



REPUBLIC OF MAURITIUS

MINISTRY OF ECONOMIC PLANNING AND DEVELOPMENT

CENTRAL STATISTICAL OFFICE

1990
HOUSING AND POPULATION CENSUS
OF
MAURITIUS

ANALYSIS REPORT

VOLUME I — CENSUS METHODOLOGY

April 1994

[Price : Rs 150]

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FOREWORD

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

This report is the first of the series. It attempts to describe how the 1990 Census was organised and conducted. It also gives an extensive coverage to the data processing aspect of the exercise since it was the first time that the office assumed complete responsibility in the matter.

Subsequent reports will deal with the results of the evaluation and analysis of census and other data on age and sex, education, youths, women, nuptiality and fertility, economic activity, disability, migration, household and housing.

I would like here to convey my gratitude to the staff of local analysts for the efforts put into the analysis of the census data and the preparation of the reports. My thanks also go to the United Nations Population Fund (UNFPA) and the United Nations Economic Commission for Africa (UNECA) for financial and technical assistance. Finally, the analyst team and myself are most grateful to Dr. K.V. Ramachandran for his guidance and supervision.

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Ministry of Economic Planning and Development
Port Louis
MAURITIUS

April 1994

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1. INTRODUCTION

1.1 Background

Mauritius is a group of islands in the South West of the Indian Ocean. The country, which was a former British colony, became independent on the 12 March 1968 and acceded to the status of Republic twenty-four years later in 1992.

In 1990, the Central Statistical Office (CSO) successfully completed the sixteenth complete census for the country. The Housing Census was conducted from the 5 February 1990 to the 17 June 1990 and the Population Census from the 18 June 1990 to 15 July 1990 with the night of 1 July as reference. The "de facto" population in the Republic of Mauritius was 1,055,523 while the "de jure" or resident population was 1,056,827. The distribution of resident population between the different islands was as follows:

	<u>Area</u> <u>(sq km)</u>	<u>Both sexes</u>	<u>Male</u>	<u>Female</u>
Island of Mauritius	1,865	1,022,456	510,676	511,780
Island of Rodrigues	104	34,204	17,084	17,120
Agalega	70	167	91	76
St Brandon	1	-	-	-
Republic of Mauritius	2,040	1,056,827	527,851	528,976

The country has known a flourishing economy during the seven years between the 1983 and 1990 censuses with the Gross Domestic Product (GDP) at factor cost growing at an annual rate of 6.5 % in real terms. The Gross National Product (GNP) per capita rose from Rs 12,700 in 1983 to Rs 36,800 in 1990. During the same period, employment which was around 293,000 in 1983, increased to 445,000, causing the unemployment rate to drop from 19.7 % to 2.6 %.

1.2 Census history

Mauritius has a long history of census taking that dates back to the 18th century with its first complete census taken in 1735. Since then, numerous complete censuses or partial counts of the population have been made. The 1846 census was followed by that of 1851. Up to 1931, censuses have been taken every ten years. With the outbreak of the Second World War, the one due in 1941 had to be postponed in 1944 and the first census to be taken after the War was in 1952. The ten-yearly programme was subsequently resumed with a census taken in 1962 and another one in 1972. Because of parliamentary elections in 1982, the one scheduled for that year had to be reported to 1983.

If the decennial plan were to be followed, the next census would have been taken in 1993. However, it had been found necessary to bring the census forward to 1990 to satisfy the pressing need for detailed up-to-date data in a situation characterized by important social and economic changes.

1.3. Objectives of the census

The main objective of the 1990 census was to provide up-to-date and reliable data on the educational and economic characteristics of the population. Because of the rapid economic growth the country had undergone since 1983, figures collected at the 1983 census no longer reflected the reality and

therefore needed urgent updating. The 1990 census was expected to provide information that would be used for monitoring development and for decision-taking in connection with education and manpower planning.

The other general objective was to provide up-to-date and disaggregated data on the housing conditions, the spatial distribution and the demographic and social characteristics of the population. These data are essential in reviewing and implementing housing, population, education and manpower policies, and in preparing, monitoring and evaluating development plans and programmes at both the regional and national levels.

1.4 Census coverage

The Housing Census covered the Islands of Mauritius and Rodrigues only while the Population Census covered the Islands of Mauritius, Rodrigues, Agalega and St Brandon.

Unlike the preceding censuses where the population count was made on a "de facto" basis, i.e, population present in an area on the census night, the 1990 Population Census, besides enumerating all persons present on the census night in all private households and communal establishments, covered also the usual residents who were not present on census night. Hence, it was possible for the first time to obtain a count of the resident population in any area as well as the present population in that area.

1.5. Legal basis

The 1990 census, like the previous censuses, was taken according to the provisions laid down in the Statistics Act of the 7 April 1951. According to the provisions in the Act, the legal procedure for taking a census was to seek approval of the Governor-General and request him to make regulations prescribing the particulars and information to be collected. However, the Legislative Assembly had to agree on the census dates and the content of the questionnaire, prior to the decision of the Governor-General.

The Collection of Statistics Regulations 1989, pertaining to the Housing Census was made by the Governor-General on the 5 December 1989 and published as Government Notice No. 201 of 1989. The regulations authorised the Director of Statistics to collect statistics in respect of every building from the 5 February 1990 to 17 June 1990; the regulations also prescribed the particulars and information to be collected for the Housing Census.

For the Population Census, the Governor-General made an order on the 24 January 1990, directing that a Population Census would be taken between 18 June 1990 and 15 July 1990 in respect of all persons alive on the night of 1 July 1990. The particulars and information to be collected were provided later in the Census Regulations 1990 of the 28 March 1990, published as Government Notice No. 69 of 1990.

The Statistics Act also ensures that all individual information collected by the Office is kept confidential. To this effect, it requires every person employed in connection with the census to make an oath of secrecy before a magistrate. Penalties are provided for any breach of confidentiality. Further, each officer was provided with a special identity card duly signed by the Director of Statistics and himself, and on which appeared his photograph. To safeguard the public against unauthorized persons, officers had to produce their identity card during interviews in connection with the census. Also, any person who refuses or neglects to fill in the prescribed forms or to supply the particulars required, or knowingly makes any false statement is liable to prosecution.

2. CENSUS ORGANISATION

2.1 Office Organisation

Given the adhoc nature of the Housing and Population Census, no census unit, as such, existed within the Central Statistical Office. In 1983, the execution of the census project was entrusted to a team of persons from the Permanent Establishment of the CSO, some of whom, besides being responsible to their respective units, were participating in the census operation on a part-time basis. After completion of the project, the team was dissolved and all the staff involved were posted in different units of the Office. For the 1990 census, it was found necessary to up a division, called the census division, whose work would be solely the planning and execution of the census project. The head of the census project was the Census Commissioner, who, by law, is the Director of Statistics. The division, which included the cartographic unit in addition to the team working on the project, fell directly under the responsibility of a principal statistician. During the first half of 1989, the following staff of the census division were identified:

1 Principal statistician
5 Statisticians
17 supporting staff
(Senior statistical assistants
Statistical assistants
Statistical clerks)

Several units, namely the coding and editing unit, the data entry unit, the data processing unit, and an administrative unit, operated within the structure of the division. The main tasks of each unit were as follows:

(a) *The cartographic unit*: the updating of existing base maps, the preparation of base maps at appropriate scale, the preparation and reproduction of supervision area (SA) and enumeration area (EA) maps, the preparation of workload for each fieldstaff as well as the preparation of all geographical codes.

(b) *The editing and coding unit*: the editing and coding of census questionnaires. Further, the preparation of batches of census materials that were issued to the fieldstaff, the preparation of addressed Population Census forms, the issue of census questionnaires and other materials to and from the fieldstaff fell under the responsibility of this unit.

(c) *The data entry unit*: the keying in of census data; one statistician had the charge of the unit where she had to monitor the quality and progress of work of the operators; she was also responsible for the production and printing of address labels for the Population Census.

(d) *The data processing unit*: the consolidation of the enumeration area data files to the country level, the data correction and tabulation.

(e) *The administrative unit*: all administrative and technical matters pertaining to the census such as the legal procedure, finance, stores, recruitment and establishment procedures, preparation of census questionnaires and guide, publicity, edit specifications, tabulation plan, field instructions manuals, codes lists, coding and editing instructions manuals, administrative control forms.

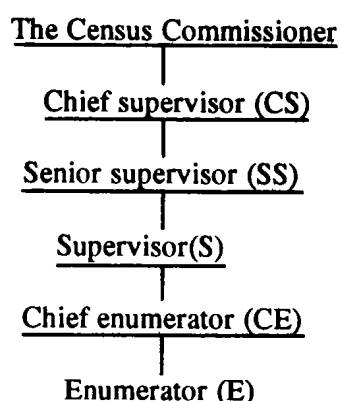
Each unit operated under the responsibility of a statistician, with the exception of the administrative unit which was headed directly by the principal statistician.

At the beginning of the operation, specific duties were assigned to each and every staff; however, while the duties of each unit were well-defined, it was difficult to respect the demarcation between the different job assignments of the staff, mainly because of the time schedule that had to be respected for the smooth running of the operation. Any one within the division was expected to shift to more urgent duties whenever the need arose. Thus, at the early stage of the census operation, when the cartographic work was more urgent, most of the senior statistical assistants, statistical assistants and clerks in the division were asked to join the cartographic unit. During the month preceding the census night, they were busy with the recruitment of about 4,000 enumerators or preparing batches of census questionnaires, guides and other materials to be issued to the fieldstaff. As and when the work in a unit became less stringent, the staff moved to other jobs that needed more pressing attention; these movements applied to all technical staff of the census division, including the statisticians.

The census division also had the support of forty-four editing and coding clerks, twenty data entry operators, one executive officer, one driver and two office attendants.

2.2 Field Organisation

The field force was made up of 4,851 officers and structure of the field organisation was as follows:



The Director of Statistics, who was also the Census Commissioner, was at the head of the whole census operation. Five different grades of fieldstaff were working under him. The number employed in the different grades for the Islands of Mauritius and Rodrigues is given in the table below:

	<u>Island of Mauritius</u>	<u>Island of Rodrigues</u>
The supervisory staff		
Chief supervisor	<----- 1 ----->	
Senior supervisor	12	1
Supervisor	98	5
Chief enumerator	714	31
Enumerator	3,816	173
	-----	-----
TOTAL	4,641	210
	-----	-----

The chief supervisor was responsible for the whole field operation for the Islands of Mauritius and Rodrigues. Thirteen senior supervisors worked directly under his supervision and each senior supervisor had the charge of about 8 supervisors and 60 chief enumerators for the Housing Census and 310 enumerators for the Population Census. A supervisor had about 7 chief enumerators and 40 enumerators to work with him. Enumeration of buildings, housing units, households, commercial and industrial establishments, institutions, hotels and boarding houses was carried out by the 745 chief enumerators, each of whom had to control the work of about 5 enumerators at the Population Census.

In contrast with the 1983 census when supervision of the enumeration and other census activities for the Island of Rodrigues fell under the responsibility of the chief supervisor and the cartographic supervisor, a senior supervisor was specifically appointed for the supervision of the census operation on the Island. The appointed senior supervisor was posted on the island on a full time basis for a period of five months, from February 1990 to April 1990 and from Mid-June 1990 to Mid-August 1990. He was in charge of 5 supervisors, 31 chief enumerators and 173 enumerators. His main responsibilities were to train the fieldstaff, ensure the proper execution of the field operation and supervise the administrative and financial work as well as other census-related office activities such as the editing and coding of the completed questionnaires. Any unforeseen problems encountered were reported and solved through the regular telephone communications with the principal statistician of the census division, who was also the chief supervisor.

2.3 Calendar of activities

Minor adjustments had been brought to the original work plan of the project prepared in 1988. Below is the calendar giving the actual dates of the different operations.

<u>Activities</u>	<u>Dates</u>
<u>A. Pre-enumeration phase</u>	
<i>1. Preliminary activities:</i>	
(i) Preliminary discussions with the Ministry of Economic Planning and Development	June 1988 - December 1989
(ii) Mission of Mr. R. M. Andrianasolo, UNFPA Consultant, for the formulation of the 1990 census Project	September 1988 - October 1988
<i>2. Cartographic work:</i>	
(i) Inventory of existing maps and acquisition of resource maps, air photos and topo sheets from the Ministry of Housing and Local Authorities	January 1988 - December 1988
(ii) Cartographic fieldwork for updating base maps	January 1988 - March 1989
(iii) Preparation and reproduction of Enumeration Area (EA) and Supervision Area (SA) maps showing EA and SA boundaries and ground features including structures	January 1989 - December 1989
(iv) Preparation of geographical codes	November 1989- December 1989
(v) Writing instructions for use and for updating of EA and SA maps by fieldstaff	December 1989
(vi) Acquisition of cartographic equipment (micro-computer), software and materials for production of maps	April 1989
(vii) Study tour on use of micro-computer for census cartography	September - October 1989
<i>3. Questionnaire:</i>	
(i) Discussions with Ministries about the data needs and selection of topics for inclusion in the Housing and Population Census questionnaires	December 1988 - February 1989

(ii) Preparation of first draft of Housing and Population questionnaires for discussion at CSO and with the Ministries	February 1989 - June 1989
(iii) Preparation of final draft of questionnaires - Housing questionnaire - Population questionnaire	November 1989 March 1990
(iv) Preparation of the legal instruments and framework - Housing questionnaire - Population questionnaire	July 1989 - November 1989 March 1990
(v) Approval of the census questionnaires and regulations by the Governor-General and their publication in the Government Gazette - Housing questionnaire - Population questionnaire	5 December 1989 28 March 1990
(vi) Printing of the census questionnaires by the Government Printer - Housing questionnaire - Population questionnaire	December 1989 May 1990
<i>4. Instructions and coding manuals:</i>	
(i) Preparation of instruction manuals for fieldstaff - Housing Census - Population Census	April 1989 - January 1990 May 1990
(ii) Preparation of codes, coding and editing, and data entry instructions - Housing Census - Population Census	April 1989 - January 1990 June 1990
<i>5. Preparation of tabulation plan:</i>	
- Housing Census - Population Census	August 1989 - February 1990 May 1990
<i>6. Recruitment and training of staff:</i>	
(i) Recruitment of Senior Supervisors, Supervisors and Chief Enumerators	November 1989 - December 1989
(ii) Recruitment of Enumerators	May 1990
(iii) Recruitment of editors and coders	January 1990 - September 1990
(iv) Recruitment of data entry operators	January 1990
(v) Training of fieldstaff - Senior Supervisors, Supervisors and Chief Enumerators - Enumerators	January 1990 - June 1990 June 1990
(vi) Training of editors and coders and data entry operators - Housing Census - Population Census	January 1990 - February 1990 August 1990 - October 1990

7. *Publicity:*

- | | |
|---|-------------------------------|
| (i) Preparation of publicity materials | July 1989 -
March 1990 |
| (ii) Press Conference by the Minister of Economic Planning and Development | |
| - Housing Census | 1 February 1990 |
| - Population Census | 15 June 1990 |
| (iii) Broadcast and telecast of publicity spots | |
| - Housing Census | February 1990 -
April 1990 |
| - Population Census | June 1990 -
July 1990 |
| (iv) Intervention of Director of Statistics and Deputy Director on television | |
| - Housing Census | February 1990 |
| - Population Census | June 1990 |
| (v) Display of Posters | February 1990 -
March 1990 |

B. Enumeration phase

1. *Housing Census fieldwork:*

- | | |
|---|---------------------------------|
| (i) Allocation of enumeration areas to field staff | January 1990 |
| (ii) Distribution of Census documents and materials to fieldstaff | February 1990 |
| (iii) Field reconnaissance | January 1990 -
February 1990 |
| (iv) Enumeration | February 1990 -
April 1990 |
| (v) Preparation of lists of names and addresses of heads of households, and preliminary counts of housing units, households and persons by EA | February 1990 -
April 1990 |
| (vi) Submission of completed census forms and other census documents to CSO | February 1990 -
April 1990 |

2. *Population Census fieldwork:*

- | | |
|---|-------------------------|
| (i) Preparation of address labels | May 1990 |
| (ii) Sticking of address labels on Population Census questionnaires | May 1990 -
June 1990 |
| (iii) Preparation of workloads and listings of addresses to be visited by each Enumerator | May 1990 -
June 1990 |
| (iv) Distribution of census documents to fieldstaff | June 1990 |
| (v) Distribution of census questionnaires and guides to households | June 1990 |
| (vi) Collection of questionnaires including verification for completeness | July 1990 |

