



The United Republic of Tanzania



## **Population Census**

### **METHODOLOGY**

**Takwimu - Bureau of Statistics  
President's Office, Planning Commission  
Dar es Salaam, TANZANIA**

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The United Republic of Tanzania

# **1988 Population Census**

## **Methodological Report**

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## FOREWORD

The Methodology Report presents the first census volume in a series of the Census Volumes that will be published. It is trying to explain the different activities that were performed before, during and after enumeration. Problems that were encountered during the census operation are highlighted with a view to alerting those who will be responsible for the next census. Likewise, an attempt is made to suggest solutions to some of the problems that were faced.

As in the previous post-independence censuses, The Bureau of Statistics was fully responsible for the 1988 Population Census. However, its success depended upon the cooperation and contributions by the rest of the Government, various institutions both public and private and the general public. In particular, a special word of thanks should go to the Party leaders at all levels, Regional and District Census Committees, Regional and District Census Officers, field reviewers and all teachers who participated as supervisors and enumerators.

I wish to take this opportunity to express my gratitude to the following external organizations: The United Nations Population Fund (UNFPA) for providing office equipment, transport, training and technical backup, the United Nations Children's Fund (UNICEF) for providing computer accessories, the Statistics Division of the Economic Commission for Africa (ECA) for providing backstopping consultancy in cartography and overall census preparatory work, the Swedish International Development Authority (SIDA) for providing assistance in the form of equipment, and short and long term consultancy, the Overseas Development Administration (ODA) for providing data entry equipment, training and short term consultancy, and the United States Agency for International Development (USAID) for providing short-term consultancy in data processing and software packages. Likewise, I would also like to extend my sincere appreciation to the Central Census Office staff for their hard work and dedication to the successful compilation and hence publication of the Methodology Report.

Last but not least, I wish to acknowledge the vital contributions that Ndugu Lucy S. Lameck and Ndugu Mwinyiwesa Idarus, the 1988 Census Commissars for Mainland and Zanzibar respectively, made to the Census particularly in handling the enormous tasks of census publicity and mobilization of the masses. Their commitment and devotion made significant contributions to the overall efficiency of the census project.

N.K. Mbalilaki  
GOVERNMENT STATISTICIAN

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## ORGANIZATION OF THE REPORT

This volume is divided into ten different chapters. The chapters provide discussions on the methods and procedures adopted in the course of planning, organizing and population census.

Chapter 2 outlines the census organizational structure which includes Census Committees which were formed at various levels of administration. The chapter also represents a brief account on the Census finances as well as logistics and transport.

The preparatory geographical work is discussed in chapter 3. The chapter tries to point out problems that were encountered during the creation of Enumeration and Supervision Area maps. A few recommendations aimed at improving the next censuses are also listed.

The decision to use two questionnaires in the 1988 Population Census created the need for having a comprehensive sample design. Chapter 4 deals with the sample design used in the census. Sampling techniques applied to acquire sampled enumeration areas that were covered by the detailed questionnaire in both rural and urban areas have been discussed in this chapter.

Chapter 5 discusses two pilot surveys which preceded the census. The main objectives for the surveys have been briefly described in the chapter.

Chapter 6 has been devoted to the main Census documents (questionnaires). The need to obtain accurate and comprehensive statistical information necessitated the choice of topics that would be included in the census. This important concept together with the design and structure of the questionnaires which were the means for collecting information are described in this chapter.

In order to ensure that the census project was conducted successfully, proper recruitment and training of personnel involved in the project was inevitable. Chapter 7 discusses this important aspect of the Census. Various stages of the training and scope of the training programmes are presented in the chapter.

Chapter 8 identifies the objectives, techniques and coverage of the census publicity campaign which was aimed at educating the public in the importance of the Census. This chapter points out the successful participation of various groups/organizations in publicising the Census.

Chapter 9 examines enumeration procedures. A brief description of the activities carried out prior to enumeration has been given. The chapter also identifies various groups of personnel who actively participated in the enumeration work. Additionally, the chapter outlines different approaches applied in enumerating different groups of the population as well as the eligibility criteria for enumeration.

The 1988 Census data processing has been discussed in chapter 10 which is the last chapter of this report. This chapter outlines the manual editing of both general and detailed questionnaires, as well as the automatic data processing.

## CHAPTER 1

### INTRODUCTION

The 1988 Population Census of Tanzania was the third to be conducted since the independence of Tanzania Mainland and Zanzibar Revolution in 1961 and 1964 respectively. This chapter has been arranged to identify major conceptual and procedural developments emanating from various population enumerations since 1910.

#### TANZANIA DEMOGRAPHIC HISTORY

Prior to 1988 census, other Population Censuses were undertaken in 1921, 1931, 1943, 1957/58, 1967 and 1978. Partial censuses or enumerations were made in 1910, 1924 and 1952. It is important to distinguish between a census and a count. A census is an enumeration made by entering the name and particulars of each individual on a census form. A count is an enumeration made either without any forms or with collective forms in which are entered particulars of groups'(1) From the above definition we are able to distinguish, from 1910 to date, between a census and a count. Thus, we can say that the 1910 demographic data collection in Zanzibar covering the African and non-African Populations separately can be considered as a population count. Population counts were also conducted for the African population in Zanzibar in 1924 and 1931. A census of non-African Population of Zanzibar was carried out in 1921 followed by a population count of this section of the population in 1931. During 1948 and 1958 a complete enumeration of Zanzibar was conducted.

In Mainland Tanzania, during 1921 and 1931 only non-African population was enumerated in a census while the African population was enumerated through population counts in 1921, 1928 and 1931. The censuses conducted in 1948, 1952 and 1957 covered both categories of the population separately (the 1952 census enumerated the African population only partially).

The 1967, 1978 and 1988 Censuses were conducted during August of the respective years covering both African and non- African sections of the population for the whole of Tanzania at the sametime. The 1973 National Demographic Survey, the only one so far conducted, covered Tanzania Mainland only.

#### METHOD OF ENUMERATION

Before 1948, all non-African enumerations in Tanzania Mainland (Tanganyika) and African counts in Zanzibar used a defacto procedure, i.e. all persons actually present at the place of enumeration at the specified census date, irrespective of whether they were normal residents of the place of enumeration or not, were allocated to the place of enumeration. The African Population in Tanzania Mainland (Tanganyika), on the other hand, were carried out under the de jure system, i.e. persons, irrespective of their place of enumeration, were assigned to their normal place of residence. In effect, this system excluded from the place of enumeration, persons who were temporarily present and included those who were temporarily absent.

From 1948 onwards, the enumerations were concerned essentially with the de facto population, though in the case of the non-African censuses of 1948, 1952 and 1957 Africans residing in non-African premises were enumerated on a de jure basis at the time of the non-African census.

Early African enumeration were "counts" whose basis was often the number of adult male tax payers. This seems to have been the case in Tanzania Mainland in 1921, 1928 and 1931(2).

The 1948 census is probably the first scientific census as far as the African population of Tanganyika is concerned. For the first time, in 1948 a certain portion of the African Population was asked a relatively more detailed set of questions in an attempt to obtain information which was regarded useful by the government. A decision to cover only a sample of the total using a detailed set of questions was based on the understanding that such information for the entire population of Tanganyika would be extremely difficult if not impossible to obtain (3). In addition to the sample enumeration, the 1948 census canvassed the total population using the abridged set of questions.

The method of using a limited set of questions for the entire population and a more detailed set for a sample has, in principle, been used in all the enumerations held in Tanganyika since 1948. The 1957 Census of the African population was also based on this two-tier system of enumeration (4). During the 1967 Population Census a sample of rural population and entire urban population were covered using detailed questionnaire.

Two types of questionnaires were also used in the 1978 census. The general (or short) questionnaire was used for collecting information of limited scope for the entire population. The detailed questionnaire was used for a sample of the total population as well as for other selected categories of population(5). The procedure of having two types of questionnaires was also adopted in the 1988 census.

