nuclei for the 155,000 households i.e. almost one family nucleus per household.

There were 124,000 one family households (80%), 14,000 households (9%) with more than one family nucleus and 17,000 (10%) one person households in 1972. Thus there was not much change in the percentage distribution of households by number of family nuclei although there was a small increment in family nuclei per household in 1983. In 1972 the one family nucleus household had an an average of 5.4 persons, a two nuclei family household had 7.9 persons and those with three or more family nuclei had 10.3 persons as compared with the 1983 figures of 4.8, 7.4 and 10.1 respectively. The zero family nucleus households remained constant with size of 1.5 at both times. Thus it was at the one family nucleus household level, with its preponderance among all households, that the real fall in household size took place. The figures of 4.8 and 5.4 are very near the average household sizes already mentioned and this fall of 0.6 must have happened mostly through fertility reduction.

Households had been classified under 7 types depending on the types of members found in them. For convenience they can be grouped into 3 categories viz (i) Type I (ii) Types II and III and (iii) Types IV - VII representing respectively (i) one person (no family nuclei) households, (ii) one family nucleus households and (iii) composite households with more than one family nuclei or with other non family members. In 1972 there were 8% of type I, 63.5% of Types II plus III and 28.5% of types IV - VII whereas in 1983 they were respectively 6%, 65.5% and 28.5%. Thus this analysis shows that there was an increase in one nucleus families but at the cost of one person households.

Table 4.2 shows the composition of households by relationship to head in 1972 and 1983. It can be noted that the real change which took place during the period was in the case of children which decreased from 2.94 to 2.46 (2.34 unmarried and 0.12 married) i.e. a fall of 0.48 which is almost the same as the fall in household size. Surprisingly there was very little change among 'spouse' inspite of decline in mortality resulting in survival of more wodows than widowers.

The age composition of the children (Table 4.3) shows that there has been a shift towards older ages especially to ages 15 - 34 and a fall in ages under 15. For instance, in 1972 the children under age 15 constituted 63.9% of all children as against 54.1 % in 1983.

At ages 15 - 19, 20 - 24 and 25 - 34 the percentages in 1972 were 18.5, 10.7 and 5.4 and in 1983 they were 19.8, 13.8 and 10.1. Thus clearly it is the drastic fall in fertility during the 1972-1983 period which resulted in the fall in the household size and this would have been larger had there been no reversal in the trend of fertility during the second half of the period. With a continued fall in fertility, perhaps the household size would have been between 4.3 and 4.5 in 1983.

Table 4.2 - Population in private households by relationship to head, 1972 and 1983

Relationship to head	Population	
	1972	1983
Head	155,232	199,712
Spouse	113,287	150,208
Child (Unmarried)	456,663	467,914
Child (married)		24,843
Spouse of child	11,522	16,807
Grand child	35,032	40,167
Other relative	43,130	53,650
Other persons, not related to head	5,924	8,111

Table 4.3 - Percentage age distribution of children within households, 1972 and 1983

Census year	Age (%)				
	Under 15	15 - 19	20 - 24	25 - 34	35+
1972	63.9	18.5	10.7	5.4	1.5
1983	54.1	19.8	13.8	10.1	2.1

It can be noted that if an average of the number of adults(age 20 years and above) per household is calculated it is seen that there is very little change between 1972 and 1983 (2.51 in 1972 and 2.70 in 1983). Actually there was a slight increase in the number of adults in households in recent years perhaps due to late age of marriage of children and increased life expectation of parents.

4.3 Headship rates

The number of housing units is determined by the number of households and since each household will have only one head, this means that the number of heads is an important information in the study of households and housing.

Usually a head is the economic support of the household and is the bread-winner. In some cases, due to cultural practices even an old person may be considered as a head inspite of his debility or other shortcomings. There are also sex biases in the recognition of persons as heads - the patriarchal cultures prefering male heads and some matriarchal groups opting for female heads. Since households are usually formed when a person marries, the marital status of an individual is an important determinant of the incidence of headship. Naturally the age will determine this rate because in most societies people marry only after reaching a certain age. Marriage dissolution is a factor for family break-up and especially for a woman, the loss of a husband may bring in the need for her to assume the responsibility of the head of household. Thus widowed or divorced women are more prone to be heads than the single. In certain cases this may not happen when a grown up son is in the household who then becomes the head at the loss of the male head.