(vii) Preparation of person counts	July 1990
(viii) Submission of completed census forms and other census documents to CSO	July 1990
<u>C. Post-enumeration phase</u>	
1. Acquisition of data processing equipment and software packages	January 1989 - December 1989
2. On-the-job training of data processing staff:	
(i) Course on operating system and data entry software (ECA assistance)	February 1989 - March 1989
(ii) Advisory mission of Mrs. S. Sawaya of the US Census Bureau on data entry system	November - December 1989
3. Recruitment of the Data Processing Expert	October 1989
4. Technical assistance in data processing and tabulation by Mr R. de Clercq, data processing expert of the United Nations Department of the Technical Co-operation for Development (UNDTCD)	February 1990 - January 1991
5. Editing and Coding of questionnaires	
- Housing Census	February - April 1990
- Population Census	August 1990 - April 1991
6. Preparation and design and testing of data entry procedures	
- Housing Census	February 1990
- Population Census	July 1990
7. Keying of Census data	
- Housing Census	March 1990 - May 1990
- Population Census	October 1990 - May 1991
8. Editing of the data files	
- Housing Census	June 1990 - August 1990
- Population Census	June 1991 - October 1991
9. Tabulation of census data	
- Housing Census	June 1990 - October 1990
- Population Census	October 1991
- Tabulation of population census data according to the revised M/VCA boundaries with the help of the ECA regional adviser (Mr. J.M. Hié)	November 1992

10. Preparation and publication of tabulation reports

- Housing report
- Population reports

November 1990

January -

December 1992

11. Evaluation and analysis of census data

- (i) Advisory and training missions on data analysis by
Dr K.V. Ramachandran, regional adviser of the ECA

February 1992

October 1992

July - August 1993

November -

December 1993

- (ii) Preparation of analytical reports on

January 1992 -

December 1993

- I - Methodology ✓
- II - Housing and household
 - Disability
- IV - Migration
 - Youth and Woman
 - Data evaluation and projections, Nuptiality and fertility,
 - Health, morbidity and mortality
 - Educational characteristics
- VII - Economic characteristics ✓

12. Dissemination seminar of census results

22 December 1993

2.4 Census budget

Expenses incurred for the census operation were borne jointly by the Government of Mauritius and the United Nations Fund for Population Activities (UNFPA). The tables below show the contribution of both parties. The project is estimated at Rs 27 million, but because of existing infrastructure and services, including personnel, Government's financial contribution amounted to about Rs 20 million as at 31 December 1992. The UNFPA contributed an additional US \$286,000, mainly for the building up of the census data processing capability of the Office.

Government contribution (Rs '000)

	<u>Project value</u>	<u>Actual Expenditure</u> <u>incurred up to</u> <u>31.12.92</u>
1. Personnel		
Permanent staff	3,534.7	-
Temporary staff	14,672.5	16,502.3
2. Office accommodation	900.0	-
3. Furniture	100.0	192.6
4. Office supplies & expenses	710.0	154.6
5. Cartographic equip. & materials	500.0	192.9
6. Travelling and transport	600.0	1,261.0
7. Printing	700.0	979.7
8. Publicity	200.0	152.5
9. Data processing	3,000.0	210.1
10. Rodrigues mission	50.0	707.6
11. Contingencies	2,032.8	-
TOTAL	27,000.0	20,353.3

UNFPA contribution ('000 US \$)

1. Training	
(i) Consultancy in software	25.8
(ii) Study visits	37.7
(iii) Training workshop	1.0
2. Data processing	191.1
3. Other missions costs and travel	27.0
4. Sundry	3.4

	286.0

3. EXECUTION OF THE CENSUS

3.1 Recruitment and training of fieldstaff

3.1.1 Recruitment

As at the 1983 census, it was decided to recruit fieldstaff among government employees. The need to ensure confidentiality of the information collected was the main reason to recruit only among government employees; it was expected that they would have a better awareness of their responsibility and also it would be easier to exercise disciplinary measures on them, if necessary. The chief supervisor and the senior supervisors were appointed by the Public Service Commission who is responsible for all recruitment in the Public Service. The Director of Statistics, through the powers delegated under the Statistics Act, recruited the remaining fieldstaff.

Because of the tedious and time-consuming aspect of the recruiting process the office had experienced in the past, it was found necessary to start the recruitment operation early so that the processing of the applications could be done in a rational way. A circular letter was sent in January 1989 to all Heads of Ministries and Departments giving details of the fieldwork and asking them to submit the names and the particulars of officers interested in the work. Only about 4,500 applications were received in spite of the reminder letter sent on the 24 October of the same year. It should be mentioned that employees of the Aided Schools were not recruited as in the 1983 census, because they had opted out of government service.

Most of the applications were accepted; the very few that were refused were due to the bad performance of the applicants in previous surveys and censuses. Selection for the different grades was done according to the previous experience and performance in fieldwork and in some cases, if the person was without experience, the highest qualification and the post held were considered in the selection. To minimize the travel costs, the criterion used for the allocation of regions was, as far as possible, the place of residence.

In the selection of fieldstaff, priority was given to the staff of the office in order to strengthen the trained man power potential of the office and also to ensure good co-ordination between the fieldwork and the office activities. The supervisory staff were mostly composed of employees of the CSO and all staff who were willing to work on the field were appointed to work in one capacity or another.

3.1.2 Terms of appointment

The chief supervisor and the senior supervisors were appointed in January 1990 for a period of nine months. The monthly fee for the chief supervisor and the senior supervisors was Rs 3,200 and Rs 2,500 respectively. Both grades were eligible for a mileage allowance at the approved rates or a monthly fixed commuted allowance varying between Rs 900 and Rs 1,600 depending on the regions allocated. The supervisors were recruited for a period of eight months starting from January 1990. They received a monthly payment of Rs 1,900 and had the choice between being given a monthly commuted allowance varying from Rs 400 to Rs 800 depending on the regions allocated or a mileage allowance. The chief enumerators were recruited in January 1990; they were paid a fee of Rs 7,500, which was payable in two instalments, the first one in April 1990 after the completion of the Housing Census enumeration and the second one in August 1990 after the Population Census enumeration. The Enumerators received a payment of Rs 1,800 for the enumeration of the population. Both the fee for the chief enumerators and the enumerators included the travelling expenses.

The fieldstaff were requested to give an undertaking in the form of an oath of office to perform their duties according to the requirements of the Statistics Act. Also, fieldwork was performed outside office hours.

3.1.3 Duties of fieldstaff

The chief supervisor was responsible for the field operation in both the Island of Mauritius and Rodrigues; each senior supervisor was in charge of about 8 supervisors and 60 chief enumerators for the Housing Census, and 310 enumerators for the Population Census while each supervisor had about 7 chief enumerators and 40 enumerators working with him.

The duties of each grade of fieldstaff were as follows:

The chief supervisor had to

- (i) control the field operations in the Islands of Mauritius and Rodrigues,
- (ii) co-ordinate the field and office activities and control the quality and timeliness of the fieldwork,
- (iii) train the senior supervisors and supervisors,
- (iv) deal with problems of recruitment and replacement of fieldstaff and
- (v) deal with unforeseen problems and issues which were not covered in the instructions manuals.

The senior supervisor had to

- (i) train his supervisors and chief enumerators,
- (ii) ensure the equitable distribution of workloads amongst his supervisors and his chief enumerators,
- (iii) reconnoitre, with his fieldstaff, the regions allocated to each one of them to ensure that they were familiar with the maps and enumeration area boundaries,
- (iv) control the quality and timeliness of the fieldwork and keep the necessary control records and
- (v) liaise between the chief supervisor and the fieldstaff and ensure the timely transmission of information, documents, maps and other materials from the office to the field and vice-versa.

The supervisor had to

- (i) make field reconnaissance, with his senior supervisor and then with his chief enumerators, of the regions allocated to him and his chief enumerators,
- (ii) assist his senior supervisor in ensuring an equitable distribution of workloads among the chief enumerators and enumerators,
- (iii) ensure the timely transmission of information, instructions, questionnaires, control documents, maps and other materials from the senior supervisor to the chief enumerators and enumerators and vice-versa,
- (iv) train his enumerators,

- (v) control the quality, progress and timeliness of the work of his chief enumerators and enumerators and keep the necessary control records, and
- (vi) prepare a count of housing units, households, and persons by sex for each enumeration area.

The chief enumerator had to

- (i) reconnoitre the area assigned to him with his Supervisor,
- (ii) carry out the enumeration of all buildings, housing units, households, commercial and industrial establishments, institutions, hotels and boarding houses in each enumeration area assigned to him, and prepare counts of valid schedules, housing units, households and persons for each enumeration booklet,
- (iii) compile lists of heads of households and their addresses for control purposes and for allocation of workloads at the Population Census, and
- (iv) control the work of a team of about 5 enumerators at the Population Census.

The enumerator had to

- (i) deliver population census questionnaires and guides to about 50 - 75 households three to four days before the census night,
- (ii) help the heads of households to fill the questionnaire if they were unable to do so,
- (iii) call on each household to collect the questionnaires after checking that they have been correctly filled in and after correcting any errors, omissions and inconsistencies, and
- (iv) make call-backs to households to correct errors and to obtain missing information when necessary.

3.1.4 Training of fieldstaff

(a) Housing Census

Training of fieldstaff for the Housing Census started with the training of the senior supervisors and supervisors; this first session was conducted by the chief supervisor in January 1990 and lasted three hours. During the training session, stress was laid on the study of the Instruction manuals (Instructions for supervisory staff and Instructions for chief enumerators) and the filling in of the Housing Census questionnaire. Senior supervisors and supervisors were also instructed on how to carry out their duties, specially with regard to the training of the fieldstaff working under them, the pre-enumeration field visits, the use of census maps, the timely transmission of information and control of census documents from the Office to the field and back, and the supervision and control of the fieldwork. Further, they were briefed on how to use the different listing sheets and control forms that were designed to monitor the field activities. As part of their training programme, they were requested to make field visits to ensure that they were able to identify all geographical boundaries on the field.

Training of the chief enumerators was carried out a week later by the senior supervisors in the presence of the supervisors. The training involved the study of instruction manuals (Instructions for chief enumerators) which, in addition to elaborating on the concepts and definitions, map reading and field reconnaissance, house numbering, route of delivery, the updating of census maps and the filling in of the questionnaires, covered various aspects of the 1990 census, such as the objectives and background, the uses

of census data, the coverage, the methodology adopted, the legal provisions and the field organisation. These information, though not directly relevant to the execution of the fieldwork, were thought to make the interviewers more equipped to perform in an efficient way. Due emphasis was given on the approach in order to create rapport between the respondents and the interviewers and also on ways to tackle difficult and special cases. The formal session of three hours was supplemented by informal meetings, whereby the supervisors ensured that all instructions were correctly understood and that any doubt, that might in one way or another affect the smooth running of the enumeration, was clarified. Further, problems encountered on the field and which were not dealt with during the training sessions were discussed and solved during the weekly meeting of the chief supervisor with the senior supervisors; the instructions were then promptly transmitted to the supervisors and subsequently to the chief enumerators through regular meetings between the different grades of fieldstaff.

(b) Population Census

Training resumed with the Population Census in June 1990. The training began with a session for the senior supervisors, conducted by the chief supervisor. The training of supervisors and chief enumerators was later taken up by the trained senior supervisors. Class training, which lasted three hours, included the study of the "Instructions for fieldstaff" manual, the "Census guide and instructions" and the filling in of the population census forms. The supervisory aspect of the fieldwork was also covered.

Training of the enumerators was carried out later by the trained supervisors, in the presence of the chief enumerators. Special attention was given to aspects directly related to the fieldwork, such as map reading, route for delivery of census forms, briefing of head of household on how to fill in census questionnaire and the way to deal with special cases. Further, as part of their training, the enumerators and chief enumerators were asked to fill in a census questionnaire for their respective household. The formal session lasted for one half-day; however, supervisors were expected to meet their fieldstaff regularly to clarify any confusion. As for the Housing Census, the weekly meeting of the chief supervisor with the senior supervisors was maintained to discuss and solve problems met on the field.

3.2 Recruitment and training of editors and coders

3.2.1 Recruitment

Recruitment of the editors and coders was done by the Establishment Division of the Prime Minister's Office. Fifteen statistical clerks were recruited on a temporary basis in January 1990 and all of them were engaged in the editing and coding of the census forms. Between July and December 1990, small batches of trainee clerical officers joined the unit, bringing the total number of editors and coders to 44. Most of the recruits stayed until the end of the operation, although at one time, it was feared that many of them would be leaving for better jobs.

3.2.2 Terms of appointment and duties

The trainee clerical officers and the temporary statistical clerks were all employed on a monthly basis. The statistical clerks engaged in the editing and coding operation were paid Rs 2,250 monthly and the trainee clerical officers Rs 2,175. At the end of the job, the temporary statistical clerks were posted in other units of the office while the clerical officers were released in small groups to work in different ministries.

The main duties of the clerical staff consisted in the editing and coding of the census forms. However, between the editing and coding operations of the Housing and Population forms, they had to prepare addressed Population Census forms and batches of census materials that were issued to fieldstaff; some of them also helped in the preparation of appointment letters to fieldstaff while others helped in the reception of completed census forms, record of manual counts from the fieldstaff, and issue of coded and edited census forms to the data entry unit.

3.2.3 Training

Training of the editors and coders was done by the statistician in charge of the unit in small groups as and when they joined the unit. The training included the study of the census forms and the editing and coding instruction manuals as well as the explanation of the various codes used.

The Housing Census forms being largely pre-coded, only the locality codes and the economic activity codes of the establishments had to be inserted. However, since it was decided to treat the section on establishments as a separate exercise, only the locality codes were explained. The editing was, nevertheless, more important; specific instructions were given on how to check for consistency and completeness of the information collected. Further, a special table containing the various possible skip patterns and the actions to be taken in each of these cases was designed and studied.

The Population Census form contained thirty-six questions, all of which had to be coded. Consequently, the training was more time-consuming and complex as compared with the Housing Census. It included explanation of, and the familiarization of the various codes used, namely those used for locality, field of study, the economic activity and occupation. In addition to the codes, the skip patterns and consistency checks were covered during the training session. As part of the training, the editors and coders were asked to work with questionnaires that had been filled earlier by the fieldstaff for their respective households. Training was essentially an on-going process; during the editing and coding exercise, the supervisory staff, by scrutinising the edited and coded forms of each officer, had to ensure that the instructions were understood and followed. Further, to achieve uniformity, problems that arose almost daily in the coding and editing process and that were not covered in the instruction manual were discussed and clarified during the weekly meeting of the editing and coding supervisors with the principal statistician.

3.3 Census Cartography

3.3.1 Geographical divisions

The Republic of Mauritius is divided into ten geographical districts; nine of them are found on the main island while the tenth district is constituted by the Island of Rodrigues. These divisions, which date back to the time of the French occupation, no longer stand for any administrative entity; however, the district demarcations are well-known to most people.

At the time of the 1990 census, the Island of Mauritius was divided into eight administrative areas, namely, three District Council Areas and five Municipal Council Areas while the Island of Rodrigues was administered by the Ministry of Rodrigues. The Municipal and District Council Areas were further broken down into smaller areas called Municipal Wards and Village Council Areas respectively; however, there were some regions that did not fall within the limits of any Municipal Ward or Village Council Area. There were 19 Wards within the Municipal Council Areas (MCA) and 100 Village Council Areas (VCA) within the District Council Areas; Wards were considered urban while Village Councils Areas and the outside regions were considered rural.