## CONCLUSION

The major difference between the 1988 census and the previous ones is that, it was essentially the product of the work of Tanzanians who prepared and conducted the census. Useful advice was given by an expert from Economic Commission for Africa on particularly on Geographical work. Assistance in terms of equipment and technical backup was received from UNFPA, SIDA, USAID and ODA. The experience earned in the previous censuses is expected to be utilized to the maximum so as to make the coming census a much better one if not the best.

- 
- (1) R. Kunczynski, A Demographic Survey of the British Colonial Empire (London: Oxford University Press, 1948) p.95
- (2) The 1967 Population Census, Volume 5, Census Methodology, Economic Affairs and Development Planning, Dar es Salaam 1971. Bureau of Statistics, Ministry of
- (3) C. J. Martin, The East African Population Census: Planning and Enumeration, Population Studies (London), Volume III (1949) pp 307 - 308.
- (4) African Census Report, 1957 (Dar es Salaam: The Government Printer 1983) pp 1-2.
- (5) 1978 Population Census, Volume 1, Methodology Report (Dar es Salaam: Bureau of Statistics, 1981) pp 3-4

## **CHAPTER 2**

### **CENSUS ORGANIZATION**

The success of any census operation depends largely on the degree to which it is able to enlist the active support of the existing political and administrative structure in that particular country. The structure should therefore embrace all levels of the society, including the grassroots (i.e., ten-cell units in case of Tanzania), thus providing a ready mechanism which can be utilized for census purpose. This is necessary to ensure that the extensive human and material resources that are to be mobilized are effectively and efficiently utilized and that the tight schedules and logistical requirements are adhered to.

In addition to this, careful planning of a census is important if a census operation is to be successfully implemented. This is particularly so in a country like Tanzania where a census is the only source of demographic information.

Like in the previous censuses, the organizational structure of the 1988 census of Tanzania followed the political and administrative structure which existed in the country.

#### **ORGANIZATION AT THE CENTRE**

In order to make use of the existing administrative structure in the country, census committees were formed at all administrative levels so as to expedite the planning and preparation of the 1988 census (see the attached organizational chart and the various operational functions).

At the national level, the organizational structure consisted of the Central Census Committee (CCC) and the Central Census Office (CCO). The CCC was solely responsible for making policy decisions with regard to the census project and the CCO had the overall responsibility of implementing the decisions made by the CCC.

#### **THE CENTRAL CENSUS COMMITTEE**

The formation of the Central Census Committee for the 1988 population census was approved towards the beginning of 1987 by the Prime Minister and First Vice President. The committee comprised of the following:

- |    |  |               |
|----|--|---------------|
| 1. | Prime Minister and First Vice President                              | Chairman      |
| 2. | The Chief Minister, Zanzibar   | Vice Chairman |
| 3. | Minister of State - Prime Minister and First Vice-President's Office | Member        |
| 4. | Minister of State, Second - Vice President's Office                  | Member        |
| 5. | Minister for Finance, Economic Affairs and Planning                  | Member        |
| 6. | Minister for Finance and Planning - Zanzibar                         | Member        |

7.	Minister for Education	Member
8.	Minister for Education-Zanzibar	Member
9.	Minister for Labour, Manpower and Development	Member
10.	Minister for Local Government and Cooperatives	Member
11.	Minister for Communications and Works	Member
12.	Head of Organization Department of National Executive Committee	Member
13.	Principal Secretary, Ministry of Finance, Economic Affairs and Planning	Secretary

#### **THE CENTRAL CENSUS OFFICE**

During the 1988 census, like all previous censuses, the Central Census Office was accommodated within the organizational structure of the Bureau of Statistics. The Central Census Office was created in 1986, with a limited number of technical staff, taken over from the Population and Tourism section.

However, as the census activities expanded, additional technical staff had to be borrowed from other sections of the Bureau of Statistics, the Ministry of Finance, Economic Affairs, and Planning and other relevant Ministries and Public Institutions.

Although the CCO had the responsibility of working out the technical details of the census, it was thought necessary to have a committee which would help the CCO in its day to day activities. This committee was known as the Census Technical Committee.

#### **THE CENSUS TECHNICAL COMMITTEE**

The Census Technical Committee was established and approved by the Prime Minister and First Vice President in June, 1987. Most of the members in this Committee were Principal Secretaries of various Ministries. The chairman to the Committee was the Principal Secretary in the Prime Minister and First Vice President's Office. The Principal Secretary in the Chief Minister's Office, Zanzibar was the Vice Chairman while the Government Statistician was the Secretary to the Committee.

The Committee was responsible for carrying out the directives from the Central Census Committee as well as reviewing and advising on the overall census project preparations. It was also charged with the responsibility of advising and giving recommendations on the content of the questionnaire, tabulation plan, and procedures for enumerating the populations in problematic areas.

## **FIELD ORGANIZATION**

In designing the structure of the field organization of the 1988 census, the administrative structure of the country, the facilities available at all levels and the workload were all taken into consideration. As such, like in all previous censuses, the 1988 census adopted the field organization which was based entirely upon the existing regional and local government structure. Regional and District Census Offices were formed in all regions and districts and were headed by the Regional and District Census Officers.

In early 1987, committees were formed both at the regional and district levels. The chairman of the Regional Census Committee was the Regional Commissioner and that of the District Census Committee was the District Commissioner.

The main functions of the Regional and District Census Officers were to control and supervise the planning and conducting the census operations in the districts particularly those related to the mapping work, enumeration, collection of census documents and equipment, checking for correctness and compilation of census results for the districts. They were helped by the Regional and District Census Committees, who apart from ensuring smooth operational procedures for the census activities, they also participated in educating the public at large on the importance of the census project.

## **CENSUS LOGISTICS AND TRANSPORT**

Unlike in the 1978 census whereby the logistics and supply unit did not exist, in the 1988 census this unit existed and was responsible for the acquisition and distribution of the census equipment and materials for both the geographical work and enumeration.

Acquisition of items for the 1988 census was done as early as 1987. Nevertheless, the packing and dispatch of these items to the regions, which was scheduled to be completed by mid-July, 1988, was actually completed in mid-August, 1988. The delays were mainly caused by the overall delay in printing some of the manuals, lack of enough packing space, reliable transport, etc.

Hired trucks were used to dispatch the census materials from the Central Census Office to the regional headquarters. Every Regional Census Officer had the responsibility of ensuring that the census materials reached the respective districts in time. In the districts, the District Census Officers were the ones who received, distributed and ensured the proper use of the census materials as well as coordinating the overall census activities.

It is important to mention that the last minute packing and dispatch of materials to the regions resulted in some of the materials (purportedly dispatched) not reaching the respective districts. To arrest such situations, the Central Census Office dispatched the missing items using the quickest means available and where possible the Regional and District Census Officers were allowed to purchase those items which were available in their respective regions or districts.

For the census project to succeed, an efficient and reliable transport was needed. The government was able to provide one landrover for each Mainland region and two for Zanzibar. Those landrovers were used during the geographical work as well as during the enumeration period.