Thus the study of headship rate by sex, age and marital status is essential to understand the evolution of the household.

In Mauritius with its strong patriarchal tradition among its population, it is but expected that a vast majority of heads will be male. This is indeed so as only 18.5% of heads are females in 1983 compared to 18.8% in 1972. There is thus even a small fall in the proportion of female heads among all heads inspite of the improving and reversal of the sex ratios (favourable to females) of the population (100.1 in 1972 and 99.0 in 1983). In the male population the proportions of heads increased from 30.7% in 1972 to 34.0% in 1983 whereas in the female population it increased only to 7.7% from 7.0%. With the vast advantage in mortality of the females over the males (female e_o^o = 71.2 against male e_o^o = 64.4 estimated for 1983), the sex ratios of the population will continue to fall with more and more females in the population. What will be the implication of this on headship rates? It may be mentioned that till 1972, data showed that female mortality was higher than male mortality. Improvements in female mortality has overtaken the male and is expected to continue. The effect of this on headship rates may show up only in the years to follow.

Table 4.4 - Headship rates 1972 and 1983 by sex, age-group and marital status

MALE

Census year	Age-group	Total			Marital Status								
					Single			Married			Widowed, divorced or separated		
		Heads	Population	Headship rate %	Heads	Population	Headship rate %	Heads	Population	Headship rate %	Heads	Population	Headship rate %
1972	20 - 24	4,269	40,150	10.6	906	33,798	2.7	3,318	5,598	59.3	45	734	6.1
	25 - 29	10,735	26,204	41.0	883	11,619	7.6	9,752	13,594	71.7	97	958	10.1
	30 - 39	31,855	41,919	76.0	1,017	5,529	18.4	30,319	33,868	89.5	518	2,443	21.2
	40 - 49	34,932	38,449	90.8	878	2,374	37.0	32,804	32,799	100.0	1,248	3,188	39.2
	50 - 59	25,317	27,152	93.2	580	1,260	46.0	22,937	2,266	100.0	1,795	3,182	56.4
	60 & over	18,315	21,688	84.4	545	1,118	48.7	14,832	15,478	95.8	2,936	5,057	58.1
1983	20 - 24	4,587	53,077	8.6	862	46,506	1.9	3,697	5,706	64.8	28	850	3.3
	25 - 29	17,387	44,708	38.7	1,310	21,355	6.1	15,946	22,076	72.2	130	1,258	10.3
	30 - 39	48,850	66,185	73.8	1,400	9,353	15.0	46,921	56,407	83.2	527	2,404	21.9
	40 - 49	35,383	39,237	90.2	728	2,437	29.9	33,863	34,573	97.9	792	2,214	35.8
	50 - 59	30,957	33,440	92.6	708	1,656	42.7	28,717	28,736	99.9	1,531	3,033	50.5
	60 & over	25,139	30,092	83.5	629	1,376	45.7	21,345	22,757	93.8	3,164	5,932	53.3

Table 4.4 (cont'd) - Headship rates 1972 and 1983 by sex, age-group and marital status