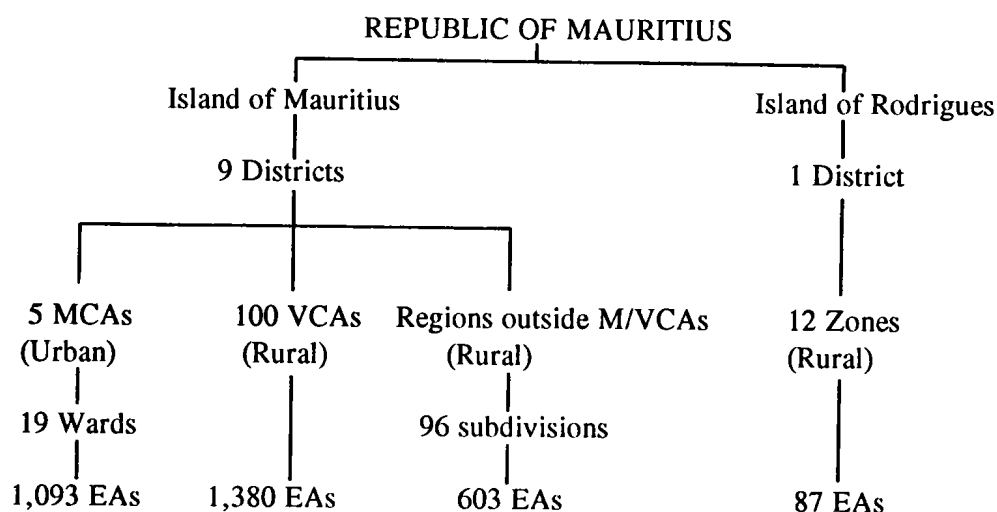
There exists a third division, the Electoral Constituency division which is used for the Legislative Elections. There are twenty electoral constituencies on the main island and one on the Island of Rodrigues.

3.3.2 Census enumeration divisions

Because of the various types of boundaries that exist and the overlapping of one type on the other, a census mapping that would take into consideration all existing boundaries was a complex and an almost impossible exercise. It was therefore decided to use the Municipal Council Areas (MCA) and the Village Council Areas (VCA), which constitute the administrative regions and for which regional level data

would be most relevant, as the starting point for the subdivision of the country into enumeration areas (EA). This however did not exclude the possibility of producing tabulated data for other geographical divisions.

The chart given below shows the census enumeration divisions used.



In splitting the MCA/VCAs into EAs, care was taken to provide clusters with well-defined and easily recognisable boundaries and of, as far as possible, roughly the same size. On the average, enumeration areas contained about 65 households in the rural regions and 80 in the urban regions, although the range of variation was from 0 household in uninhabited EAs to about 360 in the most ones.

Regions outside the MCA/VCA limits were broken into subdivisions according to the location of person agglomerations. Each subdivision was given the name of the most important locality found therein and was treated in the same way as a VCA so that the same procedure described above was used in the creation of EAs out of the outside regions.

3.3.3 The cartographic work

The work of the cartographic unit of the office consisted of the continuous process of map updating after field visits. Maps that had been used for the 1983 census and for other intercensal surveys were available; however, these needed further updating.

Various base maps were used in the preparation of census enumeration maps for the fieldstaff; these were on three different scales, namely the 1:2,500, the 1:25,000 and the 3:10,000. Base maps on the scale of 1:2,500 were acquired as and when they were available at the Ministry of Housing. For regions where such scaled maps were not available, 3:10,000 maps were used even though they were not as good as those on the 1:2,500. 1:25,000 maps were used mostly for rural regions where there was little or no habitation.

At the beginning of the year 1988, an inventory of existing maps was made to have an assessment of the work already covered. For enumeration maps to be ready by the end of 1989, field visits were done almost every day and due attention was given to areas where there had been considerable development in terms of new settlements. Fieldstaff of the cartographic unit were requested to provide estimates of the number of housing units in the different regions covered by them, these estimates being important in the allocation of workloads to the fieldstaff working for the census enumeration. Updating of the base maps was done as and when field visits to the various regions were completed. The main task, thereafter, was the production of Supervision Area maps and Enumeration Area maps: relevant boundaries of Geographical Districts, Municipal Wards/Village Council Areas, Electoral Constituencies and Enumeration Areas were inserted on the updated maps which all carried the main ground features of the regions. Supervision Area maps which showed agglomeration of Enumeration Areas falling under the

control of a Supervisor were less detailed than Enumeration Area maps and were produced on a 1:25,000 scale; conversely, EA maps, which were needed at a more detailed level were produced on 1:2,500 or 3:10,000 scales.

Fieldwork in the Island of Rodrigues consisted of a two-week visit by two officers of the Cartographic unit in May 1989. Area maps used for the 1983 census were then updated accordingly. The boundaries of the previous census enumeration areas were retained, except in the few cases where equitable allocation of workloads dictated otherwise. The EAs were then grouped under twelve zones; a geographical identification code was assigned to each of them according to the new hierarchical system.

All the cartographic work was done manually in spite of the acquisition of a computer, and other cartographic equipment, software and materials necessary for the automisation of the work. The acquisition was, however, made less than a year before the census and no trained personnel was and is still available because of difficulties in obtaining the services of an expert in the subject.

3.3.4 Geographical coding system

The software used in the tabulation of the census data (CENTS) provides the facility of producing tables at any defined geographical level; the tables thus produced can easily be summed to higher levels, if required. This area processing aspect of CENTS, however, necessitates a hierarchical structure of the geographical area codes. In this context, the requirements of CENTS, played an important role in the preparation of the geographical codes.

The chart on the previous page shows the census division hierarchy used. However, in the geographical coding system used, the Island of Rodrigues was given the code of the tenth district of the Republic, rather than an island code. The district code consisted of a one-digit number varying from 0 to 9; the Municipal Ward/VCA code carried a two-digit number, which, when associated with the relevant district code gave a unique Municipal Ward/VCA identifier. An EA was identified uniquely by a five-digit code which comprised the Geographical District code (1 digit), the Ward/VCA number (2 digits) and the EA number (2 digits). Enumeration Area codes were used in all control and processing procedures.

It happened, in a few cases, that a VCA was extended over two districts. The same hierarchical coding procedure was applied to each part of the VCA, each part bearing the code of the district in which it is found, so that the VCA finally ended up with two different geographical codes.

Other geographical subdivisions, such as electoral constituencies and localities were also used; these, however, constituted geographical hierarchies different from the above.

3.4 Publicity

The previous Housing and Population Census took place seven years ago and since then, there have been numerous surveys so that when the census took place in 1990, people in Mauritius were sufficiently exposed to these types of exercises and aware of their importance. However, because of the national character of the census, it was found necessary to have a publicity campaign to mobilise and convince the population of the relevance and usefulness of the census; at the same time, the guarantee of confidentiality in the handling of information collected was stressed upon.

The publicity materials included a census caption, posters, video and audio spots as well as press conferences and communiques, and interviews. Caption and posters were designed by the Mauritius College of the Air (MCA) and printed by the Government Printer while the publicity spots which were also prepared by the MCA, were broadcast and telecast by the Mauritius Broadcasting Corporation. The same publicity materials covering the housing and population topics were used throughout the whole publicity campaign. The aim was to treat the census as one exercise conducted in two rounds, the Housing Census and the Population Census.

The publicity campaign for the Housing Census and for the Population Census was launched with press conferences by the Minister of Economic Planning and Development on the 1 February 1990 and on the 15 June 1990 respectively. These were followed by regular transmission of the video and audio spots in three different languages, namely, French, Creole and Bhojpuri during hours where it was expected to reach a wide audience; the spots were transmitted more frequently during the first weeks of February 1990 for the Housing Census and around the census night for the Population Census. Further, the Director of Statistics and his deputy made short interventions on radio and television in Creole and Bhojpuri for both the Housing and the Population Censuses where they stressed on the confidential aspect of the information collected and appealed for the co-operation of the public. As from February 1990, posters were displayed in schools, industrial and commercial establishments and other public places.

3.5 The Enumeration

The 1990 census was conducted like the previous two censuses in two rounds, the Housing Census and the Population Census. The official dates for the Housing Census were from 5 February 1990 to 17 June 1990 while those for the Population Census were from 18 June 1990 to 15 July 1990, with the night of 1 July 1990 as the reference night.

In spite of the fact that a five-month period was officially allowed for the Housing Census enumeration, field enumeration was completed earlier in April 1990. The official dates allowed collection of information from the households until the 17 June 1990; field enumeration therefore had to be completed earlier so that any call-backs or queries could be done within the prescribed time limit. Similarly, to allow sufficient time for possible call-backs to correct errors and complete missing information, field enumeration for the Population Census was completed during the first week of July 1990 in spite of the fact that the official dates were from 18 June 1990 to 15 July 1990.

3.5.1 Housing Census

The enumeration work was organised by EA. It was important that the enumeration exercise within each EA be done in a systematic way to ensure that all buildings, housing units and households within the limits of the area were included. This necessitated a good planning of the enumeration work which involved the subdivision of each EA into blocks and the canvassing of one block after the other until enumeration of the whole EA was completed.

One or two weeks before the census, chief enumerators made field reconnaissance to ensure that they were well-acquainted with the boundaries and ground features of the areas allocated to them. With the help of their supervisors, blocks with well-defined boundaries such as roads, lanes, rivers, mountain sides and cane fields were identified within each EA; EAs were then subdivided accordingly and blocks within each EA were given a two-digit code starting with 01. The Chief enumerators then proceeded with the enumeration of buildings within each block in a logical and orderly way, starting with block number 01. Each enumerated building was assigned a unique identification number consisting of the two-digit block number and a three-digit serial number of the building; thus the first building in block 01 was given the identification number 01/001, the second building 01/002 etc.. These numbers, besides being recorded on the census form, were written on the enumerated buildings in a conspicuous place so that they could be spotted easily by the supervisors during control fieldwork and by the enumerators during the population enumeration. Chief enumerators had also to indicate on the EA census maps their starting point as well as their route of travel for each block covered so as to facilitate the control work of the supervisors.

Information was collected in enumeration booklets of 25 census forms. Since data organisation in the Office was done by EA, chief enumerators were asked to keep booklets used for one EA separately from those used for another EA. Further, to avoid bottlenecks at the processing operations, batches of booklets were returned to the Office as soon as the work for an EA was completed.

Chief Enumerators had also to prepare list of heads of households, vacant housing units and housing units under construction which they had enumerated, as well as the addresses and the number of persons in the occupied households for each EA. These lists were used later for the assignment of workloads to enumerators.

3.5.2 Population Census

An addressed Population Census form, containing the name and the address of head of household as well as other geographical information, was prepared for each household enumerated at the Housing Census. Addressed forms for hotels, institutions, vacant housing units and housing units under construction were also prepared.

Each enumerator was given a list of households to be visited, an addressed census form for each household, including the hotels and the institutions, as well as addressed forms for the vacant housing units and housing units under construction. He was also provided with a few unaddressed census forms for newly-formed households and for households that were possibly missed at the Housing Census, as well as a form to record the names and addresses of heads of the newly-formed, and missed households. The distribution of the census forms and guides was done during the week preceding the census night, i.e, from 23 to 28 June 1990. The enumerator was given specific instructions on how to use the list of addresses provided to him and which was prepared earlier at the housing enumeration phase. By inserting appropriate remarks for each entry on the list at the distribution and collection stage, the enumerator was able to control and monitor his work on the field; he was able to know whether all the forms had been delivered, and subsequently collected, whether a household had moved to a different address, or whether a vacant housing unit or a building which was under construction was now occupied, etc.

Heads of households were requested to complete the census forms in its entirety after studying the instructions given in the "Census guide and instructions". However, if a household was unable to fill the form, in part or in full, it was the duty of the enumerators to complete or fill in the form according to the statements provided by the head; further, the enumerators had to be prepared to answer any questions relating to the particulars on census form or to the census in general.

Concerning the enumeration of persons in hotels and institutions, special arrangements were made with the managers or the responsible officers. In the case of hotels, only the first nine columns of the census form were filled in for non-Mauritians usually residing outside Mauritius while the whole census questionnaire had to be completed for the hotel employees who were on duty on census night. For hospitals, infirmaries, asylums and prisons, since it was difficult to obtain all information requested, information from the administrative records was used to complete as many columns as possible.

After delivery of the census forms, a meeting of the Supervisors, Chief Enumerators and Enumerators was held to settle problems encountered during the delivery of census forms to the households and also to assess the situation on the field.

Collection of the forms began on the 2 July 1990 and lasted until the 7 July 1990. When collecting the form, enumerators had to ensure that all information collected was legible, consistent and complete. They were also requested to confirm or correct the person count for each household appearing on the list provided; any discrepancy between the two counts had to be accounted for.

Because of the remoteness of the Islands of Agalega and St Brandon from the mainland and the absence of regular transport facilities, it was not possible to apply the same enumeration procedures on these two islands. Only the population was enumerated. Meteorological officers in post on the islands were instructed by radio to collect basic data such as name, residential address, sex, age in completed years, date of birth, citizenship, marital status, religion, highest educational qualification, highest certificate in vocational or technical training, fields of study and current occupation of all persons on the islands. The

collected information was then mailed to the Office on the main island where it was transferred on to census forms.

3.5.3 Control of quality of field work

The quality of the field work, depends not only on training of the field operators, but also on day-to-day control and supervision of the work.

At the beginning of the enumeration work, supervisors were requested to accompany their enumerators during at least one of first visits to ensure that the approach and interviews were done in a correct and civil manner and that forms were filled in according to instructions given. Further, they had to go through the completed questionnaires to see that the work was continued in the proper way and had to carry a number of reinterviews to ensure that the enumerators had not missed any units. Surprise and prearranged field checks were made to ensure that both the progress and quality of work were satisfactory and that deadlines were respected.

In connection with the field activities, all supervisory staff had to keep a diary of their activities on the field. This day-to-day record highlighted the time and date of the activity, the type of activity, the name and grade of persons involved, problems encountered as well as the actions taken to remedy the situation. For example, a supervisor, while showing the EA limits to one of his enumerators found that the boundaries of a given EA were not clear; he reported the problem to the cartographic unit who immediately cleared any misunderstanding. While carrying out reinterviews, he found that an enumerator had misunderstood the definition of household and therefore had to clarify the point, do the interviews over again and accompany the enumerator for some time. All these activities had to be reported in his diary. This allowed him to follow the progress of work and assess the performance and shortcomings of each and every field staff working under him. Further, it gave an opportunity to the chief supervisor to check whether the supervisory control was constantly done on the field.

3.6 Receipt of Questionnaires, Storage and Movement Controls

3.6.1 Housing Census

The movement and control of completed housing census booklets was organised according to EA batches. Chief enumerators were instructed to group together all completed booklets relating to one EA before returning them to their supervisors. The EA booklets after having been verified by the supervisors were handed over to the senior supervisors for a final verification. Senior supervisors then had to submit the verified batches to the office as early as possible so as to avoid bottlenecks at the control unit and subsequently at the processing stage. Control forms were used to record the date of reception, the name of the senior supervisor, the EAs covered together with the number of Housing Census booklets used and the number of households and persons enumerated in each EA. These control forms were used to assess the progress of work on the field and by checking against a masterlist to ensure that all EAs were being covered.

Similar control forms were prepared to record the movement of the batches from the control unit to the coding and editing unit and from the coding and editing unit to the data entry unit. All units had to keep a record of the batch movements on specifically designed control sheets. These contained records of the dates of reception or delivery, the EA codes, the number of books in each EA and the name of the person receiving or delivering the batches. Finally, batches that had already been keyed in were sent to the store where they were kept in an orderly manner so as to facilitate the retrieval of batches, whenever needed.

3.6.2 Population Census

A similar approach was adopted in the control of movement of the Population Census forms. Enumerators had to return completed census questionnaires to their Chief enumerators as soon as they completed their workloads. After having verified that all questionnaires issued to the enumerators had been received and ensured that data collected were consistent and complete, chief enumerators had to arrange all census forms in batches of EA. The batches were then returned to the supervisors for further verification and finally to the senior supervisors and to the control unit. As for the Housing Census, special control sheets were designed and kept in the various sections concerned.

3.7 Editing and Coding

3.7.1 The Housing Census

Editing and coding of the Housing Census questionnaires started during the last week of February 1990 and lasted until the end of April 1990. A team of 32 editors/coders/supervisors was involved in the manual consistency checks followed by editing and the coding of 11,200 booklets of 25 census forms. However, since not all the 25 forms in a booklet were used, it was estimated that about 225,000 forms were handled. On the average, an officer edited and coded about 250 census forms daily.

Editors had to make a global check of the EA batch before proceeding to the consistency checks and editing of the information collected. Thus, they had to verify that all booklets within the EA batches were present and tagged in the appropriate order and that the geographical codes inserted on the cover of the booklets were the same for a given EA batch; they had to check the consistency of block numbering, the continuity of building enumeration numbers within blocks as well as the consistency of serial number of housing units. Editors then proceeded to the consistency checks and editing of the information collected according to instructions given in the manual. They also had to verify that the titles, names and addresses of heads of households, names and addresses of hotels and institutions, vacant housing units and buildings under construction were properly recorded. Further, following instructions given in a specially designed table for actions to be taken for the various skip patterns, they had to insert on the schedules, remarks which would help the data entry operators later in their work.