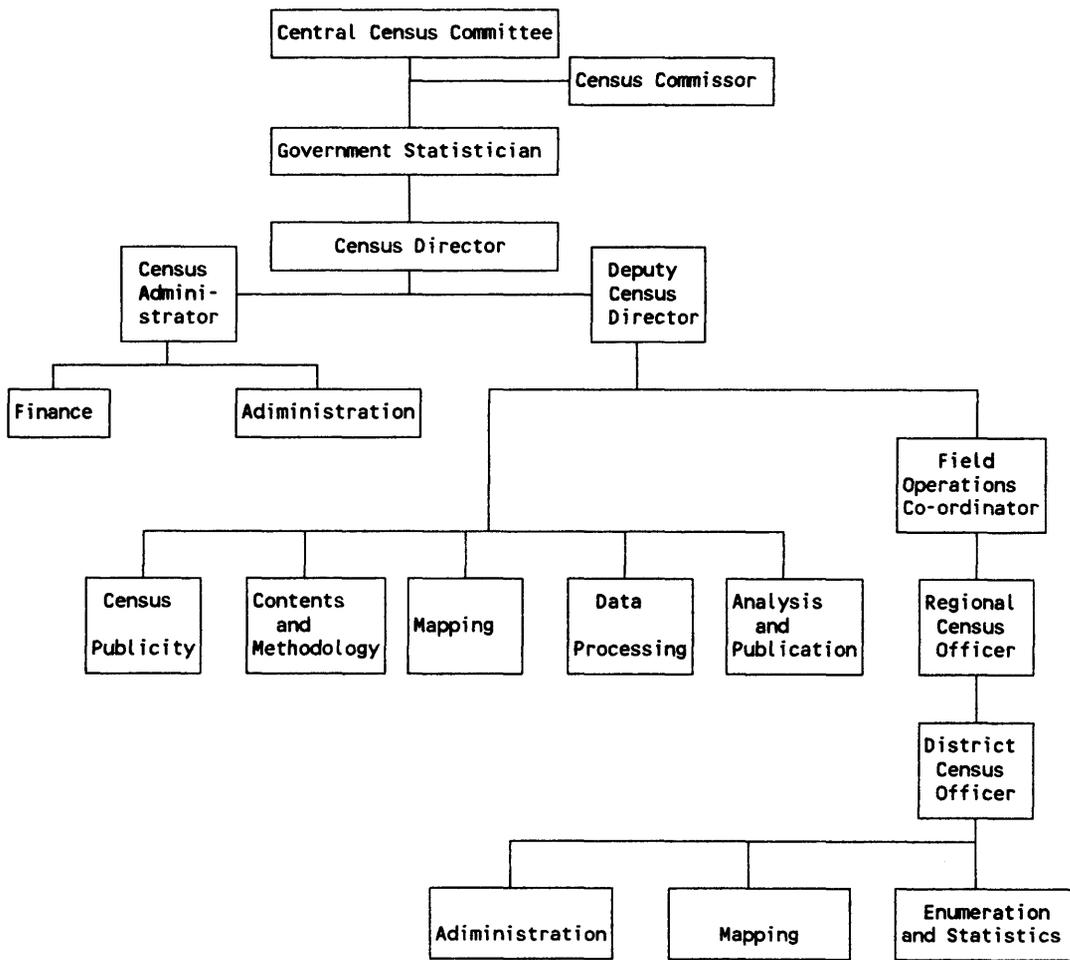
Nevertheless, one landrover could not have been sufficient during the training and enumeration period. Since the government could not afford to hire enough vehicles for ferrying the supervisors and enumerators, a special directive was issued by the Prime Minister and First Vice President to release Government and Parastatal vehicles for the census so as to ease transport problems for the census officials, supervisors and enumerators. The census project paid for the fuel and maintenance of these vehicles.

## CONCLUSION

Although the census was carried out as scheduled, there were certain delays which occurred in the course of the census preparations. Among others, was the delay in completing the demarcation work which was completed in May, 1988, instead of March, 1988. This was caused partly by the obstacle in getting reliable transport in the regions as well as lack of commitment to the census project by some of the RCOs. Sometimes the vehicles which were sent to the regions for the demarcation work were used for activities other than those related to the census work.

Nevertheless, despite all these bottlenecks the census project was carried out successfully. It is therefore proper to appreciate the overall commitment of all those who were involved in one way or another in planning, organizing and carrying out the census project.

**APPENDIX 2.1 THE CENSUS ORGANIZATIONAL CHART**



## Appendix 2.2

### The Main Operational Functions of the Organizational Unit of the 1988 Census

	UNIT	FUNCTIONS
1	Administration -	Responsible for recruitment and staff matters
	-	To purchase, store and supply census materials including census logistics
	-	Responsible for census transport as well as day to day operation of the census office
2	Census Publicity-	Responsible for all publicity with regard to the census
	-	To act as a link between the Central Census Office and the national information institutions
3	Content and Methodology	- To design and test the census questionnaires
	-	To write field instructions and prepare training manuals
	-	To analyse pilot census data
	-	To prepare sample design
	-	To prepare tabulation plan
	-	To prepare editing and coding specification



- 3 Regional Census Officer - To co-ordinate and supervise census activities in the region.
- To receive, distribute and ensure proper use of census materials and funds
- To supervise mapping enumeration and compilation of census results.
- 9 District Census Officer - To co-ordinate and supervise census activities in the district
- To receive, distribute and ensure proper use of the census materials and funds.
- To supervise mapping, enumeration and compilation of census results.
- 10 Finance - To budget and control the Census Funds

## CHAPTER 3

### CENSUS GEOGRAPHICAL WORK

The 1988 Population Census preparations started in mid 1986 with all efforts put on the census geographical work, an exercise based on demarcating the whole land area of Tanzania into small enumeration (counting) areas which were to be used at the time of enumerating all the people in August, 1988. Though time consuming and costly, the demarcation of enumeration areas were of real values in that:-

1. It ensured total coverage of people during the enumeration time.
2. It ensured no double counting of persons during the enumeration.
3. It provided easy allocation of enumerators and supervisors to specific areas during the enumeration time.
4. It provided guidance to proper logistics of supply of materials, number of enumerators and supervisors required, transport needed during enumeration, budget for the enumeration work and so on.

#### THE PREPARATIONS

In order to succeed in its endeavors, the Central Census Office started the preparations of the 1988 population Census well in advance in mid 1986.

The Office first notified the Regional authorities about the coming project, and, secondly, it requested the Regional officials to provide information on number of wards, villages and village population estimates in each district. For the urban wards, the population estimates were given for each ward.

This exercise enabled the Central Census Office to forecast the volume of work lying ahead in terms of materials and personnel needed, the budget for the mapping work and the estimated number of enumeration areas in each district.

However, the other preparations done by the Central Census Office were:

1. The acquisition of maps (both for rural and urban areas) from Surveys and Mapping department. These maps were very essential for effective demarcation of enumeration areas. They had to be identified and acquired well before the fieldwork started.
2. The field reviewers handbook was also prepared before the mapping work started. This was an important document for everybody engaged in the mapping work for two reasons:
  - a) It was a reference manual containing instructions to be followed in demarcating EAs
  - b) It ensured uniformity in the demarcation work in all regions of Tanzania.

3. Transport availability prior to the start of mapping work was another issue tackled by the Central Census Office. It is a fact that without transport during the field mapping work, very little or nothing can be achieved.

### RECRUITMENT OF FIELD STAFF

In order to execute the Census mapping work efficiently, it was necessary to identify all personnel (at all levels) who were to be engaged in the preparations for the 1988 population census.

Hence, apart from the staff based at Central Census Office, there were to be recruited/appointed the following staff at regional/district levels:-

1. Regional Census Officers who were to take charge of all census activities in the regions.
2. District Census Officers who were to be in charge of all Census operations in the districts.
3. Field reviewers and geographical supervisors who were to demarcate EAs in all districts in the regions.
4. Other staff recruited for the project such as draughtsmen, drivers, and typists.

Table 3.1 Number of field personnel recruited for the census mapping work.