FEMALE

Census year	Age-group	Total			Marital Status								
					Single			Married			Widowed, divorced or separated		
		Heads	Population	Headship rate %	Heads	Population	Headship rate %	Heads	Population	Headship rate %	Heads	Population	Headship rate %
1972	20 - 24	516	39,677	1.3	136	18,297	0.7	142	18,803	0.8	238	2,558	9.3
	25 - 29	917	26,970	3.4	92	4,685	2.0	277	19,708	1.4	547	2,566	21.3
	30 - 39	3,524	41,965	8.4	181	2,720	6.6	820	33,629	2.4	2,521	5,592	45.1
	40 - 49	6,376	36,122	17.7	277	1,442	19.2	798	26,373	3.0	5,300	8,285	64.0
	50 - 59	7,546	25,673	29.4	367	1,198	30.6	685	14,629	4.7	6,493	9,831	66.0
	60 & over	10,188	27,438	37.1	576	1,718	33.5	426	7,392	5.8	8,924	18,287	48.8
1983	20 - 24	535	52,223	1.0	134	25,874	0.5	246	24,171	1.0	155	2,176	7.1
	25 - 29	1,231	44,677	2.8	167	10,833	1.5	462	30,763	1.5	602	3,079	19.5
	30 - 39	5,329	66,505	8.0	475	8,190	5.8	1,207	50,163	2.4	3,643	8,081	45.1
	40 - 49	7,153	40,062	17.9	339	1,970	17.2	992	29,744	3.3	5,819	9,520	61.1
	50 - 59	9,654	33,556	28.8	378	1,285	29.4	912	20,164	4.5	8,362	13,668	61.2
	60 & over	13,005	38,596	33.9	727	2,229	32.6	898	5,982	15.0	11,379	18,078	62.9

Table 4.4 gives headship rates by sex, age-group and marital status for 1972 and 1983. The first thing to be noted is that for every marital status group other than widowed/divorced, the male rates are higher than female rates at all ages. Secondly the rates are higher for males among currently married and for females among widowed/divorced. Thirdly there is in most cases a fall in headship rates at all ages, marital status groups and for both sexes over time.

What will be the future trend in headship rates given that age at marriage of both males and females are quite high and increasing, and the male female gap closing (male 27.43 in 1972, 27.78 in 1983; female 22.68 in 1972 and 23.76 in 1983); mortality is very low and is expected to reduce further with a widening of the gap between males and females in life expectation; fertility is low and is poised for further decline to below replacement level; more and more persons are opting for independent living arrangements away from the extended family forms and migration is expected to accelerate from urban to rural areas and to involve larger numbers of persons in future with the opening up of vast areas in Black River, Flacq, Moka and other low density rural localities? The future evolution of headship rates and household sizes will be considered in the next chapter on projections.

Side by side with the widening gap between male and female life expectation (5.1 years in 1972 and 6.8 years in 1983), there has been a tendency for the gap between male and female age at marriage also to reduce (4.8 years in 1972 and 3.9 years in 1983). Hence some of the advantages for the females over the males occuring through improved mortality may not show up excepting at older ages. Thus the over all effect of improvement in mortality and the widening gap between male and female life expectation would be in a reduction in female headship rates at younger ages and some increase at older ages.

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CHAPTER   V

FUTURE PROSPECTS   AND   SOME   IMPLICATIONS

5.1 Introduction

An important element in the analysis of households and housing is the estimation of future course of evolution of households in the country in order to project housing needs. On the basis of the past and current trends in household formation and the provision of shelter, it is attempted in this chapter first to project the future numbers of households. Assuming that the aim of any social policy should be the provision of a suitable housing unit for every household, the estimated number of housing units is then worked out. Keeping in view the existing backlog in the availability of a housing unit for every household, and that for an acceptable standard of living such doubling up (4% in 1983) should be wiped off as early as possible, the estimates are adjusted not only for ensuring shelter for everyone but also accounting for possible dilapidation of existing structures over the time period. Some allowance is also made for a small proportion of housing units for vacancy at any point in time (3.3% in 1972 and 3.7% in 1983). Having worked out the total number of units which need to be constructed, it is necessary to indicate also the size distribution of households and the consequent sizes of dwelling units which need to be provided.

5.2 Projection of households and housing needs

The number of households is dependent on the total size of the population. For instance, if the average household size is known, then the rates of population to average household size gives the number of households. Thus a simple method of projection of households is through the mean household size. Since households are formed by adults, a better approach would be to use the average number of adults per household and relate it to the total adult population. Again marital status determines household formation, and hence relating adults of varying marital status groups in households with projected population of corresponding marital groups would provide more realistic estimates.