The Housing Census form being largely pre-coded, only the locality codes had to be inserted. The editing and coding of Section VI of the form, which concerned the commercial and industrial establishments, was treated as a separate exercise and was carried out when the processing of data on the housing units was completed.

3.7.2 Population Census

The editing and coding of the Population Census forms started in August 1990 and ended in April 1991 when about 237,100 questionnaires containing 1,075,000 entries were handled. A maximum of 44 editors and coders and 10 supervisors were involved in the exercise.

The editing and coding of the population census forms was a more complex and time-consuming task than that of the housing census. The geographical codes which were extracted from the Housing Census forms and which appeared on the labels of the population census forms were still valid so that coding of the geographical fields was not needed; however, all the other answers had to be coded.

The first part of the editing exercise consisted of the batch verification on the whole: editors had to check the consistency of the geographical codes within a given EA batch, the presence of geographical codes on unaddressed forms that had been used for the enumeration of newly-formed households and households that had been missed at the housing enumeration, and insert appropriate remarks on multiple forms used for households with more than 10 persons as well as on unused forms. The editors then proceeded to the consistency checks and editing of the individual forms following the instructions given

in the manual. Some of the checks were the verification of the presence of only one HEAD per household and the sequential numbering of the entries, the consistency between the age and year of birth, the consistency between the name, relationship and sex, the consistency between the age and the marital status, the consistency between the education level or attainment and age.

Various code lists were used in the coding operation; these were the locality codes, the country codes, the highest qualification codes adapted from the International Standard Classification of Education (ISCED), the 3-digit national economic activity codes adapted from the 1968 International Standard Industrial Classification (ISIC) and the 1988 International Standard Classification of Occupations (ISCO). Because of difficulties felt by the editors/coders in understanding the codes involved in questions on economic activity, a system was designed so that a given questionnaire was handled by two officers; the first one edited and coded the part prior to the economic activity while the second one edited and coded the economic activity part. The group working on the second part was chosen according to its ability to understand the different codes involved. The implementation of this system had, as result, a considerable reduction in the number of coding errors as well as an increase in the number of forms handled daily by the team.

Because of space problems at the office, the 54 persons involved were accommodated in four different rooms at different levels of the office building. To ensure uniformity in the editing/coding, much effort had to be made for the quick transmission of information on how to tackle unforeseen editing and coding problems to the different officers. Further, the accommodation of officers at four different levels of the building entailed a more rigid control in the movements of questionnaire batches to and from the different levels.

4. DATA PROCESSING

4.1 Introduction

Previously, the processing of the census data was done by the Data Processing Division (DPD) of the Ministry of Finance on mainframe. However, because of problems encountered in the past, such as staff turnover and priority of other applications, which caused severe delays in the production of census tables, as well as the inability to obtain tables at disaggregated level, the Office decided to assume responsibility for data processing using microcomputers. The processing operation included data entry, data editing and tabulation. In this respect, the office opted for the IMPS software (Integrated Microcomputer Processing System) which is a package developed by the International Statistical Programs Center (ISPC) of the US Bureau of the Census and specifically designed for census and survey data processing. The software has separate modules that can be used independently; these are

DATADICT	- Data dictionary
CENTRY	- Data entry
CONCOR	- Edit and Imputation
CENTS	- Tabulation of publication tables
QUICKTAB	- Frequency and cross-tabulation
CENTRACK	- Data capture management and control

In 1989, the office started to build up the necessary data processing capability in terms of equipment as well as human resources so that by the beginning of 1990, the data processing unit was operational.

During the pre-census period, some twelve officers followed an in-house three-week training session on the DOS operating system, Data Entry (CENTRY) and Tabulation (CENTS) conducted by the regional adviser in data processing of the Economic Commission for Africa (ECA), although only half of them subsequently stayed in the Census division. Between 1989 and 1991, five professionals attached to the census division were sent to ISPC in USA, where they were given the opportunity to participate in an IMPS workshop or to acquaint themselves with the use of microcomputers in census operations.

In terms of data processing equipment, the office acquired twenty three microcomputers with hard disks and two Laser printers. Twenty micros were used exclusively for data entry and verification while the other three were for data processing.

4.2 Data Entry and Verification

As mentioned earlier, twenty micros, five ALR of 30MB capacity and 0.5 MB RAM and fifteen ACER of 40MB capacity and 1 MB RAM were available for data entry and verification. The data entry software used was CENTRY, the data entry module of IMPS Version 1.0.

The data entry staff was composed of twenty operators and four supervisors who worked on a one-shift and five working-day system. Seven of the twenty operators were specially recruited for the census data entry exercise in January 1990; the remaining thirteen who were experienced operators borrowed from the DPD joined the data entry unit two weeks later. The supervisory work fell under the responsibility of two trained statisticians of the census division supported by two statistical assistants. The data entry exercise for the Housing Census started in March 1990 and ended in May 1990 when data for about 225,000 questionnaires were keyed in.

4.2.1 Training of the data entry operators

Training of the operators started in February 1990 with the posting of the data processing expert recruited by the United Nations Department of Technical Co-operation for Development (UNDTCD). After consultations with higher-level staff involved in the various stages of the census-taking, the expert reviewed the data entry application programme written earlier by the statisticians and installed the whole data entry system on the twenty work stations. The training lasted for one month during which some 1,000 dummy questionnaires were used to test the data entry and verification procedures and all problems solved before the 1st of March when data entry for the Housing Census started. Further, a set of comprehensive instructions for data entry and verification was prepared and given to each operator.

4.2.2 The Housing Census questionnaire

The Housing Census questionnaire contained six sections:

- I - Location,
- II - Type of building,
- III - Characteristics of the building,
- IV - Housing units,
- V - Households and
- VI - Commercial and industrial establishments, hotels and boarding houses.

Basically, the Housing Census questionnaire was designed to record information on one housing unit, up to three households and one establishment. A simple and most common questionnaire would contain data for one housing unit accommodating one household; such questionnaire was made up of 36 fields of 143 characters, including the name and address of the head of household. However, in practice, a variety of situations occurred: a building could be completely residential with one or more housing units; it could be commercial or industrial with one or more establishments; or it could be partly-residential; further, more than three households could be living in a housing unit.

Because of the complex situations that occurred on the field, different broad groupings were identified for the purpose of data entry and processing. These were:

- (i) the Batch,
- (ii) the Questionnaire,
- (iii) the Record Type I and
- (iv) the Record Type II.

The batch identification was made up of the first five geographical location fields on the census form: these were the GEOGRAPHICAL DISTRICT, the MUNICIPAL/VILLAGE COUNCIL AREA, the ENUMERATION AREA, the URBAN/SEMI-URBAN/RURAL, and the CENSUS DISTRICT fields. The Questionnaire identification consisted of the next eleven fields; these were the LOCALITY, the BLOCK NO., the BUILDING ENUMERATION NO., the NO. OF HOUSING UNITS IN BUILDING, HOUSING UNIT NO., the BUILDING TYPE (Section II) and the four fields of the CHARACTERISTICS OF BUILDINGS (Section III). Record Type I and II contained data on housing units (Section IV) and households (Section V) respectively. Information collected on Commercial and Industrial Establishments, Hotels and Boarding Houses in Section VI was captured and processed after the data entry and processing of the Housing and Population Census data were completed; list of names and addresses of establishments obtained therein was subsequently used as a partial frame for the forthcoming Census of Economic Activities.

An exact estimate of the total workload in terms of keystrokes for the data entry operation was difficult to obtain even though the number of keystrokes performed by each operator was available from the software. This did not constitute the actual workload of the operator since it took into account

keystrokes that had been typed in by mistakes, in addition to those entered in the process of correcting the errors. Nevertheless, a calculation based on 225,000 households indicated that Housing Census data entry and verification operation entailed about 50 million keystrokes.

As for the previous census, the names and addresses of heads of households were keyed in; these were used later in the production of address labels for the Population Census questionnaire.

Also, in order to avoid extensive automatic editing of the census data, a 100% verification was opted for.

4.2.3 Control of flow of questionnaires

A manual system was set up to control the flow of edited and coded questionnaires from the editing and coding unit to the data entry unit, and within the data entry unit. As mentioned earlier, all questionnaires were circulated in batches corresponding to an EA and the EA identification codes, being unique and readily available from the cartographic unit were used at all control stages. Various control forms were designed for each of the control stages. Thus, when the data entry supervisor received questionnaires in EA batches from the editing and coding unit, he had to record receipt on the appropriate form as well as the date of receipt and the number of questionnaires in each EA batch. These forms were produced in duplicate so that both the editing and coding unit and the data entry unit were able to keep track of the EA batches. The supervisors, when assigning work to the operators had to keep a record of the EA batches given away for punching or verifying, the date of assignment and the name of the operator; similarly, when he received the keyed-in batches, the date of completion was recorded, all these information being necessary for the daily control and monitoring. By maintaining careful records, the supervisor was able to know the whereabouts of any given EA batch received for keying at any time. Further, these control lists were, from time to time, checked with the master list of EAs to avoid duplication and also to assess the progress of work.

4.2.4 Data entry procedure

Data were keyed in enumeration area batches. The geographical code of the EA which consisted of five digits (the district(1), M/VCA(2) and EA(2)) was used to name the EA batch file; the file extension, being .BCH, was automatically provided by CENTRY. As the size of a batch was, most of the time small, some five to seven EA batches were put together to constitute the workload of an operator. The operator was given his workload as well as an empty formatted diskette carrying a label showing the EA batch identifications of his workload, which, were returned to the supervisor only on completion of his work. Each of the operators was assigned an identification code which was used in all keying and verifying operations.

The data entry system, besides the CENTRY component of IMPS, consisted of a series of batch files (.bat) which made the task of both the data entry operators and the supervisors easier. Thus, at the time of initial boot of the computer, the machine was automatically set to the required directory and executed the appropriate data entry programmes so that the operators did not need to go beyond the keying instructions.

Data entry and verification operations were performed directly on the hard disk within the directory "HC" which was used as work directory throughout the keying operation. Once the data entry of the EA batches constituting the operator's workload was completed, the operator would call the supervisor, who, by means of a batch file (.BAT), transferred all the files connected to his work, i.e, the data files (.BCH) and the pointer files (.BOP) and the statistics files (.LOG) to a different directory "BKPDE" on the hard disk and to the floppy diskette. The directory "BKPDE" was created to contain files of batches that had been keyed in once only. At the same time, all files in the "HC" directory in which the operator had been working were erased. It should be noted that all the files carried the same 5-digit geographical codes of the given EA, the extension being different (BCH, LOG, BOP). The EA(s) booklets and the diskette

containing the data files, which now constituted the work unit for verification, were then put aside for verification by a different operator and therefore on a different station since each operator worked on the same work station throughout the whole process and since no operator was allowed to verify his own batch.

The verification procedure was more or less similar; batch files (.BAT) were used to transfer all files (.BCH,.LOG,.BOP) from the floppy disk to the directory "HC" of the hard disk; simultaneously, all files on the floppy diskette were erased. The operator was then able to proceed to the re-keying of the EA data in the directory "HC". At the end of the verification operation, the verified data files with the associated files were copied to the floppy diskette and to the hard disk directory "BKPVER" which contained verified files only. Again, the "HC" directory were cleared of all files so that the operator could start afresh whilst the floppy diskette with the verified data files was passed on to the data processing unit for further checks and subsequent backups.

4.2.5 Problems encountered

The workload of an operator being made up of several EA batches, the supervisor had to see that a new EA file was created each time the operator started to key in data for a new EA. When a file (.BCH) was created, CENTRY asked for the batch identification number which, in addition to the EA identification codes, consisted of other geographical codes, all of them being unique for an EA. CENTRY allowed this batch identification number to be entered once only and only at the beginning of the entry operation. Any confusion, at this stage, would cause the merging of questionnaires of different EA batches in one data file carrying the identification number of the EA batch that was keyed in first. This type of error, however, happened very rarely; supervisors were able to detect such mistake at the end of the keying operation when the operator had to report the number of questionnaires CENTRY had accepted, the number being available from CENTRY screen. This was then verified with the control list of EAs received from the editing and coding unit and on which the number of questionnaires in each EA batch appeared. Any important discrepancy between the two numbers was, most probably, due to the merging of the EA batches.

It also happened that, in some cases, the name of the EA data file (.BCH) differed from the EA code which appeared in the batch identification number in the data file. Either one could have been mistyped. This error, though not very serious for the further processing of the data provided that the batch identification in the data file, was the correct one, would have caused serious problems in the control, where missing or duplicate EA files would have had to be handled. However, the mistake was revealed when producing address labels; the computerized reference table used in the production and printing of labels provided a means to verify that all EA batches were entered once only and that no EA batch was missing (See 4.2.8 - Production of address labels). Further, in order to avoid any confusion, a programme was run on each EA data file before the final backup or before any further processing. The programme checked the consistency between the file name and the batch identification number contained in the data file; any file which was found to contain such inconsistency, was returned to the Data Entry unit for investigation and correction.

It happened that, because of field queries, some questionnaires belonging to a particular EA were submitted after data for that EA batch had already been captured and backed up. To avoid calling back the appropriate data files for insertion, or creating new files, the stray questionnaires were put aside until data of all EA batches have been entered. A single file was then created to contain those late-coming questionnaires, irrespective of the EAs to which they belonged. This file, which was given a fictitious name, was considered as a normal file and had to undergo the various possible procedures of control before its final backup.

Other problems encountered during the data entry procedure concerned mostly the limitations of the software, Centry, with respect to the questionnaire. In spite of the fact that the editing and coding of the housing questionnaire was simple and straightforward, data entry proved to be difficult, the reasons being:

(a) Because of the various combinations of building/housing unit/household/establishment that could possibly exist on the field (See 4.2.2), the design of an appropriate data dictionary and data entry application that would make the data entry straightforward without rendering the data editing and tabulation heavy-going was not so simple. DUPLICATE, SKIP and END OF RECORD keys had to be used extensively in the data entry operation. The DUPLICATE key automatically inserted in the current field data entered in the same field of the previous record whilst the SKIP key skipped to the field as identified in the Application and the END OF RECORD key skipped over the remaining fields of the current record to the start of the next one. However, the extensive use of these keys necessitated additional work from the editors who had to insert special remarks on the questionnaire in order to avoid confusion on the part of the data entry operators.

(b) As mentioned before, names and addresses of heads of households obtained at the Housing Census were used as frame for the Population Census. It was often possible for a housing unit to accommodate more than one household. In such a case, all heads of households living in that housing unit would have the same address. Since, the version of CENTRY used did not allow the use of DUPLICATE key for alphabetic characters, the same address had to be keyed in as many times as there were households in the given housing unit. The non-negligible number of cases of several households living in the same housing unit and therefore having the same address, coupled with the 100% data verification, rendered the time schedule between the Housing and the Population Census more constrained: data entry and verification operation, production and printing of address labels and preparation of addressed population census forms had to be performed before the end of June 1990.

(c) CENTRY provides the availability of range checks; any value that did not fall within a certain range, as indicated in the Dictionary, was rejected. The possibility of forcing CENTRY to accept an out-of-range value made it less fool-proof. However, as the housing census form was mostly pre-coded, data entry was not affected to a great extent.

(d) Because of some unknown software problem, names and addresses entered in alphanumeric fields in the Verification Mode were not accepted even though the text keyed in matched with that originally entered.

4.2.6 Monitoring of the operators' work

All operators were called to do both the keying and the verification, but in no circumstances, someone was allowed to verify his own file. Also, care was taken to avoid situations where two operators systematically verified each other's work.

The supervisors had to be aware of the skills and the accuracy level of each of the operators so that work could be assigned accordingly. Special attention was given to new operators and those whose performance was not at the expected level. Moreover, being responsible for the whole operation, supervisors were expected to report any serious problems, such as hardware breakdown, software or system problems, rate of absenteeism etc., which would cause serious delay in completing the work on schedule.

Progress reports on the operators' work were produced on a monthly basis. In this event, the operators' statistics produced by CENTRY were widely used; summaries of their progress were obtained by running programmes on the statistics files. It was found that the average number of keystrokes per hour for the punching and verifying operation was around 9,000 with a range extending from 6,000 to 11,000 for the Housing Census questionnaire in spite of the fact that the operators had to use both the numeric and alphabetic pads during the keying procedure. The summary reports were then sent to the management of the DPD who, as an incentive for higher productivity, granted bonuses to the operators according to an already established scheme.