Region	RCO	DCO	Draughtsmen	Geo/sup	F/Rs	Driver&Typ.	Total	
Dodoma	1	4	4	1	12	1	2	25
Arusha	1	8	3	1	12	1	2	28
K'Njaro	1	6	3	1	12	1	2	26
Tanga	1	6	4	1	14	1	2	29
Morogoro	1	5	3	1	13	1	2	26
Coast	1	5	2	1	6	1	2	17
D'Salaam	1	3	9	3	27	3	2	48
Lindi	1	5	2	1	6	1	2	17
Mtwara	1	4	3	1	8	1	2	20
Ruvuma	1	4	2	1	7	1	2	17
Iringa	1	6	4	1	12	1	2	27
Mbeya	1	7	4	1	12	1	2	28
Singida	1	4	3	1	6	1	2	17
Tabora	1	5	3	1	12	1	2	25
Rukwa	1	4	2	1	10	1	2	20
Kigoma	1	4	2	1	8	1	2	18
Shinyanga	1	5	5	1	17	1	2	32
Kagera	1	6	4	1	12	1	2	27
Mwanza	1	6	5	1	19	1	2	35
Mara	1	5	3	1	9	1	1	21
<b>Tanzania</b>								
Mainland	20	102	70	22	234	22	33	499
Zanzibar	2	5	3	2	20	2	2	36
<b>Tanzania</b>	<b>22</b>	<b>107</b>	<b>73</b>	<b>24</b>	<b>254</b>	<b>24</b>	<b>35</b>	<b>539</b>

NB: RCO - Regional Census Officer,

**NB:** RCO - Regional Census Officer,  
 DCO - District Census Officer,  
 Geo/su - Geographical Supervisor,  
 F/Rs - Field Reviewer  
 Typ - Typist

The Regional authorities were advised to identify and recruit Regional and District Census Officers well in advance so that the Central Census Office would communicate with them on all census matters until the field project was over.

Similarly, the Central Census Office sent instructions to Regional Census Officers to recruit field reviewers and geographical supervisors based on qualifications as required by the nature of work. The required number of field staff for each region was also set by the Central Census Office.

### **THE FIELDWORK**

In order to be able to conduct the census mapping work effectively, four important steps had to be undertaken:-

#### **Training**

The training of all field staff shown in table 3.1 was done at zonal level (with two or three regions grouped together) at eight centre as follows:-

Zone 1	-	Dar es Salaam	-	Dar es Salaam and Coast
Zone 2	-	Songea	-	Ruvuma, Lindi and Mtwara
Zone 3	-	Mbeya	-	Mbeya, Iringa and Rukwa
Zone 4	-	Moshi	-	Kilimanjaro, Tanga and Arusha
Zone 5	-	Mwanza	-	Mwanza, Mara and Kagera
Zone 6	-	Tabora	-	Tabora, Kigoma, and Shinyanga
Zone 7	-	Dodoma	-	Dodoma, Singida and Morogoro
Zone 8	-	Zanzibar	-	All five regions of Zanzibar and Pemba.

The trainers of the Zonal centres came from the Central Census Office D'Salaam. Prior to going to the zonal centres, the trainers had to undergo an intensive training in mapping work techniques which was conducted at the Central Census Office. The chief trainers of the zonal trainers were local staff with wide experience in census mapping work acquired from past population census.

The Field Reviewers Manual used for the 1986/88 mapping work was written in Kiswahili, but differed slightly from the English version which was used in the 1978 Census (1).

The training period and topics which were covered for the zonal trainers were the same as those envisaged for the zonal training. Apart from the D'Salaam zonal training, the zonal training took place in December 1986. The D'Salaam zonal training took place in November 1986. Soon after the training, the fieldwork started in January 1987 in all regions of Tanzania except in D'Salaam and Coast regions where the mapping work started in December 1986.

### **Supply of materials and equipment**

The timely supply of materials and equipment for both the zonal training and the fieldwork was important in order to facilitate a smooth take off of the project.

Most of the materials and equipment for field mapping work and training were collected by the zonal trainers who took them to their respective centres for distribution to concerned regional teams. The materials and equipment supplied to the regions by the Central Census Office included:

- Survey maps of 1/50,000 series.
- Urban maps of 1:2,500, 1:5,000 and 1:10,000 series.
- For Zanzibar/Pemba, 1:10,000 map series.
- Form EA 1 & 2, Field manuals, compasses, map distance measures, rulers, pencils, rubbers, pens, vehicles and so on.
- Drawing sets, pens, drawing ink, rulers and so on.

### **Field Organization**

The 1986/88 field organization was different from that of 1976/78. Each region had its own team which comprised of field reviewers and a geographical supervisor. They worked together in a district under the close supervision of the District Census Officer.

The field reviewers' work was checked daily by both the geographical supervisor and the District Census Officer. As a result the quality of the geographical work was very much improved compared to that of the 1978 Census. The team of field reviewers and the geographical supervisor remained in the district until the demarcation work was completed. The responsible District Census Officer had to be satisfied that work done in his/her district was complete and clean before the team was allowed to move to another district.

It should be made clear that the field reviewers were provided with transport (a Land Rover pickup) which was used to move them from one place to another in the course of their work. This, in a sense, alleviated their transport problems particularly in cases whereby they had to get to very remote areas.

The system which was used during the 1986/88 mapping of EAs was different from that of 1976/78. At that time there were two field reviewers in each district of Tanzania and one geographical supervisor responsible for three or four regions. Hence the supervision of the fieldreview work was not adequate since the supervisor was only able to meet the fieldreviewers once or twice every month. This affected, to a great extent, the quality of the mapping work.

## Demarcation of EAs/SAs

The procedures for demarcating EAs and SAs are outlined in the 1983 Census Geographical Work Report-Volume II.

However, the EA size used for the 1988 census was about 800 people with a lower limit of 700 people and an upper limit of 900 people for all rural areas of Tanzania Mainland. For the urban areas of Tanzania Mainland and for Zanzibar and Pemba, the EA target size was 400 people with a lower limit of 300 people and an upper limit of 500 people.

For the supervision areas, it was decided that one SA should have a target of five EAs with the limits of 5 + 1 both rural and urban areas.

## Results of the fieldwork

The results of the fieldwork were earmarked to be ready towards the end of December 1987. Due to various reasons and problems the work was completed five months later. By 15th June, 1988, all regions had submitted to Central Census Office the number of EAs and SAs created as shown in table 2 below:

Table 3.2: Number of EAs and SAs as Reported  
by Regional Census Officers as on 15th June 1988

No.	Region	EAs	SAs
1.	Dodoma	1525	289
2.	Arusha	1868	441
3.	K'jaro	1496	298
4.	Tanga	1560	367
5.	Morogoro	1491	349
6.	Coast	725	154
7.	D'Salaam	3224	643
8.	Lindi	807	202
9.	Mtwara	1257	559
10.	Ruvuma	930	245
11.	Iringa	1485	256
12.	Mbeya	1779	356
13.	Singida	964	208
14.	Tabora	1188	276
15.	Rukwa	822	356
16.	Kigoma	1029	217
17.	Shinyanga	1915	476
18.	Kagera	1682	338
19.	Mwanza	2213	436
20.	Mara	1061	187
21.	Zanzibar	1538	380
	& Pemba	1538	380
		30559	7033

## **PROBLEMS FACED DURING THE FIELDWORK AND RECOMMENDATIONS FOR FUTURE CENSUS MAPPING**

A number of problems were experienced by the Central Census Office and the regional field teams during the time of the fieldwork. These were as follows:-

- (1) Lack of reliable transport (vehicles):At the beginning of the Census mapping work, reliable transport for fieldwork was not available and thus hindered the smooth progress of the mapping work particularly at the initial stages of the operation. Regional Census Officers often used their influence to get transport from the Regional Offices. Hence on certain days work could not be done effectively. This problem was solved seven months later when the government bought landrovers which were then sent to the regions in August 1987. Each region got one landrover, while Dar es Salaam region got three.
- (2) Lack of publicity and formation of Census Committees on time also contributed towards the slow and difficult performance of the fieldteams.Both publicity and census committees were initiated at a time when the mapping field work was coming to the end and thus made the field reviewers work to be in very difficult conditions with little or no support from the relevant local authorities.
- (3) Lack of field inspection by mapping inspection officers from the Central Census Office D'salaam during the first seven months of fieldwork also contributed to the quality of mapping work as well as average monthly output.
- (4) Flow of Funds to the regions from the Central Census Office D'Salaam was at times delayed causing hardships to the field staff.

The main recommendations to be observed in preparing the next census of 1998 are the solutions to the problems to be taken in.