Another approach which takes care of age-sex-marital status distribution of the population is through headship rate. A household has a recognised head and there is a one to one correspondence between number of households and number of heads. If headship rates specific to age, sex, marital status and geographic residence groups are available and population projections in corresponding

details are prepared, then it is possible to project the future number of households by aggregating the numbers of heads for the various age sex and other groups. The method has an added advantage of providing details on age, sex and other characteristics of household heads.

In order to use the headship rate method, one has thus to have population projections and headship rates by age, sex, geographic and other details. So far, for Mauritius population projection is available only by sex and age. Table 5.1 gives the projection (medium variant) by needed age, sex categories. Headship rates are available by age, sex and marital status. It can be noted from Table 4.4 that headship rates vary significantly between marital status groups. For instance, most of the heads among males are in the currently married category whereas for females it is among the widowed/divorced/separated categories. With age at marriage increasing proportion married at young ages diminishing, widowhood and widowerhood being affected by changing mortality, and divorce and separation influenced by socio-economic factors, it is clear that the headship rates would undergo changes in the years to come. Hence it would have been appropriate to project these rates by marital status categories and apply to corresponding population groups. This would have necessitated projection of marital status groups, which has not been prepared. Some account for changes in marital status distribution under the influence of demographic, socio-economic factors is incorporated in the headship rates by age and sex.

Table 5.1 - Projected population by age-group and sex, 1988-2003(Medium variant)

Age-group	Projected Population (in 00's)							
	1 9 8 8		1 9 9 3		1 9 9 8		2 0 0 3	
	Male	Female	Male	Female	Male	Female	Male	Female
0 - 19	2,028	1,981	1,996	1,955	1,932	1,888	1,792	1,748
20 - 24	532	529	416	410	492	485	550	541
25 - 29	512	502	514	510	414	409	490	482
30 - 39	815	808	925	913	1,005	996	917	914
40 - 49	450	468	621	632	774	780	886	892
50 - 59	327	337	346	366	405	439	566	600
60 +	356	449	383	484	423	532	456	572
Total	5,020	5,074	5,201	5,270	5,445	5,529	5,657	5,749

For instance, the trend in the headship rates is utilised to estimate future rates and in this connection due consideration is given to changing age and incidence of marriage, widowhood, divorce and separation, fall in family size and altering patterns of child bearing, family formation and living arrangements.

Headship rates by age and sex are projected only for 1993 and 2003, and for the intermediate years 1988 and 1998, interpolations were applied. The projected headship rates are given in Table 5.2

Table 5.2 - Headship rates by age-group and sex, 1988-2003

Age-group	Headship rates							
	1 9 8 8		1 9 9 3		1 9 9 8		2 0 0 3	
	Male	Female	Male	Female	Male	Female	Male	Female
20 - 24	.03	.01	.06	.005	.06	–	.05	–
25 - 29	.36	.03	.34	.02	.32	.01	.31	.01
30 - 39	.70	.07	.66	.06	.63	.05	.60	.05
40 - 49	.88	.17	.85	.17	.83	.16	.82	.15
50 - 59	.91	.29	.90	.29	.90	.30	.90	.30
60 +	.82	.34	.80	.35	.80	.35	.80	.36

Using these headship rates with the corresponding projected populations the number of heads by sex is obtained as in Table 5.3.

Table 5.3 - Number of heads of households by sex, 1988-2003 (in 00's)

Sex	No. of heads (in 00's)			
	1988	1993	1998	2003
Male	1,774	1,956	2,140	2,330
Female	407	450	497	570
Total	2,181	2,406	2,637	2,901

5.3 Implications

Thus there is a continuous increase in numbers of heads from about 199,700 in 1983 to 290,100 in 2003, i.e. and exponential rate of growth of 1.88% per year as compared with a population growth rate of 0.83% resulting in a continuous fall in average household size from 4.81 in 1983 to 3.93 in 2003. At the same time the average number of adults per household, which was 2.70 in 1983, at first increases to 2.79 in 1988 and then stabilises at 2.71. The increase till 1988 which has been noted since 1972 is the result of the fall in fertility in the seventies and the prevailing high fertility of the past periods. The apparent stability of the average number of adults per household is the consequence of the entry of the low fertility cohorts and the withdrawal by mortality of the old high fertility cohorts.