4.2.7 Backups of the Data files

Floppy diskettes with the verified data files and associated files were sent to the data processing unit of the Division for backup on a weekly basis. There, a check programme (see above - 4.2.5 problems encountered) was run on all data files before the final backup. Backups of all files were made on the hard disk of one of the three IBM PS2 Model 80 (115 Mb hard disk and 4Mb RAM); all EA data files (.bch) were stored in the same directory, irrespective of the district or M/VCA to which they belonged while the files containing the operators statistics (.log) were stored in a different directory. To safeguard against loss, two additional copies of the data files were made on Bernoulli cartridges, one of which was kept at the Data Processing Division of the Ministry of Finance. Once the final backups were made, the floppy diskettes were cleared of all files and returned to the data entry unit.

4.2.8 Production of Address Labels

As mentioned earlier, the names and addresses of heads of households obtained from the Housing Census were used as a frame for the Population Census. In this connection, the names and addresses as well as the geographical information which were needed to identify the household were extracted from the data files and printed on labels which were then stuck on the Population Census questionnaires.

Printing of labels was organised by senior supervisor (SS). However, since there were no priority ranking of SS in the keying schedule, there would have been a long period during which no labels would have been produced. It was therefore decided to start the extraction of the necessary information at the CE level and build up the address label files to the SS level so that printing would start only when all EAs falling under the responsibility of a given SS had been keyed in and processed.

As a first step to the production of labels, a special programme was run regularly to assess the completeness of work: the status code of EAs on the reference table containing codes of SS, S and CE as well as the EAs assigned to them, was automatically updated according to the presence of the EA data files on the computer. According to the status codes, the statistician-in-charge was able to know whether all the EAs falling under the responsibility of a CE and eventually of a SS had been keyed in. Once, all the EA data files for a given CE were found to be present, the files were consolidated and processed to produce a label file at the CE level. The file was put aside until the EA data files of all CEs working under the supervision of given SS were processed. The files containing the extracted information were then appended to the SS level and finally printed.

The printing of labels which started during the first week of May was done on two dot matrix printers (EPSON LQ 2500). By the end of the month, all labels (about 245,000 for the island of Mauritius and 8,000 for the island of Rodrigues) were printed and handed over for the preparation of the Population Census forms.

4.2.9 The Population Census

The same procedure for the data entry, control, and backup was followed for the Population Census. The Data Dictionary and Data Entry application programme were written as soon as the editing and coding instructions were available. The application programme for the Population Census was more straightforward than that for the Housing Census. Thus, for the data entry purposes, only three components, namely the Batch identification, the Questionnaire identification and the Record type 1 were identified. The Batch identification, as for the Housing Census, was made up of the first five geographical location fields; these were the GEOGRAPHICAL DISTRICT, the MUNICIPAL/VILLAGE COUNCIL AREA, the ENUMERATION AREA, the URBAN/SEMI-URBAN/RURAL, and the CENSUS-DISTRICT fields. The Questionnaire identification contained the next seven fields which were the LOCALITY, the BLOCK No., the BUILDING ENUMERATION No., the HOUSING UNIT NO., the HOUSEHOLD NO., the HOUSEHOLD TYPE and the NO. OF FAMILY NUCLEI fields. The person record constituted the

Record Type 1. However, unlike the Housing Census, names and addresses were not keyed in. Forms that were filled in during the training session were used to test the application programme.

Data entry started during the first week of October 1990 with only ten operators; the remainder, who were sent back to the DPD at the end of the data entry of the Housing Census, joined a month later when the flow of forms from the editing and coding unit became regular. The data entry operation lasted until the first week of May 1991 when data for 237,000 questionnaires containing 1,074,000 entries were keyed in and verified. The total number of keystrokes was about 170 Millions and the average speed of the operators for the keying and verification process was around 15,000 keystrokes per hour, with a range from 11,000 to 20,000.

Range checks were extensively used. However, these did not prove as useful as in the case of the Housing Census since the Population Census forms were not pre-coded. This increased the risk of inserting out-of-range codes, which, unfortunately were accepted by CENTRY through a special key known to the operators. These errors, as seen by the number of out-of-range cases in the edit report, were reduced to a minimum by a close monitoring of the editing and coding operation and a 100% verification.

The SKIP key was not used in spite of the fact that some sections of the census form referred to certain groups of the population only. This was decided upon to avoid confusion on the part of the operators and also to lighten the work of the editors and coders since, while about 225,000 forms were treated for the Housing Census, more than one million person records needed to be edited for the Population Census. Nevertheless, the END OF RECORD key proved to be important, considering the percentage of the population under 12 years who was not concerned by the last section of the form.

The main problem encountered in the data entry operation of the Population Census was the inability of CENTRY to accept a questionnaire that contained more than 100 person records. The version of CENTRY used accepted the first 100 records whilst the remaining records were lost. This happened when institutions with more than 100 persons were encountered. The software problem was discovered half-way during the data entry operation while testing some tabulation application programmes on the available data. The erroneous records of about ten institutional households that had already been keyed in had to be retrieved and correctly inserted. To make the questionnaires acceptable by CENTRY, these were broken down into smaller ones containing 100 or fewer records, each part retaining the identification number. However, a different household number was assigned to each of them to distinguish the different parts of the questionnaire. Also, as the presence of the head was important in recognising a household, only the first part was made to contain a head.

4.3 Data Consolidation and Editing

Data consolidation and data editing started when the data of all EAs had been keyed in, verified, and backed up and after ensuring that there were no missing or duplicate EA files.

4.3.1 Data Consolidation

It should be recalled that the name assigned to data files was identical to the EA code which was included in the batch identification of the respective data files. Since it was not expected to produce tables at a level lower than the EA, it was decided to create the country data file by a "directory sort" of the all EA data files followed by the concatenation of the files rather than concatenating the EA data files and then sorting the large data file in the required sequence. In doing so, a country data file sorted by EA identifier was obtained and at the same time, the problem of hard disk space needed for sorting was resolved.

The directory containing the verified EA files (.bch) were first sorted; this was followed by the appending of the files (excluding the file containing the stray questionnaires - See 4.2.5, paragraph 3) of each district together to create district data files. A correction programme was then run on the district data

file of Rodrigues; the purpose of the programme was to create fourteen meaningful zones out of the twelve existing geographical areas which were used in the enumeration operation and for which data had been captured. The data files of the nine districts of the island of Mauritius and the corrected data file of Rodrigues were concatenated in the district sequence, starting from district 1 and ending with district 0. Finally the file with the stray questionnaires was appended to the end of the concatenated file to constitute the country data file. Whilst data in the first part of the country were in the correct EA sequence, data in the appended part was not in the required order. However, because the data file containing the stray questionnaires was small, the additional space required for the intermediate files in the tabulation process was only minimal so that there was no need to bring the data of the stray questionnaires to the correct position in the country data file.

The size of the consolidated file for the Housing Census was about 40 MB; however, when the names and addresses of heads of households were removed, these being obsolete for the processing and tabulation purposes, and the file compressed, it was reduced to about 20 MB. The compressed data file of the population data was about 85 MB. The data files were stored on the hard disk of the IBM PS2 80 computers to which a Bernoulli device of two 20Mb drives was attached.

4.3.2 Data Editing

The quality of the data was expected to be high, after the close monitoring of the editing and coding operation and the 100% verification of the data. Automatic editing by CONCOR was, therefore, not used to a great extent. Once the country data file was created, a first set of tables at the Municipal Ward and Village Council Area level was produced using CENTS. These tables were then analysed to determine which edit specifications would be included in the correction programme. Further, the figures obtained for each Municipal Ward/VCA were checked against the manually compiled counts.

(a) Housing Census data

Inconsistencies were noted in three VCAs in the Housing Census data. A close investigation indicated that these discrepancies happened only in areas with institutional households and were due to errors on the part of some operators, who, because of the complexity of the data entry application, had missed to key in household records pertaining to the institutional households. The returns of the concerned institutions were retrieved from the store and the relevant data inserted in the respective EA data files before the creation of a new data file for the country. Also, series of simple one-way and two-way tables were produced by the QUICKTAB module of IMPS. Analysis of these tables and the first set of the tables produced by CENTS at the Municipal Ward/VCA level showed that the data did not need additional editing.

(b) Population Census data

Discrepancies between the preliminary counts and the tabulation counts of the population enumerated at the Population Census were noted in about twenty Municipal Ward/VCAs. However, in all these cases, the tabulation counts were found to be consistent with the Housing Census tabulated figures. The tabulation counts were therefore accepted, particularly since the preliminary manual counts from the field were found to be incorrect.

Analysis of the preliminary sets of tables produced by CENTS revealed inconsistencies within the tables and some under counts. A set of exploratory tables involving fields of the same record that were dependent on each other and in some cases, involving records of the same household was produced and analysed before writing the edit specifications. These were then incorporated in three different CONCOR programmes. Whenever possible, census returns were retrieved from the store and studied before bringing the necessary corrections to the data file through the screen.

The first correction programme produced a list of questionnaires where no head or more than one head had been reported in a household. A screen correction was used to correct 261 cases: in 84 cases involving 168 households, two questionnaires were compounded into one because the same questionnaire identifier was keyed in for both questionnaires at the data entry stage; the remaining 177 cases involved questionnaires with no head or more than one head. Once the corrections were done, the corrected EA data files were concatenated to the country file for further editing.

Corrections had to be brought to the structure of the data file to make consistent the CONCOR and the CENTS definition of the questionnaire. CENTS recognized a new questionnaire by a person record with serial number one, as stated in the tabulation programme whereas CONCOR recognized a new questionnaire only if the identifier of the record differed from that of the previous one. To correct this structure difference, a second programme which reallocated the person number in sequence so that all questionnaires began with a record with serial number one, was run. The programme also replaced all INVALID values by a BLANK.

The third programme was finally run to list and remove most of the inconsistencies found in the preliminary sets of tables produced.

After the first series of correction, an attempt was made to link the two IBM PS2 80 computers using LapLink in view of more editing; however, because of the low speed of the transmission of data (38,500 bauds) between the two hard disks, the idea was given up. Instead, the next two programmes were run on the district data files on the bernouilli cartridges; the clean district files were then consolidated to the country level onto the hard disk of the computer for the production of final tables.

It should be mentioned that the checks and edits included in the correction CONCOR programme are not exhaustive so that complete "cleanliness" of the data file has not been attained. Unlike the systematic "cold decks" and "hot decks" method which guarantees complete consistency, the procedure adopted, although more time-consuming, ensures better quality of the data

4.4 Data Tabulation

4.4.1 Housing Census tabulation

Housing Census tabulation was done using Cents Version 5.0. Twenty tables were produced and since all of them were needed at the same geographical level, namely at the Municipal Ward/VCA level, it was decided that only one run was required.

The tabulation went down to the lowest local administration unit, namely the Municipal Ward/Village Council Area. Regions, whether inhabited or not, which did not fall under any local administration were subdivided in such a way that whole subdivisions can be naturally combined with existing adjacent administrative areas, if desired. These subdivisions were given distinct area codes at par existing VCAs or MCA Wards. The series of area definitions were included in all tabulation programmes that were written to produce tables at the Municipal Ward/VCA or town/non-municipal or urban/rural levels.

Validation of the table totals were done using a short validation programme, which was run on the "clean" country data file, whereby control totals for all sub-populations involved in the tabulation, such as the number of buildings, residential buildings, housing units and households were obtained. Once the table figures were found to be correct, the table files were transferred to a word processor where some text editing (removal of duplicate lines/tables) were done before proceeding to the printing.

4.4.2 Population Census Tabulation

Because the number of tables produced for the Population Census was large, a different strategy was adopted for the tabulation of the population data. The tabulation programmes were written according to topics irrespective of the geographical level at which data were tabulated. Six sets of tabulation programmes involving the following topics were written: current activity, current unemployment, demographic characteristics, disability, educational characteristics, fertility and migration characteristics. Even though all tables in a set were not required at the M/VCA level, it was decided to produce all the intermediate table files at that level and concatenate them to the appropriate level before the production of tables. However, in doing so, problems with hard disk space arose with two sets of programmes. It was therefore found necessary to break those two sets in smaller ones, one producing tables at the M/VCA level and the other at the district level as required.

The series of area definitions mentioned above were included in all the tabulation programmes involving table production at M/VCA or town/non-municipal or urban/rural level. As for the Housing Census, a list of sub-populations was identified and the necessary filters to access those different sub-populations defined. Validation programmes were run to check the table totals and finally, text editing of the final tables was carried out following the procedure used for the Housing Census.

It should be mentioned that the tabulation software used has the advantage of producing publication-quality tables so that little text editing was needed. The printing of the tables fell under the responsibility of the processing unit of the Census Division where two HP LaserJet Series II printers were available.

5. CENSUS QUESTIONNAIRE

5.1 The Housing Census questionnaire

The Housing Census enumerated all buildings, housing units, households, commercial and industrial establishments, boarding houses and hotels. It sought to establish the stock of the different types of buildings, the number of housing units and households in the country and to collect information on their characteristics. By listing all households it also served as a frame for the Population Census.

The Housing Census questionnaire was divided into six distinct parts and their contents were as follows:

(1) Part I - Location

- Geographical district
- Municipal/Village council area/Outside M/VCA
- Enumeration area
- Urban/Semi-urban/Rural
- Census district
- Locality
- Block no.
- Building enumeration no.
- No. of housing units in building

(2) Part II - Type of building

(3) Part III - Characteristics of buildings

- Storeys above ground floor
- Year of completion
- Principal material of construction used for
 - roof
 - wall

(4) Part IV - Housing units

- Serial no. of housing unit
- Ownership
- Occupancy
- Amenities
 - Water supply
 - Availability of electricity
 - Toilet facilities
 - Bathing facilities
 - Availability of kitchen
 - Refuse disposal facilities

(5) Part V - Households

- Household no.
- Household type
- Name and address of head of household
- No. of persons
 - Total
 - Male
 - Female
- Tenure

- No. of rooms
 - used for living purposes
 - used for business purposes
- Monthly rent
- Principal fuel used for cooking

(6) Part VI - Commercial, industrial establishments, hotels and boarding houses

- Name and address of establishment
- Main activity
- Size of the workforce (whether less than 10 or 10 or more)

The questionnaire was designed to contain information on one housing unit, up to three households, and one hotel/boarding house/institution or commercial/industrial establishment. If a building accommodated more than one commercial or industrial establishment, additional questionnaires were used; however, only the concerned section, namely part VI, was filled in, all other information being identical to those in the first questionnaire. Similarly, if a housing unit was found to accommodate more than three households, additional questionnaires were used; only the part concerning the household, i.e, part V, was completed.

For practical reasons, questionnaires were bound in booklets of 25 with a cover, on which provision was made for insertion of the geographical codes of the enumeration area, the serial number of the booklet, the number of valid schedules, the counts of housing units, households and persons enumerated in the booklet. Further, booklets for one EA were kept together to constitute the EA batch. For a better control of the work at different stages of operation, the names of the chief enumerator, the editor, the coder and the data entry operator were also inserted on the cover.

5.2. The Population Census questionnaire

The Population Census questionnaire was designed to enumerate all persons present on the census night as well as all resident persons whether present or absent on that night. In addition to the part containing the geographical identification of the household, the questionnaire was made up of thirty-seven questions, fourteen of which related to the current and usual economic characteristics of persons aged 12 years and above. For the first time, questions on literacy, tertiary education, vocational and technical training and disability were included. A list of the topics and the related questions included in the census questionnaire is given below:

(1) Geographical location of the household

It should be recalled that the geographical identifications of households were extracted from the Housing Census forms and printed on labels which were used in the preparation of addressed Population Census forms. These identifications were still valid for all households at the Population Census.

(2) Surname and other name of the person

These information were asked to ensure that no member of the household was missed. Also, the listing of names of each person facilitated the checking for accuracy and completeness of each entry at the moment of the enumeration and later, if errors or missing information still persisted on the form.