In addition, the Bureau of Statistics should adopt the recommendations given by both the ECA, Addis Ababa, and Statistics Sweden for carrying out an effective census mapping work.

Among the top priorities, these organizations recommend the following:-

- a) The setting up of a permanent Cartographic Section
- b) The training of personnel for this section
- c) Cartographic work (census mapping) to be a continuous exercise during the intersensal period. The aim should be to reduce the big burden of field mapping work during census time.
- d) Collection of the geographical materials from the regions and keeping them safely and orderly in cabinets to be used for postcensus mapping activities as well as for preparation of the next census.

## **CONCLUSION**

**This chapter is basically a short summary of many activities related to the 1988 Census mapping work, both at preparatory stage at the Central Census Office and during fieldwork itself. It also touches on major problems encountered by the Central Census Office and the regional/district census offices and the field teams.**

**Recommendations and possible solutions to the problems have also been listed. A permanent Cartographic Section should be set up to cater not only for future population censuses but also for other social and economic surveys to be undertaken by the Bureau of Statistics as well as other agencies and institutions outside this office.**

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**(1) Details can be obtained in the 1988 Population Census, Methodology Report, Vol.II, Dar es Salaam(forthcoming).**

## CHAPTER 4

### SAMPLE DESIGN

During the early stage in the planning of the 1988 population census it was decided to collect extensive information on economic activity, migration, fertility, mortality, housing conditions of the households and other items through a sample survey within the frame work of the census.

Generally, in the context of a developing country like Tanzania, several arguments are in favour of a sample approach as far as detailed statistical data of people, households and dwellings are concerned: Needs for information relate to statistics at several levels, e.g., national, regional and district level of the country. Capability for analysing and using the data is restricted. Presence of serious measurement problems which should be kept under control, as far as possible, favour a limited amount of data being collected and processed. Reduced costs of collecting and processing the data as well as timeliness of the results are reasons for a sample survey. Furthermore, management and other administrative aspects of the census operation make the sample approach most attractive.

The Census Committee decided to use two questionnaires in the 1988 population census, a general questionnaire for all households and a detailed questionnaire for a sample of households. This design was also used in the previous census. An important difference, though, is that in the 1988 census results will be presented at district level. In the previous census, the lowest level of result breakdowns was the region. This means that for the 1988 population census a larger sample was considered.

The decision that the 1988 population census data based on sample enumeration areas should be presented by district sub- divided into urban and rural components, was also taken into consideration while designing the sample.

Since most of the subsequent parts of this chapter draw heavily on the report on sample design (1) it is suggested that the readers interested in further technical details may refer to the original source.

#### SAMPLE DESIGN FOR THE RURAL AREAS

The sample of households for the detailed questionnaire was selected in clusters formed of all households within a small area. Such areas were called Ultimate Area Units.

In the 1978 census the rural enumeration areas which had about 1,200 people were considered to be too large to serve as Ultimate Area Units. For this reason it was decided to create compact clusters in the field of an average size of 400 people(2). The present situation is different in the sense that the target size of rural Enumeration Areas (EAs) in the 1988 population census is about 800 peoples. This size was still considered on the high side for an Ultimate Area Units at least for socio-economic variables. However the advantage of using an existing area as an Ultimate Area Unit is so great that it was felt that this would offset the loss in precision.

At the end of the second preparatory stage of geographical work which ended in May 1988, lists of EA's were prepared by the District Census Officers. The District Census Officers sent the prepared lists to the Regional Census Officers. Later on, the Regional Census Officers sent the lists to the Central Census Office. The actual selection of the sample was done at the Sample Survey Section in the Bureau of Statistics. The main tasks of the Central Census Office was to scrutinize the frame (i.e. the list of all EA's by Ward and Village/Branch) in each district. The selection procedure covered two domain of study, i.e. rural and urban. The instructions were such that in the rural areas or rural domain the sample size would depend on the total number of EA's in that particular district where the sample was drawn. Since rural parts of the district varied in size, then various sample sizes were used.

The sample sizes in the rural part of the district were designed in such a way that for a district with up to 199 rural EA's the designated sample size was 30 EA's, 200 to 399 EA's the designated sample size was 40 EA's and a district with 400 and over EA's the designated sample size was 50 EA's. For the district where the number of EA's in the rural domain was less than the designated sample i.e. 30 EA's were covered by the detailed Questionnaire. The assumption made was that each EA had equal probability of being selected. The method adopted for drawing a sample was Systematic Simple Random Sampling (SSRS).

### **SAMPLE DESIGN FOR THE URBAN AREAS**

The size of the urban EA in the 1988 Population Census was about 400 people, just like it was during the 1978 Population Census. Preliminary investigations concluded that there were several facts that pointed towards a design with a larger sample per district in the Urban areas than in the rural areas. It was decided that a sample of 50 EAs per district would be sufficient. For the Municipality of Zanzibar it was decided to take 70 EA's in the sample. For the district where the number of EA's in the urban domain was less than the designated sample i.e. 50 EA's then all EA's were covered by the detailed Questionnaire. Systematic Simple Random Sampling was adopted in the selection.

### **FIELD PROBLEMS**

Each District Census Officer was furnished with the list of EA's to be covered with the detailed questionnaire. However, not all the districts utilized the sample EA's properly. After receiving the Census materials from the regions, the Central Census Office scrutinized the EA's. The list of EA's covered by the detailed questionnaire was compared with that of selected EA's. It was revealed that in some domains the number of EAs covered by the detailed questionnaire did not tally with the designated sample size. In rare cases non-selected EA's covered by the detailed questionnaire had been recorded. All these had negative implications on the estimation procedures.

Appendix 4.1 shows the distribution of total EA's, selected EA's per domain and number of EA's/clusters in which the detailed questionnaire was used by urban and rural areas by region; Mainland and Zanzibar.

### **CONCLUSION AND RECOMMENDATIONS**

From the 1988 census experience it is recommended that in future the geographical work in the regions should be finished much earlier. This would provide enough time for the regions and districts to scrutinize the EA lists. Also it is necessary for the trainers for every region to be at the regional and district headquarters in time. To overcome the problem of omission and interchange of selected EA's, it is very important for the trainers to participate in the field full time with the supervisors and Enumerators. Finally, in future, not only for the population census, but for any other surveys, close supervision especially in the field should be strictly maintained.

1. TANSTAT 1988 May 27, 1988 Sampling in Tanzania report from a mission April 9-May 5, 1988 by H. Petterson
2. The 1978 Population Census Volume-VIII Population of Tanzania, Bureau of Statistics, Ministry of Planning and Economic Affairs 1983.

## APPENDIX 4.1

Distribution of total EA's, selected EA's per domain and number of EA's/clusters in which detailed questionnaire was used by urban and rural areas by regions; Mainland and Zanzibar.

		Domains							
Region	District	Rural				Urban			
		Total	Se.	Ut.	DQ	Total	Se.	Ut.	DQ
		EAs	EAs	EAs	Used	EAs	EAs	EAs	Used
<b>DODOMA</b>									
	Kondoa	377	40	40	446	28	28	28	210
	Mpwapwa	312	40	40	704	60	50	50	331
	Dodoma(R)	400	50	50	713	0	0	0	0
	Dodoma(U)	122	30	30	322	170	50	50	400
<b>ARUSHA</b>									
	Monduli	119	30	28	283	18	18	18	162
	Arumeru	318	41	40	519	12	12	11	139
	Arusha	32	32	32	474	225	50	50	446
	Kiteto	127	30	30	303	17	17	17	67
	Babati	263	41	39	657	37	37	37	20
	Hanang	114	30	30	296	2	2	2	20
	Mbulu	295	41	40	390	21	21	14	108
	Ngorongoro	74	30	28	258	0	0	0	0
<b>K'Njaro</b>									
	Rombo	242	40	42	470	3	3	3	68
	Mwanga	110	31	31	395	3	3	3	10
	Same	144	30	28	716	67	51	51	362
	Moshi (R)	388	40	44	522	4	4	4	56
	Hai	222	41	41	630	17	17	17	163
	Moshi (U)	0	0	0	0	179	51	50	386
<b>Tanga</b>									
	Lushoto	357	40	40	437	24	24	24	
	Korogwe	102	30	29	411	68	51	61	392
	Muheza	209	40	38	564	19	19	19	174
	Tanga	52	30	31	367	283	51	52	444
	Pangani	29	29	25	385	11	11	11	101
	Handeni	176	31	31	495	23	23	23	210