Having obtained the projected number of households, it is important to have an idea of their future size distribution. From Table 4.1 it is noted that between 1972 and 1983 there was a fall in very small and large households and a fall in average household size. With a fall in fertility which has been noted the household size will fall further and reach 3.93 in 2003.

For the 1972 and 1983 size distribution, it was seen that a truncated negative binomial distribution fits quite well. The equation to the negative binomial distribution is

$$f(k, r, p) = \left\{ \begin{array}{c} r + k - 2 \\ k - 1 \end{array} \right\} p^r q^{k-1}$$

Where k is any interger 1, 2, ...; r is any real positive number and p the probability.

The mean and variance of such a distribution are

$$\text{Mean} = \frac{r(1-p)}{p} + 1$$

$$\text{Variance} = \frac{r(1-p)}{p^2}$$

Fitting the distibution to the 1972 and 1983 data by the method of moments we get for 1972

$$\text{Mean} \quad = \quad 5.26 \quad = \quad \frac{r\,(1-p)}{p} + 1$$

$$\text{Variance} \quad = \quad 7.82 \quad = \quad \frac{r\,(1-p)}{p^2}$$

So that $p = 0.5448$ and $r = 5.0981$

Similarly for 1983

$$\text{Mean} \quad = \quad 4.80 \quad = \quad \frac{r\,(1-p)}{p} + 1$$

$$\text{Variance} \quad = \quad 5.55 \quad = \quad \frac{r\,(1-p)}{p^2}$$

So that $p = 0.6847$ and $r = 8.2520$

Using these parametres we can obtain the expected frequencies from the negative binomial distribution. Table 5.4 gives the expected and observed frequencies for 1972 and 1983. The goodness of fit can be noted not only from the small difference between the observed and expected values but also from the values of χ^2 which are respectively 5.0 and 1.3 for 1972 and 1983 with 9 degrees of freedom. The 5% value of χ^2 from statistical tables for 9 degrees of freedom is 16.9 and hence it can be concluded that the fit is very good.

Table 5.4 - Observed and expected (based on negative binomial distribution) frequency distribution of household sizes, 1972 and 1983

Size of household	1972		1983	
	Observed %	Expected %	Observed %	Expected %
1	3.0	4.5	6.0	4.4
2	10.8	10.5	10.0	11.4
3	12.0	14.6	14.3	16.7
4	12.8	15.7	18.9	13.0
5	12.9	14.5	16.6	15.7
6	11.3	12.0	12.6	12.3
7	10.0	9.2	8.6	8.6
8	8.4	6.6	5.3	5.5
9	5.2	4.6	3.2	3.3
10+	8.2	7.8	4.1	3.9
χ^2_9	5.00		1.27	

Having noted that the negative binomial fits the size distribution of households the method can be used to project the future size distribution of households if some ideas of the mean and variance can be formulated. For 1993 we have, for instance, the mean but not the variance. It can be seen that the ratio of variance to mean in 1972 and 1983 were 1.49 and 1.16 and is converging towards 1. Assuming that it will be 1.1 in 1993 we can obtain estimates of the parametres r and p as 7.9 and 0.7. With these values of r and p we get the following % frequency distribution:

Size of household	1	2	3	4	5	6	7	8	9 and 9+
% Frequency	5.9	14.2	18.9	18.7	15.8	10.9	7.1	4.2	4.8

We note that there is a shift towards 3 person households and also an increase in 2 person households. Definitely large households are expected to fall and this may have implications on the future construction of dwelling units. More and more of the units need to be geared towards meeting the requirements of small households.