(3) Demographic characteristics

- Relationship to head
 - Only one HEAD was allowed for each household.
- Sex
- Age

- Month and year of birth
This question served as a means to verify the age of the person.
- Citizenship
- Disability
- Marital Status
- Religion
- Linguistic group
- Language usually spoken

(4) *Migration characteristics*

- Whereabouts on Census night
- Usual address
- Usual address 5 years ago

(5) *Fertility characteristics*

For persons who reported NOT SINGLE,

- Age at first marriage
- Whether married more than once
- Number of children ever born (for women only)

(6) *Education characteristics*

For persons aged two years and over

- Languages read and written
- School attendance
- Primary and secondary education

For persons aged 12 years and over

- Tertiary education
 - (a) Duration of schooling
 - (b) Highest qualification
- Vocational/technical training
 - (a) Duration of training
 - (b) Highest certificate

(7) *Current economic characteristics*

For persons aged 12 years and over

- No. of hours worked from Monday 25 June to Sunday 1 July 1990
- Was there a job at which person did not work because of illness, injury, holiday, industrial dispute, off-season inactivity, temporary disorganisation, etc.?
- Did person take any active steps to look for work anytime during the past eight weeks?
- Was the person available for work during the past week?
- No. of months ago the person worked for the last time

The following referred to the person's job during the reference week or last job if person was without a job during that week

- Name and type of establishment
- Kind of business, industry or service
- Place of work
- Occupation
- Employment status
- Length of service with employer

(8) *Main activity status from January to December 1989*

- Activity status
- No. of weeks the person worked for pay, profit or family gain counting casual, intermittent and continuous employment
- No. of weeks the person was available and looking for work, counting all periods of unemployment

Each census questionnaire allowed for the recording of particulars of a maximum of ten persons. Additional forms were used whenever private households, hotels or institutions with more than ten persons were encountered; however, the serial number of persons on the additional forms had to be corrected sequentially. The HEAD of household was inserted only on the first questionnaire so that households with multiple questionnaires were counted once only at the tabulation stage.

Copies of the Housing and Population Census forms appear in Appendix II and III respectively.

5.3 Census guide and instructions

For the first time, a census guide and instructions booklet was prepared and distributed to all heads of households. The booklet, besides explaining how to fill in the census form, answered to a large extent, questions that people could ask about the census; thus the objectives of the census, what happened to the census forms once the enumeration was over, the confidential aspect and the usefulness of each data item collected were covered. The guide was both in English and French.

6. CONCEPTS AND DEFINITIONS

Most of the concepts and the definitions used in the Housing and Population Census are according to those in the handbook "Principles and recommendations for Population and Housing Censuses" (Statistical Papers Series M No. 67) of the United Nations.

6.1 Housing census

(1) 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 or dividing walls which extended from the foundations to the roof. Dividing walls, rather than external walls were quite common in densely built commercial areas of mainly urban regions. A building could be used or intended for residential, commercial, industrial or agricultural purposes or for the provision of services. It could be a detached housing unit, apartment building, shop, warehouse, factory, workshop, school, church etc.

For the purpose of the Housing Census, detached structures such as toilets, bathrooms, kitchens and garages were not counted as separate buildings; they were accounted for as facilities available to the housing units to which they belonged. However, detached rooms used for living purposes, were counted as separate buildings. Similarly, a garage, store-room, or any temporary or improvised structure used for living purposes at the time of the enumeration, was considered as a distinct building. The following were enumerated at the Housing Census:

- (i) all buildings used at the time of census for residential, commercial or industrial purposes or for the provision of services, including hotels, institutions and public buildings;
- (ii) all buildings intended for purposes mentioned in (i), but which were vacant at the time of the census;
- (iii) any shelter which, although not in conformity with the definition of a building, was used for habitation purposes at the time of the census;
- (iv) buildings under construction

The following were not enumerated:

- (i) all buildings used for agricultural purposes such as stables for livestock, pens for poultry, greenhouses, tea or tobacco weighing offices on estates, stores on agricultural establishments etc;
- (ii) garages not used for habitation or for commercial or industrial purposes;
- (iii) temporary shelters and improvised housing units that were not occupied at the time of the census;
- (iv) buildings being demolished or awaiting demolition;
- (v) dilapidated buildings which were uninhabited at the time of the census;
- (vi) embassy buildings except those where Mauritians were residing.

(2) 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 by a

household 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. It could also be vacant at the time of the census.

A place of abode was considered separate if surrounded by walls, fences 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 purposes of sleeping, preparing and taking their meals or protecting themselves from the hazards of climate and environment. Such structure was considered independent when it had direct access from the street or from a public or communal staircase, passage, gallery or grounds.

(3) A household could be (i) a one-person household, i.e, a person who made provision for his own food or other essentials for living, or (ii) a multiperson household, i.e, a group of two or more persons, whether related or not, living together and who made common provision for food or other essentials for living. Two families living in one housing unit constituted one household if they had common housekeeping arrangements; otherwise they were considered as two separate households. Cases of persons with varying degrees of common housekeeping were considered as one household, if there was any arrangement to share at least one meal a day.

Households whose members occupied one housing unit or more than one housing unit were called private households. Inmates of institutions were referred to as institutional households while guests in hotels and boarding houses were referred to as hotel population.

(4) The household members were the persons living in the household. Thus, in a one-person household, the number of household members was one, whilst in a multiperson household, it was the total number of persons living together and making common provisions for food or other essentials for living.

The inmates of an institutional household and the guest population in an hotel or boarding house constituted the household members of the institution and hotel or boarding house respectively.

(5) A room was defined as a space in the 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 of a size large enough to hold a bed for an adult, that is, at least four square metres. A room partitioned by curtains or pieces of furniture was counted as a single room.

Two categories of rooms were distinguished: rooms for living purposes and rooms used for business or profession. Rooms occupied by the household for living purposes included living rooms, dining rooms, bedrooms, studies, habitable attics and closed verandahs. Kitchens were also considered as rooms for living purposes only if they satisfied the room definition; opened verandahs, corridors, lobbies, bathrooms, toilets, stores and garages were not counted as rooms used for living purposes. Rooms were considered as being used for business or profession if they were exclusively used for that purpose, otherwise they were counted as rooms used for living purposes.

(6) An establishment was defined as a place of work situated in a permanent or semi-permanent structure where an activity was carried out to produce or distribute goods or services. Mobile street vendors or street vendors selling goods on pavements or alongside streets were not counted as establishments.

6.2 Population census

(1) Population base

The census enumerated all persons present on census night in all private households and communal establishments as well as the usual residents who were absent on census night. From the combinations of answers to questions on whereabouts on census night and usual address, it was possible to obtain counts of the usual residents and the present population.

Combinations of answers were as follows:

<u>Whereabouts on census night</u>	<u>Usual address</u>
(i) Here (this address)	Here (this address)
(ii) Here (this address)	Elsewhere in Mauritius
(iii) Here (this address)	Outside Mauritius
(iv) Elsewhere in Mauritius	Here (this address)
(v) Outside Mauritius	Here (this address)

The population present on census night or "de facto" population in a specific area is the total count of persons in the area who had answered "Here" to the question on Whereabouts on census night whether or not this was where they usually resided. This was obtained as: (i) + (ii) + (iii),

There are two ways in counting the usually resident or "de jure" population in a specified area:

(i) the present/absent method

where a count is made of persons recorded on the forms for the area as usually living "Here" whether they were present or not on census night ie. (i) + (iv) + (v).

(ii) the transfer method

where a count is made of persons returned on forms for the area as both usually living at this address (usual address - "Here") and being present at this address on census night (Whereabouts on census night - "Here") ie. (i),

plus persons returned on forms for the area as usually living "Here", but were outside Mauritius on census night ie. (v) ,

plus persons returned on forms throughout the country as present at this address (whereabouts on census night - "Here"), but usually residing "elsewhere in Mauritius" at an address within the specified area. This last component is obtained, by sorting, according to area of usual residence all persons in category (ii) and transferring back these persons to their usual place of residence.

The transfer method count is (i) + (ii)[transfer] + (v)

The method adopted in counting the usual residents in Mauritius was the "present/absent" approach rather than the "transfer" approach. The disadvantages of the "present/absent" method is that

(i) it excludes members of wholly absent households who were elsewhere in Mauritius on census night.

(ii) it excludes those usual residents who spent the census night elsewhere in Mauritius and who had not been reported by the head of household at their place of usual residence.

These two categories of usual residents will be counted in the "transfer" method at the place of their whereabouts. The "present/absent" method was used in spite of these constraints for the following reasons:

(i) the transferring back of absent members from their place of enumeration to their place of usual residence is a technically more difficult task; furthermore the method can only transfer

back absent members to their usual place (area) of residence and not to the exact address and appropriate household. Hence tabulations according to household characteristics would not be comprehensive.

(ii) estimates indicate that the difference between the two methods is less than 0.34 %

(2) The enumerated population included all persons who spent census night in the household (whether private or communal) as well as persons who usually lived in the household, but who were absent on census night.

(3) Present population included all persons who spent the night in the household. Persons who answered "HERE" to the question on "Whereabouts on Census night" constituted the present population.

(4) The resident or usually resident population was defined as persons who lived in the household whether they were present or absent on the census night. This was obtained by referring to the question on "Usual address" of the questionnaire; persons who answered "HERE" to the question were considered as residents or usual residents. It includes Mauritian residents who were abroad at the time of the census and also non-Mauritians who worked in the country and who reported themselves as having the resident status.

(5) Households living in housing units were referred to as private households to distinguish them from households in communal establishments such as hotels, infirmaries, hospitals and other institutions. A household was referred to as single when its members occupied a single housing unit; when the members were lodged in two or more buildings, the household was then referred to as combined household.

(6) Private households with usual residents were private households where at least one usual resident was reported in the household at the census, irrespective of the usual address of the head.

(7) A head of household was any adult member, whether male or female, who was acknowledged as such by the other members of the household. Although the designation of a head for institutions and hotels was meaningless, the person-in-charge was considered as the head for the purpose of supplying the census information.

(8) A family nucleus consisted of either a couple with or without unmarried children, or a lone parent with unmarried children. The number of family nuclei was identified at the editing stage from answers to the question on relationship to head; only the resident members of the household were considered.

(9) A question was asked on whether the person had any long-term disability or handicap which limited her/his participation in individual and/or social activities which were considered normal for her/his age. A disability or handicap was considered to be long-term if it had lasted or was expected to last for six months or more. The person was asked to list all disabilities she/he had. After examination of a sample of questionnaires, it was found that most of the disabled or handicapped persons fell in one of eleven categories. The categories were therefore retained for tabulation and any person not falling in one of them was counted in the residual category. Hence each disabled person was counted only once.

(10) A question on languages read and written or literacy was included. The person was asked to state all the languages in which she/he was able, with understanding, to both read and write, a simple statement in her/his every day life. However, because of multiple answers, some categorisation had to be resorted to for coding and tabulation purposes.

(11) The educational attainment referred to the highest level of education completed for persons not attending school, and to the standard, form or course being attended for persons attending school. The groupings used for tabulation were such that data can easily be obtained according to the levels of the International Standard Classification of Education (ISCED):

Level 0 = Nil + Preprimary

Level 1 = Primary, including Certificate of Primary Education

Level 2, first stage = Secondary up to and including Form III

Level 2, second stage = Form IV - Form VI, including Higher School Certificate

Level 3 = University degree, including post-graduate degree

Post-graduate education of the type that led to an award not equivalent to a first university degree, was reported under vocational and technical training, if the course had a "practical" orientation aimed at skilled and responsible employment.

(12) The currently employed population included all persons aged 12 years and over, who during the week from Monday 25 June to Sunday 1 July 1990, worked for pay, profit or family gain for at least one hour, or held a job during the reference week, but did not do any work because of illness, injury, holiday, industrial dispute, off-season inactivity, temporary disorder etc.

(13) The currently unemployed population were the persons aged 12 years and over, who did not work for pay, profit or family gain during the week from Monday 25 June to Sunday 1 July 1990, and did not hold a job, and took active steps to look for work during the previous eight weeks, and were available for work during the week ending 1 July 1990.

(14) The currently active population consisted of the currently employed and currently unemployed population.

(15) The currently inactive population consisted of persons who were neither currently employed nor unemployed.

(16) The usually employed population in 1989 were the persons aged 12 years and over who were reported to have a job and to have worked for 26 weeks or more during the year 1989.

(17) The usually unemployed population in 1989 were the persons aged 12 years and over who were reported to have been available for work and have been looking for work for more than 26 weeks during the year 1989.

(18) The usually active population in 1989 consisted of the usually employed, the usually unemployed and those whose total period of employment and unemployment during the year 1989 was 26 weeks or more.

7. DISSEMINATION OF CENSUS TABLES, EVALUATION AND ANALYSIS

7.1 Dissemination of census tables

Tabulation of Housing Census data was completed in November 1990 while that of the Population Census was completed in November 1991. The tabulations have been published in six reports as follows:

Volume I	- Housing and living conditions
Volume II	- Demographic and fertility characteristics
Volume III	- Economic characteristics
Volume IV	- Educational characteristics
Volume V	- Household characteristics
Volume VI	- Geographical and migration characteristics
Volume VII	- Disability

Appendix I shows a list of tables included in each report. All reports are available at the Government Printer.

Additional tables have been prepared for users within the CSO as well as. So far, most of tables needed by the internal users were used for the sectoral data analysis. Tables prepared for the external users included a set of about 30 tables requested by the Ministry of Housing for the National Physical Development Plan (NPDP). Since the geographical level of available tables was found inappropriate for planning, the district level being too large while the M/VCA level being too detailed, a different type of geographical subdivisions was designed for the purpose of the project; twenty-five meaningful areas, called the planning zones, were created by the grouping of the existing Municipal Wards/Village Council Areas and tabulations were prepared at the level of these planning zones.

In 1991 and 1992, major alterations had been brought to the Municipal Ward and Village Council Area demarcations. The 1990 census divisions were made along boundaries prior to these alterations and all tabulations at the regional level which had been published so far, were made according to those divisions. An attempt to create new Housing and Population Census data files based on the new demarcations was made, using the best conversion matrix of old and new Ward/VCA codes that could be worked out by going down to the enumeration area level. Relevant census tables at the new regional level have been prepared and are available at the office.

It should be recalled that the collection of the Housing and Population census data was undertaken in two distinct phases and that the data processing was done using two different applications, with as a result, the creation of two data files. Although originally, the merging of the data files was not envisaged, merging of the data files became imminent following the needs expressed by analysts in view of the study of the housing conditions of households. Merging of the two data files was tried on two districts, namely Savanne and Black River and will be extended to the country data files in due course. The first step consisted in the creation of a data file with a unique housing record of type 1 for each household from the existing two-record housing data file (Type I - housing record & type II - household record: See 4.2.2) using a CONCOR programme. The new housing data file was then sorted in ascending order of household identification number. The population census data file which, as it stood, was a sorted file had also to undergo a CONCOR programme to insert a record type 2 to each entry in the file. The two modified files were then appended to each other and sorted in order of household identification number and record type using the IMPS sort utility to produce a hierarchical data file with two record types: the first one being a combination of the housing and household record (from the housing census data file) followed by the person records of the household (from the population census data file). The percentage of record mismatch was found to be around 5% for both districts. This was explained by the fact that variables of the household identifier, which were the same at both censuses, were keyed in twice, once at the data capture of the

housing census and once at that of the population census without any special control or check in view of possible merge of the two files.

Databases of the merged data of the two districts were successfully generated by the software REDATAM 3.1. This application too, will be extended to the country data file once the merging of the housing and population census data files is completed. The main objective of the exercise is to provide users within the office and possibly to users outside the office with microdata which can be used readily without much intervention of analysts and programmers. Further, the software permits the generation of sub-databases for small geographical entities of interest, or databases that contain a subset of the variables in the original files as well as other user defined variables; it also allows the user to extract files with selected data from the master database, which, depending on the format file specification (DOS, REDATAM, SPSS, SLMICRO), can be loaded to other softwares. It is hoped that the REDATAM database will contribute to significantly increasing the long-term utilization of the 1990 census data.

7.2 Evaluation and analysis

Evaluation and analysis of census data are being done by the staff of the different sectoral units under the guidance of the Principal Statisticians and Dr. K. V. Ramachandran, the ECA Regional Advisor in Demographic Analysis. Dr. Ramachandran had undertaken several advisory missions and held a training course on the analysis of census data for the team of analysts. The evaluation and analysis work is nearing completion and it is expected that the following analytical reports will be published in 1994.