<b>Morog.</b>								
Kilosa	294	41	41	689	70	50	50	342
Morogoro(R)	473	51	30	350	30	30	30	321
Kilombero	124	30	30	335	88	52	52	439
Ulanga	120	30	30	493	19	19	19	71
Morogoro(U)	0	0	0	0	215	50	50	422
<b>Pwani</b>								
Bagamoyo	124	30	30	681	49	49	49	449
Kibaha	64	30	42	690	22	22	22	257
Kisarawe	195	30	30	573	19	19	19	169
Rufiji	114	30	30	732	46	46	47	350
Mafia	30	30	30	712	9	9	9	101
<b>DSM</b>								
Kinondoni	48	30	77	427	1312	51	50	901
Ilala	21	21	21	428	721	52	48	717
Temeke	63	30	28	474	825	51	48	776
<b>Lindi</b>								
Kilwa	146	31	31	515	25	25	25	208
Lindi(R)	303	40	40	475	49	49	49	425
Nachingwea	119	31	31	480	22	22	22	211
Liwale	50	31	31	349	23	23	23	166
Lindi(U)	8	8	8	210	74	30	32	1120
<b>Mtwara</b>								
Mtwara(R)	205	40	40	581	14	14	14	115
Newala	356	40	40	477	53	53	53	416
Masasi	410	50	50	570	55	50	50	375
Mtwara(U)	9	9	9	134	143	51	50	479
<b>Ruvuma</b>								
Tunduru	170	31	31	374	28	28	28	330
Songea(R)	243	40	39	370	9	9	9	212
Mbinga	291	40	40	505	18	18	18	167
Songea(U)	31	31	31	726	109	52	52	405
<b>Iringa</b>								
Iringa(R)	372	40	40	532	0	0	0	0
Mufindi	234	40	40	523	12	12	12	138
Njombe	313	40	35	458	35	35	34	313
Ludewa	112	30	30	385	6	6	6	68
Makete	118	31	31	405	4	4	4	41
Iringa(U)	10	10	11	113	115	51	1	19

<b>Mbeya</b>								
Chunya	130	30	22	374	56	51	49	408
Mbeya(R)	295	40	39	610	79	53	51	415
Kyela	127	31	31	456	22	22	22	226
Rungwe	267	40	40	343	35	35	34	185
Ileje	86	30	26	392	8	8	8	87
Mbozi	334	40	37	515	35	35	35	160
Mbeya (U)	23	23	23	358	237	50	50	504
<b>Singida</b>								
Iramba	302	40	40	509	19	19	19	161
Singida(R)	319	40	40	544	0	0	0	0
Manyoni	125	31	31	364	41	41	41	292
Singida(U)	47	32	31	397	73	53	53	447
<b>Tabora</b>								
Nzega	260	40	40	562	34	34	34	503
Igunga	193	30	30	393	15	15	15	142
Tabora(R)	239	40	41	563	15	15	14	110
Urambo	169	30	30	434	40	40	40	329
Tabora (U)	1	1	1	7	167	51	49	329
<b>Rukwa</b>								
Mpanda	199	30	30	426	66	50	50	427
S'wanga(R)	273	40	40	346	0	0	0	356
Mkasi	100	30	30	396	13	13	13	133
S'wanga(U)	24	24	24	205	101	50	50	495
<b>Kigoma</b>								
Kibondo	195	30	30	374	16	16	16	112
Kasulu	354	40	40	668	34	34	34	113
Kigoma(R)	240	40	40	513	2	2	2	30
Kigoma(U)	13	13	13	132	140	50	50	324
<b>S/nyanga</b>								
Bariadi	341	41	41	519	20	20	20	168
Maswa	209	41	41	486	28	28	28	286
S/nyanga	465	51	51	558	39	39	39	286
Kahama	425	50	50	612	20	20	20	185
S/nyanga	51	30	30	362	83	52	52	459
Meatu	140	31	31	391	6	6	6	45
<b>Kagera</b>								
Karagwe	277	40	40	491	5	5	5	47
Bukoba(R)	364	40	40	559	0	0	0	0
Muleba	314	40	40	470	4	4	4	60
Biharamulo	217	40	40	485	25	25	25	193
Ngara	177	30	30	390	2	2	2	30
Bukoba(U)	18	18	18	233	61	51	51	452

<b>Mwanza</b>									
	Ukerewe	164	30	30	338	32	32	32	278
	Magu	286	40	40	462	47	47	47	557
	Mwanza	51	30	29	339	302	51	49	406
	Kwimba	440	50	50	534	34	34	33	333
	Sengerema	340	40	39	427	35	35	35	277
	Geita	367	40	35	443	71	51	51	584
<b>Mara</b>									
	Tarime	298	41	41	528	20	20	20	204
	Serengeti	111	30	30	321	11	11	11	98
	Musoma	218	40	40	507	0	0	0	0
	Bunda	187	30	30	358	17	17	17	120
	Musoma	0	0	0	0	123	51	51	309
<b>Kaskazini</b>									
Unguja	Kask."A"	142	31	13	210	3	3	3	29
	Kask."B"	75	30	30	172	10	10	10	125
<b>Kusini</b>									
Unguja	Kati	80	31	28	224	4	4	4	53
	Kusini	68	31	29	232	13	13	13	102
<b>Mjini/</b>									
Magha-	Magharibi	98	31	31	282	6	6	6	60
rihi	Mjini	0	0	0	0	315	70	70	400
<b>Kaskazini</b>									
Pemba	Wete	135	30	33	231	47	47	29	335
	Micheweni	119	30	29	332	20	20	20	180
<b>Kusini</b>									
Pemba	C/Chake	115	30	30	177	34	34	34	234
	Mkoani	141	30	30	206	19	19	19	108

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Key: *Se* = Selected *Ut* = Utilized *DQ* = Detailed Questionnaire

## CHAPTER 5

### PILOT SURVEYS

Preparatory work for the Census is necessarily long in duration and involves quite many distinct activities. These activities include Pilot Surveys. The testing of various aspects of Census plan prior to the enumeration is a particularly valuable practice.

The present chapter highlights on the Census tests designed to refine all aspects of the 1988 Census including organization, enumeration and evaluation of results. Two such pretests were carried out and are characterised here as the Pretest (January 1987) and the Pilot Census (August 1987).

#### PRETEST

The first Pretest was conducted in January 1987. The fundamental objectives of the exercise were to test the questionnaire and to provide a practical training to the students of the East African Statistical Training Centre (EASTC) who worked as enumerators.

About seventeen enumeration areas (EAs) in Hai district were selected for the survey. The lecturers of the EASTC and a few officers among the technical staff of the Central Census Office supervised the work.

A two page questionnaire which consisted of 36 questions was designed and produced by the Central Census Office. The front page of the questionnaire dealt with identification which covered such information as names of interviewer and supervisor, date of interview, time at which interview started and ended, name of ten-cell leader, name of enumeration area and name of the district.

The questionnaire covered such items as name, relationship to head of household, sex, age, marital status, survivorship status of first spouse, citizenship of Tanzania, place of birth, place of usual residence, duration of stay in the place, place of residence in 1978, survivorship status of mother, literacy, educational attainment, occupation, employment status, children born alive to a mother, most recent live birth (and sex), death occurred in a household, main building materials, age of building, number of rooms, toilet facilities, source of water supply, electricity facilities and tenure status. Enumerator's Instructions were produced in a separate hand book.