From the projected numbers of households, it is seen that from 1983 to 1993 there will be additional 40,900 households and between 1993 to 2003 there will be another 49,500 households. In 1983 there were 199,700 households but only 191,700 housing units and hence 8,000 households seem to be doubled up. Assuming that by 1993 there should be one housing unit per household, an additional 48,900 units are needed between 1983 and 1993. With a dilapidation rate of 1.5% per year for the existing stock in 1983, and additional 28,800 units would be needed, giving a total for the ten year period of 77,700 units or 7,770 units per year. Taking a 3% vacancy rate, the total number of units per year works out to about 8,000. Knowing that between 1972 and 1983 only 67,000 - 73,000 i.e. an average of less than 7,000 per year were built, the magnitude of the problem for the period 1983-1993 is indeed tremendous. Beyond 1993 also a similar construction effort will be needed in spite of every effort to satisfy the emerging needs of the period 1983-1993.

Considering the observation that the average household size is falling and the proportion of small households (less than 4 members) will increase from 30.8% in 1983 to 39.0% in 1993 and may further increase by 2003, it is clear that house construction in the future should keep this in mind.

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Chapter VI

CONCLUSIONS AND RECOMMENDATIONS

6.1   Conclusions

The present analysis has focussed on estimating housing
needs at the national level from the purely demographic point of
view with particular reference to population growth and structure
and changes in household size and rate of household formation.

Indications are that fertility which is already low will
reduce further and since the major factor in change in household
size will be due to changes in number of children in the household,
it is anticipated that average household size will continue to decline
till the end of this century. However, the two factors of improving
mortality and late age at marriage of children may result in some
increase in household size through the continuation of older children
in the parents' household. The implication of this will be a reduction
in the number of households and consequently in the number of housing
units needed.

By the turn of the century, the large birth cohorts of the
past would be more or less replaced by smaller cohorts with patterns
of small sized families. Since houses have long length of life many
of the large houses built for large families of the past would still
be around but perhaps occupied by small families. Also there is the
possibility of a stabilisation or even a reduction of the number of
households and the appropriate utilisation of structures built in the
past would arise. Housing construction from now on at least should
take care of the eventuality of reductions in family size and numbers
during the life time of existing buildings.

The projected number of housing units needed by the year 2003
is under certain assumptions of decongestion of households, vacancy,
delapidation and replacement rates. Some of these effects may be
modified because of continuous repair, maintenance and care of buildings
(as noted in the country), possible changes in rent control, tenancy,
and other policy measures and socio economic perceptions, and hence
the estimates could be somewhat on the safe side.

6.2   Suggestions for future action

Government is aware that existing levels of housing
are below the aims of its housing policy inspite of the increasingly
heavy investment in the sector which presently has an important
import component. It has already embarked upon a programme aimed
at containing investment in housing whilst at the same time trying
to meet the present and future housing needs. The following
suggestions are therefore not aimed at providing solutions to the
housing problem, but rather at refining the tools needed for
estimating housing needs in such a way that they effectively serve
the planning process.

6.2.1   Regional estimates

The formulation of housing programmes need to be related
to specific regions. Although data on housing was collected at the
Housing Census and those on socio economic characteristics at the
Population Census, cross tabulations at the regional level are useful
and needed.

6.2.2   Data on housing construction

Information on current building construction is available
from building permits issued by Municipal Councils in Urban areas and
Ministry of Woks in rural areas.

Problems in regard to coverage and date of construction
cropped up during the analysis. It seems desirable to have regular
surveys at intervals of 3-5 years in sample localities to estimate
extent of housing construction without permit and to arrive at time
lag between issue of building permit and completion of the building.

6.2.3   Demolition and conversion

No reliable information seems at present available
regarding demolition of houses and conversion of buildings from

one use to another. Surveys may be useful to obtain these needed
information.

6.2.4   Attrition rate of buildings

The dilapidation rate of 1.5% per year used in the study
is not based on hard facts. Three types of information would have
been useful. (a) Material of construction of buildings (b) Year of
construction or age and (c) Length of life of various types of
buildings constructed with different building materials under the
prevailing climatic conditions. Inventory of buildings kept in
Municipal Councils for taxation purposes, even though appliable only
for urban housing, could provide some information on life of buildings.
Information on expenditure incurred on maintenance and repair which
may increase the normal life of existing houses could be obtained
from periodic household budget surveys.

At the next census, the year of completion or construction
of a building should use the groupings used in 1983 so that cohorts
can be followed.

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