Volume I	- Census methodology
Volume II	- Households and housing
Volume III	- Disability and its prevalence
Volume IV	- Population distribution and migration
Volume V	- Youth, woman and development
Volume VI	- Data evaluation and projections
Volume VII	- Nuptiality and fertility
Volume VIII	- Economic activity - Characteristics and prospects
Volume IX	- Education and human resource development.
Volume X	- Health, morbidity and mortality

8. LESSONS LEARNT AND RECOMMENDATIONS FOR FUTURE DATA COLLECTION

8.1 Coverage

8.1.1 Outer Islands

The Republic of Mauritius consists of the Islands of Mauritius and Rodrigues, and several outer islands located at distances greater than 350 Km from the main island. The Housing Census covered the Islands of Mauritius and Rodrigues only while the Population Census covered the whole territory. However, for the outer islands, questions were asked only on residential address, sex, age in completed years, date of birth, citizenship, marital status, religion, highest educational qualification, highest certificate in vocational or technical training, fields of study and current occupation. Further, data were compiled manually and separately. Although the population of the Outer islands is only 167, it is desirable that they are administered in the complete housing and population censuses and the data be integrated with those of the country. This will necessitate earlier finalisation and approval of the questionnaires so that they can be dispatched on time by ship, which, after radio, is the only regular, although not so frequent, means of communication with the islands. It will also be necessary to ensure full integration of the data for the whole territory and their publication at the level of constituent islands.

8.1.2 Absent households

Members of wholly absent households who were not in Mauritius on the night of the census had not been enumerated and are hence excluded from all tabulations. On the other hand, those of wholly absent households who were elsewhere in Mauritius (in secondary residence etc..) had been enumerated at the place of their whereabouts; they are included in the count of present population, but are excluded from the count of usual residents, the method adopted for the construction of the resident population base being the present/absent approach (See 6.2 - Population base).

8.2 Enumeration procedure

The procedure of enumeration adopted until now consisted of a two-round enumeration: the housing enumeration was followed by that of the population four months later, the main reason being the possibility of obtaining at the Housing census, a list of names and addresses of heads of households which serve as frame for the population census. However, the bulk of work that needed to be covered during the four-month period to that end (capture and processing of names and addresses of about 250,000 heads of households, printing of labels and preparation of addressed population census forms) caused undue stress. Further, the merging of the housing and population census data of two districts in view of the study of the living conditions of households, revealed that the percentage of record mismatch was around 5% so that analysis will have to be carried out with caution. The enumeration procedure adopted so far can be questionable; however, the review of the method, if any, will have to consider ways and means to check for the coverage on the field. The advantage of the present method is that one round acts as a check for the coverage of the other.

8.3 Concepts and definitions

8.3.1 Head of household

Following international recommendations, the Head of household was defined as any adult member, whether male or female, who was acknowledged as such by other members of the household. However, because of the changing economic and social conditions within the country, particularly with respect to the more varied role of women, it may be desirable in future to evolve a new definition which would include economic criteria.

8.3.2 Homeless population

The size of the homeless population was thought to be negligible and no specific provisions were made either at the Housing or Population Census for the separate identification of this sub-group; the sleeping quarters of the homeless were grouped with "Building or structure occupied as improvised housing units" such as longère, garage, tent on the housing census form while at the population census, the homeless were considered as private households. Information from the field indicates that there may be between 200 and 300 homeless persons in the country and there may be some need to identify the group separately in the future. This can be done by including an additional category with appropriate code under "Household type".

8.3.3 Disability

This question was included to satisfy the specific needs of a ministry and was devised in the absence of documentation on international recommendations. It would be desirable in future that all ministries express their needs well in time to allow the appropriate documentation to be procured before the finalisation of the questionnaire.

8.3.4 Vocational and technical training

The question was addressed only to persons having followed a course in some institution providing vocational and technical training. Hence persons having acquired skills through apprenticeship were not included. In future, it may be desirable to cater for this group which includes a large number of skilled workers in trades such as building and construction, wood work and mechanical repair.

8.4 Data processing

Only the Population census data had undergone automatic editing. Tables produced on the raw census data were examined and exploratory tables involving fields that were inter-related and in some cases, involving records of the same household subsequently produced. After examination of the exploratory tables, a list of relevant consistency checks and edits was drawn and incorporated in a minimal CONCOR programme to remove inconsistencies from the tabulated data. In cases where it had been possible to retrieve the census forms, these were examined before appropriate corrections were brought manually to the data files through the screen. The edit procedures adopted ensure better data quality although a more systematic procedure using "cold decks" or "hot decks" would guarantee complete consistency in the data file.

APPENDIX I

CENSUS TABULATION REPORTS

The area level at which data were tabulated appears on the right margin of the list and the meaning of each code is as follows:

- C - Country level (Republic of Mauritius),
- I - Island level,
- D - Geographical district level and
- R - Regional level (Municipal Wards, Village Council Areas)

Volume I: Housing and living conditions

HBD1.	Buildings by geographical location and type	R
HBD2.	Residential and partly residential buildings by geographical location and number of storeys	R
HBD3.	Residential and partly residential buildings by geographical location, type of wall and roof materials and year of completion	R
HDU1.	Residential and partly residential buildings by geographical location and number of housing units in building	R
HDU2.	Housing units by geographical location, type of building in which located and ownership	R
HDU3.	Housing units by geographical location and occupancy status or type of vacancy	R
HDU4.	Total housing units, housing units occupied by private households, households and population by geographical location and type of water supply	R
HDU5.	Total housing units, housing units occupied by private households, households and population by geographical location and availability of electricity	R
HDU6.	Total housing units, housing units occupied by private households, households and population by geographical location and type of toilet facilities	R
HDU7.	Total housing units, housing units occupied by private households, households and population by geographical location and availability of bathing facilities	R
HDU8.	Total housing units, housing units occupied by private households, households and population by geographical location and availability of kitchen	R
HDU9.	Total housing units, housing units occupied by private households, households and population by geographical location and method of refuse disposal	R
HDU10.	Housing units occupied by private households, households and population by geographical location and number of rooms used for living purposes per housing unit	R
HHH01.	Private households, households in communal establishments and population by geographical location and type of household	R
HHH02.	Housing units occupied by private households, households and population by geographical location and number of households per housing unit	R
HHH03.	Private households by geographical location and tenure	R

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HHH04.	Private households by geographical location, tenure and type of building in which housing unit is located	R
HHH05.	Private households by geographical location, tenure and number of persons per room used for living purposes	R
HHH06.	Renting households by geographical location and monthly rent	R
HHH07.	Private households by geographical location and principal fuel for cooking	R

Volume II: demographic and fertility characteristics

D1.	Resident population and resident population in private households by geographical district, single year of age and sex	D
D2.	Resident population by geographical location, age and sex	R
D3.	Resident population by geographical district, marital status, age and sex	D
D4.	Population present on Census night and resident population by nationality and sex	C
D5.	Resident population by religion and sex	C
D6.	Resident population by geographical location and religious group	R
D7.	Resident population by language of forefathers and sex	C
D8.	Resident population by language usually spoken at home and sex	C
D9.	Resident population by geographical location and language usually spoken at home	R
D10.	Resident population by language of forefathers and language usually spoken at home	C
F1.	Ever-married resident female population 10 years of age and over by geographical district, age and number of children ever born alive	D
F2.	Ever-married resident female population 10 years of age and over by age, number of children ever born alive and educational attainment	I
F3.	Ever-married resident female population 10 years of age and over by age, number of children ever born alive and type of economic activity	I
F4.	Employed ever-married resident female population 10 years of age and over by age, number of children ever born alive and major occupation group	I
F5.	Female resident population 10 years of age and over, currently married only once, by age at marriage, duration of marriage and number of children born alive	I

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Volume III: Economic characteristics

CA1.	Resident population 12 years of age and over by geographical location, sex and current activity status	R
CA2.	Resident population 12 years of age and over by current activity status, marital status, age and sex	I
CA3.	Currently employed population 12 years of age and over by geographical district, major industrial division and sex	D
CA4.	Currently employed population 12 years of age and over by geographical district, major occupational group and sex	D
CA5.	Currently employed population 12 years of age and over by industry (major division and major group), age and sex	I
CA6.	Currently employed population 12 years of age and over by occupation (major and sub-major group), age and sex	I
CA7.	Currently employed population 12 years of age and over by employment status, age and sex	I
CA8.	Currently employed population 12 years of age and over by employment status, industry (major division and major group) and sex	I
CA9.	Currently employed population 12 years of age and over by employment status, occupation (major and sub-major group) and sex	I
CA10.	Currently employed population 12 years of age and over by industry (major division), occupation (major and sub-major group) and sex	I
CA11.	Currently employed population 12 years of age and over by industry (major division and major group), educational attainment and sex	I
CA12.	Currently employed population 12 years of age and over by industry (major division), age and educational attainment	I
CA13.	Currently employed population 12 years of age and over by occupation (major group), educational attainment and sex	I
CA14.	Currently employed population 12 years of age and over by occupation (major group), age and educational attainment	I
CA15.	Currently employed population 12 years of age and over by sex, broad field of vocational or technical training and educational attainment	I
CA16.	Currently employed population 12 years of age and over, by number of hours worked during the last week of June 1990, age and sex	I
CA16 (a).	Average hours worked during the last week of June 1990 by age-group and sex	I
CA17.	Currently employed population 12 years of age and over by number of hours worked during the last week of June 1990, industry (major division) and sex	I
CA17(a).	Average hours worked during the last week of June 1990 by industry (major division) and sex	I

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CA18.	Currently employed population 12 years of age and over by number of hours worked during the last week of June 1990, occupation (major group) and sex	I
CA18(a).	Average hours worked during the last week of June 1990 by occupation (major group) and sex	I
CA19.	Currently employed population 12 years of age and over by number of hours worked during the last week of June 1990, sector of employment and sex	I
CA19(a).	Average hours worked during the last week of June 1990 by sector of employment and sex	I
CA20.	Currently employed population 12 years of age and over by sex, length of service with present employer and sector of employment	I
CA21.	Currently employed population 12 years of age and over by sex, age, place of usual residence (geographical district) and place of work (geographical district)	D
CA22.	Currently employed population 12 years of age and over by sex and place of work	C
CA23.	Currently employed female population 12 years of age and over by occupation (major group), marital status and age	I
CA24.	Currently employed female population 12 years of age and over by status in employment, marital status and age	I
CU1.	Currently unemployed population ((a) total, (b) worked before and (c) first job seekers) aged 12 years and over by educational attainment, age and sex	I
CU2.	Currently unemployed population ((a) total, (b) worked before and (c) first job seekers) aged 12 years and over by sex, broad field of vocational or technical training and educational attainment	I
CU3.	Currently unemployed population (excluding first job seekers) aged 12 years and over by age, sex and employment status in last job	I
CU4.	Currently unemployed population (excluding first job seekers) aged 12 years and over by sex, educational attainment and major industrial division of last job	I
CU5.	Currently unemployed population (excluding first job seekers) aged 12 years and over by sex, educational attainment and major occupational group of last job	I
CU6.	Currently unemployed population (excluding first job seekers) aged 12 years and over by duration of current unemployment, sector of previous employment, age and sex	I
CU7.	Currently unemployed population (excluding first job seekers) aged 12 years and over by duration of current unemployment, educational attainment and sex	I
CU8.	Currently unemployed population (excluding first job seekers) aged 12 years and over by duration of current unemployment, industry (major division of last job) and sex	I
CU9.	Currently unemployed population (excluding first job seekers) aged 12 years and over by duration of current unemployment, occupation (major group of last job) and sex	I

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CU10.	Currently unemployed population (excluding first job seekers) aged 12 years and over by length of service with last employer, age and sex	I
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Volume IV: Educational characteristics

E1.	Resident population 12 years of age and over by geographical location, sex and languages read and written	R
E2.	Resident population 12 years of age and over by sex, age and languages read and written	I
E3.	Resident population 2 years of age and over by school attendance, sex and age	I
E4.	Resident population not attending school by geographical location, age and sex	R
E5.	Resident population 5 years of age and over not attending school, by educational attainment, age and sex	I
E6.	Resident population 2 to 29 years of age attending school, by educational level, age and sex	I
E7.	Resident population 15 years of age and over with a post-secondary degree, by major field of study, age and sex	I
E8.	Resident population 15 years of age and over with a post-secondary degree, by sex, broad field of study and duration of post-secondary training	I
E9.	Resident population 15 years of age and over with a post-secondary degree, by sex, broad field of study and highest level of secondary education	I
E10.	Resident population 12 years of age and over with vocational or technical training by field of study, age and sex	I
E11.	Resident population 12 years of age and over with vocational or technical training, by sex, field of study and duration of vocational or technical training	I
E12.	Resident population 12 years of age and over with vocational or technical training, by sex, broad field of training and educational attainment	I
E13.	Resident population 12 years of age and over not attending school, with vocational or technical training, by sex, broad field of training and educational attainment	I

Volume V: Household characteristics

H1.	Households, family nuclei and population present on Census night in private households, and households and population present in communal establishments by geographical location	R
H2.	Resident population in private households, by geographical district, relationship to head, marital status and sex	D
H3.	Private households with usual residents, resident population and number of family nuclei by size of household and geographical district	D
H4.	Private households by sex and age of head and size of household	I
H5.	Resident population in private households by geographical district, relationship to head, age and sex	D

APPENDIX I

H6.	Heads of private households with usual residents by geographical district, marital status, age and sex	D
H7.	Private households by size of household and number of economically active (employed and unemployed) persons per household	I
H8.	Private households with usual residents and resident population by geographical district, size of household and number of persons employed per household	D
H9.	Private households by size of household and number of unemployed persons per household	I
H10.	Heads of private households aged 12 years and over by activity status and sex, and other resident household members aged 12 years and over by relationship to head and activity status	I
H11.	Private households by sex and age of head and number of resident members under 15 years of age	I
H12.	Heads of one-parent households with unmarried children only by geographical district, marital status, age and sex	D

Volume VI: Geographical and migration characteristics

G1.	Enumerated population by geographical location, whereabouts on Census night and usual place of residence	R
G2.	Households by type and population by residence status and geographical location	R
G3.	Resident population by geographical location, whereabouts on Census night and sex	R
G4.	Resident population by size-class of Municipal or Village Council Area and sex	-
G5.	Population present on Census night by geographical district, district of usual residence, age and sex	D
G6.	Resident population and foreign visitors by single year of age and sex	I
G7.	Resident population aged 5 years and over by district of usual residence, district of residence 5 years ago, age and sex	D
G8.	Resident population aged 5 years and over by place of usual residence and district of usual residence 5 years ago	R
G9.	Five-year migration streams to and from each geographical district	D
G10.	Concentration of resident population by region	R
G11.	Households, resident population and resident population aged 18 years and over by Electoral Constituency, Municipal Ward or Village Council Area and sex	R

Volume VII: Disability

DY1.	Resident population by geographical location, sex and type of disability, if any	R
DY2.	Resident population by geographical district, type of disability, age and sex	D

APPENDIX I

DY3.	Disabled resident population by sex, age, marital status and type of disability	I
DY4.	Disabled resident population 2 years of age and over by age, sex and school attendance	I
DY5.	Disabled resident population 5 years of age and over by educational attainment, age and sex	I
DY6.	Disabled resident population 12 years of age and over by sex, age and current activity status	I
DY7.	Employed disabled resident population 12 years of age and over by sex, age and major occupation group	I
DY8.	Employed disabled resident population 12 years of age and over by sex, age and major industrial group	I
DY9.	Private households, disabled resident population in private households by size of household	I
DY10.	Disabled resident population in private households by relationship to head, age and sex	I

1990 HOUSING CENSUS — MAURITIUS

I. LOCATION

C01 Geographical District

C02 Municipal/Village Council Area/Outside M/V.C.A.

C03 Enumeration Area

C04 Urban/Semi-urban/Rural

C05 Census District

C06 Locality

C07 Block No.

C08 Building Enumeration No.