During both familiarization and enumeration, enumerators were accompanied by ten-cell leaders. And a pair of enumerators (one non-Tanzania and a Tanzanian) were assigned to a single enumeration area.

The operational costs were met by both the Central Census Office and the East African Statistical Training Centre. Transport and other equipment for the survey were found quite adequate.

## PILOT CENSUS

The Pilot Census, which was the second and final pretest of the 1988 Census was carried out during the last week of August and the first week of September, 1987, precisely one year before the Census.

The main objectives of the Pilot Census were:

- (i) to test the Census instruments of data collection such as questionnaire, summary sheets, instructions, field control sheets, maps and the like;
- (ii) to evaluate the quality of data on important information such as age, fertility, mortality, migration and housing conditions,
- (iii) to provide information on relative efficacy of alternative methods of enumeration and average time required for enumerating a single household which is an important information in estimating the staff and financial requirements,
- (iv) to test the adequacy of training methods, training programme and training materials;
- (v) to give essential information on the adequacy of field and central organization;
- (vi) to assess the data processing methods and quality control systems; and
- (vii) to serve as a practical training in census operations.

The Pilot Census was undertaken in Hanang, Pangani and Lindi Urban Districts in the Mainland, and South District in Zanzibar. Hanang District is well known for being occupied mainly by semi-nomadic population. For this regard, it was felt necessary to pay special attention to the area so that enumeration procedures could be tested in order to identify specific difficulties in locating such population groups which are characterised by movement from place to place. The other three choices had no special influence, though consideration was put on financial capability, especially on transport costs.

Initially, it was planned that each district earmarked for the Pilot Census would entirely be covered by the exercise, but due to financial and technical reasons, the decision was changed and instead, only few areas in each district were picked through sampling techniques for the exercise.

In Hanang District ten villages with a total of twenty two Enumeration Areas (EAs) in three different wards were picked for the Pilot Census. The villages were Katesh, Jordom and Mongitu in Katesh Ward; Getaghul, Mara, Basotughang and Measkron in Measkron Ward; and Nangwa, Wareita and Dirma in Nangwa Ward. All the EAs were prely rural.

In Pangani District, eight villages with a total of eleven EAs in three rural wards were covered. These were Mwembeni and Madanga villages in Madanga Ward; Mwera, Mzambarauini and Ushongo in Mwera Ward; and Mtango, Stahabu and Mikinguni villages in Mikinguni Ward. Additionally, two urban EAs in Pangani Mashariki Ward were selected which brought the total selected EAs in the district to thirteen.

In Lindi (U) District the exercise covered twenty six EAs in Mitandi, Matopeni and Jamhuri Wards. In South District the Pilot Census was undertaken in Nganani, Kibuteni, Mbuyuni 'B' and Paje Party branches with a total of fifteen EAs.

The number of selected enumeration areas in each district was the basis for determining the required number of enumerators and supervisors. The enumeration of population in the selected areas in the districts required the services of about seventy six enumerators (mainly primary school teachers and a few secondary school teachers) and twenty enumeration supervisors who were hired purely on temporary basis.

The District Census Officer who acted as a co-ordinator was also authorised to recruit the personnel required for the operation. Apart from enumerators and Supervisors, drivers, paying clerks, typists and the like were also engaged in the census activities for about a month.

Enumerators and Enumeration Supervisors, together, underwent a week-long training. The organization and conduct of the training was performed by the technical staff of the Central Census Office. The training involved both theory sessions in the classrooms as well as practical exercise including mock interviews. The training programme based on the Enumerators' Instruction Manual. Other materials included Enumeration and Supervision Area maps, quality control forms which were used by supervisors and diary for supervisors. Allowances were paid to enumerators and Supervisors during the training and enumeration periods.

Before the Pilot Census was carried out, every region and district had already formed a census committee for the 1988 Census. These committees worked in close co-ordination with the Regional and District Census Officers to ensure that the exercise was executed successfully.

A detailed questionnaire was used during the Pilot Census. This questionnaire was designed to obtain a wide range of information including, name, relationship to head of household, sex, age, survivorship status of mother, marital status, citizenship, place of birth, place of usual residence, place of residence in 1978, literacy, school attendance, class attending/completed, occupation, employment status, children living with mother, children not living with mother, children born alive but have died, children born alive in the last twelve months, deaths which occurred in a household in the last twelve months, number of rooms occupied by the household, toilet facilities available, access to drinking water, availability of electricity and tenure status.

A summary sheet was used to transfer the population from the questionnaire into broad age groups. Nevertheless, a set of control forms was used during the Pilot Census. These included a DCO's check-list for distribution of materials for training, a checklist for distribution of booklets for enumeration, a checklist for distribution of geographical materials, allocation of Supervisors and Enumerators to their respective areas, a supervisor's checklist for distribution of materials to enumerators, and enumerator's observation report.

The night of 27/28 August, 1987, was chosen as the reference census night and the actual enumeration started on the morning of Friday 28 August 1987. On average, enumeration work lasted for eight days in all selected districts. The Pilot Census was preceded by the preparatory geographical work which involved the creation of enumeration and Supervision areas. This work was completed in the four districts well before the exercise. All Enumeration and Supervision Area maps and other related documents (typed boundary descriptions and lists of heads of households) were readily available at the material time.

Each enumerator was assigned to a single enumeration area. An Enumeration Supervisor who was in-charge of at least three Enumerators was responsible for checking and coordinating the work of all enumerators within his/her area. Each person was guided by EA/SA map, boundary description and a list of heads of households. The ten-cell leaders played a very significant role. They tirelessly accompanied and introduced enumerators to the heads of households or their representatives. They also made sure that enumerators did not omit any household in their areas. However, some of the villages (EAs) had scattered population settlements. This called for long distance walking by enumerators in an effort to cover all segments of population. Besides that, during the last days of August it started raining frequently along the coast especially in Pangani District, making some of the roads not easily accessible.

## CONCLUSION

The organization and conduct of the census tests enabled the Central Census Office Staff (the technical staff in particular) to determine the weaknesses in planning the 1988 Census, with regards to contents and procedures. These tests provided important information on how various aspects of the 1988 Census Project should be conducted. These included the questionnaire design, field organisation, training programmes for enumeration and enumeration procedures. And, it is worth mentioning that the experience gained from the Census test contributed greatly to the quality of data collected during the 1988 Population Census.

## CHAPTER 6

### CENSUS DOCUMENTS

Generally, any population census has specific purposes to serve and many well-known users to satisfy. All planning and preparation of the census have to take into consideration of these two demands. It must be borne in mind that no other source of statistical information can provide as complete a picture or as much directly comparable data as a census.

In Tanzania, a population census is the major source of population data, hence there is always need to be careful in determining the scope and content of the census. In all previous censuses great care was taken to ensure that the censuses collected the much needed information for immediate use. This was particularly so during the initial stages of planning of the 1988 census.

### CENSUS CONTENT

One of the early decisions which was made concerned the topics to be included in the coming census. The major factor which was used to determine the choice of topics was the need to obtain accurate and comprehensive statistical information. A list of topics was drawn in the Census Office by taking into consideration the resources available and the contents of the previous two censuses which provided the basis for understanding the long-term trends.

As early as March, 1986, the list of topics, as shown in Appendix 6.1 together with a draft tabulation plan, was circulated to the users in government departments, research institutions, individuals and international organizations particularly the United Nations. The main purpose behind this move was to solicit ideas and comments on the topics. They were free to indicate which topics, they thought, should be maintained, dropped or added. Although some background information was given to assist them in understanding the possible information which might be collected during the coming census, there were few responses from within the country and these were mainly from the Regional Planning Offices. The Population Division of the United Nations Economic Commission for Africa sent their comments on the tabulation plan. The comments which were received from within and outside the country were used to strike a compromise between the requests of the data users and what would be operationally feasible to produce.

### QUESTIONNAIRE DESIGN: QUESTIONS AND RESPONSES

Census forms are the main resources which are used to collect or control information. The questionnaires, for that matter, are the means for collecting and recording information which is obtained from the respondents. In order to collect accurate information questionnaires must be well designed so that the questions solicit the right answers, do not offend the people recording and processing the information.