C09 No. of Housing Units in Building

C10 II. TYPE OF BUILDING

- (a) Under Construction and not Inhabited ... 01 ☐ SKIP TO SECTION V
- (b) Wholly Residential
- (i) Building used wholly as one housing unit ... 02 ☐
- (ii) Building containing more than one housing unit
- (1) Block of flats, semi-detached houses, etc. ... 03 ☐
- (2) Building intended to be used as one housing unit but crudely subdivided into smaller housing units ... 04 ☐
- (3) Other : specify ... 05 ☐
- (iii) Detached room intended for use by part of a household ... 06 ☐
- (iv) Building or structure occupied as improvised housing unit (e.g. longère, garage, tent) ... 07 ☐
- (c) Partly Residential
- (v) Building used partly for residential and partly for other purposes (e.g. shop dwelling) ... 08 ☐
- (d) Hotels and Institutions
- (vi) Hotel or boarding house with 9 or more rooms ... 09 ☐
- (vii) Hotel or boarding house with less than 9 rooms ... 10 ☐
- (viii) Institution (e.g. convent, infirmary, hospital, barracks) ... 11 ☐ SKIP TO SECTION V
- (e) Non-Residential
- (ix) Public building ... 12 ☐ STOP HERE
- (x) Commercial ... 13 ☐
- (xi) Industrial ... 14 ☐
- (xii) Commercial and Industrial ... 15 ☐ SKIP TO SECTION VI
- (xiii) Warehouse ... 16 ☐
- (xiv) Other : specify ... 17 ☐

III. CHARACTERISTICS OF BUILDINGS CODED 02-08 IN SECTION II

C11 STOREYS ABOVE GROUND FLOOR

No. of storeys above ground floor ... ☐

(if none, write 0 ; if 9 or more, write 9)

C12 YEAR OF COMPLETION

- (i) Before 1960 ... 1 ☐
- (ii) 1960 - 74 ... 2 ☐
- (iii) 1975 - 79 ... 3 ☐
- (iv) 1980 - 84 ... 4 ☐
- (v) 1985 - 89 ... 5 ☐
- (vi) 1990 ... 6 ☐
- (vii) Not known ... 7 ☐
- (viii) Not completed but inhabited ... 8 ☐

PRINCIPAL MATERIAL OF CONSTRUCTION USED

C13 Roof

- (i) Concrete slab ... 1 ☐
- (ii) Iron or tin sheets ... 2 ☐
- (iii) Shingles ... 3 ☐
- (iv) Other : specify ... 4 ☐

C14 Walls

- (i) Stone, concrete, concrete blocks, bricks ... 1 ☐
- (ii) Iron or tin sheets ... 2 ☐
- (iii) Wood ... 3 ☐
- (iv) Other : specify ... 4 ☐

IV. FOR ALL HOUSING UNITS (i.e. CODES 02-05, 07, 08 OF SECTION II)

C15 SERIAL NO. OF HOUSING UNIT 	HU5 TOILET FACILITIES <table style="width: 100%;"> <tr> <td style="width: 70%;">(i) Flush toilet connected to sewerage system</td> <td style="width: 10%; text-align: center;">1</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> <td style="width: 10%; text-align: center;">2</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>(ii) Flush toilet connected to absorption pit or septic tank</td> <td style="text-align: center;">3</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">4</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>(iii) Pit latrine — water seal</td> <td style="text-align: center;">5</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">6</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>(iv) Pit latrine — other</td> <td style="text-align: center;">7</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">8</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>(v) Pail</td> <td style="text-align: center;">9</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>(vi) None</td> <td style="text-align: center;">0</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> <td></td> </tr> </table>	(i) Flush toilet connected to sewerage system	1	<input type="checkbox"/>	2	<input type="checkbox"/>	(ii) Flush toilet connected to absorption pit or septic tank	3	<input type="checkbox"/>	4	<input type="checkbox"/>	(iii) Pit latrine — water seal	5	<input type="checkbox"/>	6	<input type="checkbox"/>	(iv) Pit latrine — other	7	<input type="checkbox"/>	8	<input type="checkbox"/>	(v) Pail	9	<input type="checkbox"/>			(vi) None	0	<input type="checkbox"/>							
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HU1 OWNERSHIP (i) Private ... (ii) Public ... 																																				
HU2 OCCUPANCY (a) Occupied (i) Principal residence ... (ii) Secondary residence ... (b) Vacant (i) For rent ... (ii) For sale ... (iii) Provided by employer ... (iv) Under repairs ... (v) Other : specify 	HU6 BATHING FACILITIES <table style="width: 100%;"> <tr> <td style="width: 70%;">(i) Bathroom inside with running water</td> <td style="width: 10%; text-align: center;">1</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> <td style="width: 10%; text-align: center;">2</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>(ii) Bathroom inside without running water</td> <td style="text-align: center;">3</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">4</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>(iii) Bathroom outside with running water</td> <td style="text-align: center;">5</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">6</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>(iv) Bathroom outside without running water</td> <td style="text-align: center;">7</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">8</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>(v) None</td> <td style="text-align: center;">0</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> <td></td> </tr> </table>	(i) Bathroom inside with running water	1	<input type="checkbox"/>	2	<input type="checkbox"/>	(ii) Bathroom inside without running water	3	<input type="checkbox"/>	4	<input type="checkbox"/>	(iii) Bathroom outside with running water	5	<input type="checkbox"/>	6	<input type="checkbox"/>	(iv) Bathroom outside without running water	7	<input type="checkbox"/>	8	<input type="checkbox"/>	(v) None	0	<input type="checkbox"/>												
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HU3 WATER SUPPLY (i) Piped water (1) Inside housing unit ... (2) Outside, on premises ... (3) Outside, public fountain ... (ii) Tank-wagon (camion-citerne) ... (iii) Well/River ... (iv) Other : specify 	HU7 AVAILABILITY OF KITCHEN <table style="width: 100%;"> <tr> <td style="width: 70%;">(i) Kitchen inside housing unit</td> <td style="width: 10%; text-align: center;">1</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> <td style="width: 10%; text-align: center;">2</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>(ii) Kitchen outside housing unit</td> <td style="text-align: center;">3</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">4</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>(iii) None</td> <td style="text-align: center;">0</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> <td></td> </tr> </table>	(i) Kitchen inside housing unit	1	<input type="checkbox"/>	2	<input type="checkbox"/>	(ii) Kitchen outside housing unit	3	<input type="checkbox"/>	4	<input type="checkbox"/>	(iii) None	0	<input type="checkbox"/>																						
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HU4 AVAILABILITY OF ELECTRICITY (i) Available ... (ii) Not available ... 	HU8 REFUSE DISPOSAL <table style="width: 100%;"> <tr> <td style="width: 70%;">(i) Receptacle with cover</td> <td style="width: 10%; text-align: center;">1</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>(ii) Receptacle without cover</td> <td style="text-align: center;">2</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>(iii) Enclosure made of bricks/stones</td> <td style="text-align: center;">3</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>(iv) Ash pit</td> <td style="text-align: center;">4</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>(v) Dumped on the roadside</td> <td style="text-align: center;">5</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>(vi) Dumped in backyard</td> <td style="text-align: center;">6</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>(vii) Other : specify</td> <td style="text-align: center;">7</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> <td></td> </tr> </table>	(i) Receptacle with cover	1	<input type="checkbox"/>			(ii) Receptacle without cover	2	<input type="checkbox"/>			(iii) Enclosure made of bricks/stones	3	<input type="checkbox"/>			(iv) Ash pit	4	<input type="checkbox"/>			(v) Dumped on the roadside	5	<input type="checkbox"/>			(vi) Dumped in backyard	6	<input type="checkbox"/>			(vii) Other : specify	7	<input type="checkbox"/>		
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V. HOUSEHOLDS

Household number	Household type *	Name and address of head of household Insert in following order (IN BLOCK LETTERS) First line (a) : Title (e.g. Mr, Mrs, Ww, Dr, Hon, etc.), name, surname Second line (b) : No. and Street/Road/Lane Third line (c) : Locality/Town/District	No. of persons			Tenure *	Number of rooms		Monthly rent (Rs)	Principal fuel used for cooking
			T	M	F		for living purposes	for business or prof.		
1		(a) : (b) : (c) :								
2		(a) : (b) : (c) :								
3		(a) : (b) : (c) :								

* Insert appropriate numerical code :

Type : Single ... 	Tenure : Owner ... 	Principal fuel used for cooking : Wood ...
Combined ... 	Tenant ... 	Charcoal ...
Part of household ... 	Sub-tenant ... 	Kerosene ...
Institutional ... 	Free ... 	Electricity ...
Hotel population ... 	Other : specify 	Gas ...
Not applicable: vacant ... 		Other : specify
under construction ... 		

VI. COMMERCIAL AND INDUSTRIAL ESTABLISHMENTS, HOTELS AND BOARDING HOUSES

(To be filled in for every non-agricultural private establishment, including those relating to small crafts)

A. Name of establishment or working proprietor/manager (IN BLOCK LETTERS) :

B. Address : (i) No. and Street/Road/Lane :
 (ii) Locality/Town/District :

C. Main activity in which the establishment is engaged :

D. No. of persons engaged at the time of enumeration
 (Include also persons usually employed full time by the establishment, but who are temporarily absent from work because of sickness, accident, holiday or strike)

(a) Less than 10 ... (b) 10 or more ...

APPENDIX III

IN STRICT CONFIDENCE



MINISTRY OF ECONOMIC PLANNING AND DEVELOPMENT
CENTRAL STATISTICAL OFFICE

POPULATION CENSUS MAURITIUS

Night of 1 - 2 July 1990

G D	M/VCA	E A	U/S/R	C D	Locality
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Block No.	Bldg No.	H U No.	H No.	HT	FN
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
NAME					
ADDRESS					

NOTICE

1. Persons by whom the return is to be made.

In the case of :

By :

- (i) households : the *Head of the household* or person for the time being acting as head;

The head of a household is any adult member, whether male or female, who is acknowledged as head by the other members.

A household is either (i) a person living on his own or (ii) a group of two or more persons who may or may not be related, but who live together and make common provision for food and other essentials for living.

Two families living in one house constitute one household if they have common housekeeping arrangements, but should be considered as separate households if they have separate housekeeping arrangements and should then be entered on two separate census forms.

- (ii) hotels, clubs, boarding houses : the *Manager* or other person for the time being in charge of the premises;
- (iii) hospitals, infirmaries, asylums, prisons or any other residential institution : the *Chief Resident Officer* or other person for the time being in charge of the institution;
- (iv) Naval Forces, Air Forces, the Special Mobile Force or the Police Training School : the *Commanding Officer* or the officer presently in charge;
- (v) ships, barges or other vessels in any port or harbour in Mauritius : the *Captain*, master or other person for the time being in charge of the vessel;
- (vi) persons arriving after midnight on the night 1-2 July 1990 and who have not been enumerated elsewhere : the person specified above by whom the return is to be made with respect to the persons present at midnight on 1 July 1990 in any of the premises mentioned above;
- (vii) persons not included in any of the above-mentioned categories : the person in respect of whom the return is to be made.

2. Persons in respect of whom the return is to be made

- (i) All persons who spend census night 1-2 July 1990 on the premises whether they are members of the household, visitors, guests, boarders or servants;
- (ii) all persons who arrive on the premises and join the household on Monday 2 July 1990 without having been enumerated elsewhere; and
- (iii) all temporarily absent members of the household, i.e. all persons who usually live in the household, but who are away on census night, for example, on a business trip, on vacation, in hospital or studying abroad; include them even if you know that they are being enumerated elsewhere.

3. Legal provisions

- (i) The Census is taken by the Central Statistical Office under the Statistics Act. Every person is required by law to give to the person responsible for making the return such information as may be necessary to enable the return to be made. No use may however be made of such information by the person to whom it is given except for the purpose of making the return.
- (ii) Any person who refuses or neglects to fill in the form or to supply the particulars required therein or who knowingly makes in this form any statement which is untrue in any material particular shall commit an offence under the Statistics Act, and shall, on conviction, be liable to imprisonment for a term not exceeding one year and to a fine not exceeding Rs. 1,000.
- (iii) All information obtained in the course of the Census is treated as **CONFIDENTIAL**. No information about named individuals is ever passed on by the Central Statistical Office to ANY other Government Department or to any other Authority or person. All enumerators and other officers engaged in the taking of the Census are under oath and are liable to prosecution if they improperly disclose any information which has come to their knowledge while performing their duties.

4. Completion of the form

The form should be completely filled in by the person designated in section 1 above. If any difficulty is experienced, particularly with columns 24 to 37, guidance should be sought from the Enumerator when he calls to collect the form. If the answers are incomplete or inaccurate, the enumerator will ask any questions necessary to enable him to complete or correct the form.

The information should be entered in the space provided using ink or a ball-point pen. Nothing should be written in the boxes which are reserved for codes.

5. Collection of the form

The form will be collected on 2 or 3 July 1990 by the appointed enumerator.

BEFORE COMPLETING THE CENSUS FORM, PLEASE CONSULT THE GUIDE WHICH IS IN BOTH ENGLISH AND FRENCH

DECLARATION

I declare that the information in this return is true to the best of my knowledge and belief.

Signature or mark of the person making the return :

Signature of authorized officer :

PLEASE DO NOT WRITE ANYTHING IN THE BOXES

Complete a line for every person present on Census night (1-2 July 1990) and also for every person who usually lives in the household but was absent on Census night. See instructions in section 2 on front page.

1	2	3	4	5	6	7	8	9	10	
	Surname and other names	Relationship to head	Sex	Age	Month and year of birth	Whereabouts on Census night	Usual address	Citizenship	Usual address 5 years ago	
Person number	<p>Enter the name (surname first) of every person in the following order :</p> <p>Head of household</p> <p>Spouse of head</p> <p>Unmarried children of head (from eldest to youngest)</p> <p>Married children of head and their families</p> <p>Other relatives of head (father, mother, nephew, niece, mother-in-law, etc.)</p> <p>Other persons (visitor, lodger, servant, etc.)</p> <p>BABIES MUST BE INCLUDED.</p> <p>For a baby who has not yet been given a name, write 'Baby' and surname.</p>	<p>State if:</p> <p>Head</p> <p>Spouse</p> <p>Son</p> <p>Daughter</p> <p>Son-in-law</p> <p>Daughter-in-law</p> <p>Grand-child</p> <p>Mother</p> <p>Father, etc.</p> <p>Lodger</p> <p>Visitor</p> <p>Servant, etc.</p>	<p>Write:</p> <p>M - for male</p> <p>F - for female</p>	<p>Give age in completed years.</p> <p>For children who have not attained 1 year, write '0 years'.</p>	<p>Write the month and year of birth of the person.</p>	<p>If person was here on Census night or was out on night work, write 'HERE'</p> <p>If person was elsewhere, indicate whether he was 'Elsewhere in Mauritius' or 'Outside Mauritius'</p>	<p>If person usually lives here, write 'HERE'.</p> <p>If not, write the person's usual address.</p> <p>For persons on visit to Mauritius, write the country of residence.</p>	<p>If of Mauritian nationality, write:</p> <p>MB—Mauritian born</p> <p>MR—Mauritian by registration</p> <p>MN—Mauritian by naturalisation</p> <p>If not Mauritian, specify the country of which person is a citizen.</p> <p>STOP HERE for non-Mauritians usually residing outside Mauritius.</p>	<p>Was the person's address 5 years ago (on 1.7.85) the same as that shown in column 8?</p> <p>If yes, write 'YES'.</p> <p>If no, write the person's usual address on 1.7.85</p> <p>For a child under 5 years, write 'not born'.</p>	
	01		Head							
	02									
	03									
	04									
	05									
	06									
	07									
	08									
	09									
10										

If there are more than 10 persons, continue on a new form. The enumerator will supply you with one if he has not already done so.

For persons NOT SINGLE in column 12

[illegible]

For persons aged 2 years

[illegible]

[illegible]

For persons aged 12 years and over				
24	25	26	27	28
Type of activity				When last worked
<p>How many HOURS in all did the person work for pay, profit or family gain DURING THE PAST WEEK from Monday 25 June to Sunday 1 July 1990?</p> <p>Include self-employment with or without employees; work without pay in a family enterprise or farm, but exclude housework in your own home.</p> <p>If worked for less than 1 hour during the whole week, enter 00 and continue with col.25.</p> <p>Otherwise, enter number of hours (to the nearest hour) and go to col.29.</p>	<p>Was there a job, business, family enterprise or agricultural holding or farm, at which the person did not work because of illness, injury, holiday, industrial dispute, off-season inactivity, temporary disorganisation, etc.?</p> <p>If there was a job, business, enterprise or farm from which the person was temporarily absent, write 'YES' and go to col.29.</p> <p>If the person did not hold a job, write 'NO' and continue with col.26.</p>	<p>Did the person take any active steps to look for work anytime during the past 8 WEEKS?</p> <p>For example, did he/she check with employers or at private homes, factories and worksites; place or answer advertisements; seek assistance and advice to set up own enterprise; maintain registration with an Employment Exchange, etc.</p> <p>Write 'YES' or 'NO' as appropriate.</p>	<p>Was the person available for work during the past week?</p> <p>Write 'YES' or 'NO'.</p> <p>If 'NO', give reason as follows: HH-household duties ST-studies DIS-illness, injury or disability WR-wholly retired OTIHER-specify</p>	<p>How many months ago did the person work for the last time, even for a few days?</p> <p>If person never worked, write 'NEVER' and stop here.</p>
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				

[illegible]