When the final list of topics was adopted, after consulting data users, one of the early decisions that was made regarding the questions was whether to be simply a topic heading or a complete question. The latter which is usually referred to as verbatim question was adopted and, subsequently, the questions were developed. The purpose behind the use of verbatim questions was two fold. First, verbatim questions would achieve more uniformity and thus reduce the bias that results from permitting enumerators to interpret and phrase questions according to their individual understanding and experiences. Secondly, the use of verbatim questions was preferred because this would allow the enumerators to proceed smoothly with the interview and relieve them of the burden of forming the questions themselves, often in the midst of many distractions in the house.

As regards to recording of responses, it was decided that the enumerator coding instead of pre-coding approach be adopted. The enumerators were required to enter numeric codes in the boxes provided for.

## **PHYSICAL STRUCTURE OF THE QUESTIONNAIRE**

After the content and the forms of questions and responses were determined, the immediate task on questionnaire design was to decide on the layout of the forms. The size, arrangement or flow of questions and responses and style of design and spacing are some of the issues which had to be agreed upon so that the layout of the questionnaire was made.

Considering the fact that there were many questions which were to be included on the questionnaire, an A3 size paper was thought to be adequate to accommodate the questions and sufficient space to record the answers. The arrangement of the items was another issue which had to be decided at an early stage. Alternative flow charts for the individual questions were developed to facilitate the arrangement of the questions. Since certain questions were designed to be asked to individuals of specific ages, one of the flow charts which was found to be most convenient was selected and the questions were subsequently arranged in that order. Appendix. 6.2 shows the selected flow chart.

## **TYPES OF QUESTIONNAIRES**

The first draft of questionnaire which was used in the first Pilot Test had 36 questions and incorporated pre-coding and enumerator coding procedures. The primary objective of carrying out the pretest was to test question wording, recording of responses, respondent's reaction and feasibility of questions. Furthermore, the pretest was used to determine the type of questions which would yield a better answer on current fertility. Two sets of questionnaires were developed. One set of questions, apart from including questions on demographic, social and economic characteristics, included a question on the date of the most recent birth, while the other set asked about whether a child was born by a woman during the 12 month' period preceding the interview. This was prompted by the fact that many people could recall the date when an event occurred particularly in situations whereby that event occurred long time ago. Likewise, many could, with accuracy, determine a 12 months' reference period. The exercise was, therefore, meant to determine which of two approaches would yield more accurate information. The test revealed that the reference period approach yielded more accurate information than the date of birth approach.

In the second Pilot test, that is the Pilot Census, which was taken one year before the enumeration day was designed to test the entire census operation from despatch of materials to the field, training, field control, enumeration, return of census materials to the office, data processing and other operations related to the actual census. During the Pilot Census, only one type of questionnaire was used.

The use of one type of the questionnaire was adopted after it was initially envisaged that a detailed questionnaire would be used throughout the country and that sampling would be done in the Office.

After the Pilot Census, it was found out that to use one detailed census questionnaire would involve high costs and it was, therefore, decided that two different questionnaires would be used so that time and costs were reduced.

## **THE DETAILED QUESTIONNAIRE**

The Detailed Questionnaire which was used in the 1988 Population Census consisted of 32 questions. Enumerators were required to record detailed information on individual members of the household as well as on housing conditions. This questionnaire was used only in sample Enumeration Areas. The contents of the Detailed Questionnaire reflected the needs of users of the census information. It comprised nine sections as follows (6.3):

Section	A:	Identification
	B:	All Persons
	C:	Persons 5 Years and Above
	D:	Persons 10 Years and Above
	E:	Females 12 Years and above
	F:	Questions on Deaths-Deceased in the Household During the Last 12 Months
	G:	Questions on Housing
	H:	Total Population
	I:	Date of Enumeration

Booklets of 25 pages each were made, and on top of the booklet, spaces were reserved for the identification of the area in which the enumerator was working and, also, the enumerator was required to transfer the population totals from section H of the page to the cover of the booklet where space was reserved for it. After completing transfer of the totals, the enumerator was required to sum the totals of the population contained in that booklet.

## **THE GENERAL QUESTIONNAIRE**

The General Questionnaire comprised basically five questions and was used in all non-sampled Enumeration Areas. The five questions on the General Questionnaire, that is, name, relationship to head of household, sex, age and citizenship, were similar to the first five questions which were in the Detailed Questionnaire. Likewise, the top cover of the General Questionnaire booklet was used to write the identification of the area and fill in the totals from section C. Basically, the General Questionnaire consisted of four sections:

Section A:	Identification
B:	All Persons
C:	Total Population
D:	Date of Enumeration

## CONCLUSION

Generally, demands for data from the census are always numerous and in any given population census such demands cannot all be fulfilled. However, when the list of topics was being prepared not many users came up with any meaningful requests. Contacts had to be made with the users several times before it was finally decided to proceed with the available list. This was attributed mainly to the fact that most of the users were not very much aware of their own needs and this was probably due to their limited knowledge about the type of information which is usually collected in a census. There is need to disseminate the 1988 census information on a wide range so that the data reach as many people as possible through publications and seminars.

APPENDIX: 6.1 1967, 1978 AND 1988 POPULATION CENSUS TOPICS

Topic	1967		1978		1988	
	100	Sample 100	Sample 100	Sample 100	Sample	Sample
1. Relationship to Head of Household	-	x	-	x	-	x
2. Sex	x	x	x	x	x	x
3. Age	-	x	x	x	x	x
4. Marital Status	-	x	-	x	-	x
5. Place of Birth	-	x	-	x	-	x
6. Place of Usual Residence	-	-	-	-	-	x
7. Place of residence One Year Ago	-	-	-	x	-	-
8. Place of Residence 10/11 Years Ago	-	-	-	x	-	x
9. Citizenship	-	x	-	x	-	x
10. Literacy	-	x	-	x	-	x
11. School Attendance	-	x	-	x	-	x
-Never Attended	-	x	-	x	-	x
-Now Attending	-	x	-	x	-	x
-Ever Attended	-	x	-	x	-	x
12. Economic Activity	-	x	-	-	-	x
13. Occupation	-	x	-	x	-	x

Topic	1967		1978		1988	
	100	Sample	100	Sample	100	Sample
14. Industry	-	x	-	-	-	-
15. Employment (Economic) Status	-	x	-	x	-	x
16. Children During the last 12 month	-	x	-	-	-	x
17. Date of last Birth	-	-	-	x	-	-
18. Children Ever Born	-	x	-	x	-	x
- By Sex	-	-	-	-	-	x
- Still Alive	-	x	-	x	-	x
- Living with Mother	-	-	-	x	-	x
- Living Elsewhere	-	-	-	x	-	x
19. Death During the last 12 Month	-	x	-	-	-	x
- By Sex	-	x	-	-	-	x
- By Age	-	x	-	-	-	x
20. Main Wall Materials	-	-	-	x	-	-
21. Main Roof Materials	-	-	-	x	-	-
22. Age of Building	-	-	-	x	-	-
23. Number of Rooms	-	-	-	x	-	x

Topic	1967		1978		1988	
	100	Sample	100	Sample	100	Sample
24. Access to Drinkable Water	-	x	-	x	-	x
25. Availability of Electricity	-	-	-	x	-	x
26. Toilet	-	-	-	x	-	x
27. Tenure	-	-	-	x	-	x
28. Ethnic Origin	-	x	-	-	-	-
29. Tribe	-	x	-	-	-	-
30. Religion	-	x	-	-	-	-

## CHAPTER 7

### RECRUITMENT AND TRAINING FOR ENUMERATION

Proper planning with statistical figures requires intensive, extensive and well coordinated data collection from village to national level. Population Census is a single, extensive, and probably the most expensive statistical operation undertaken by a country. In order to accomplish this task to the required standard it is necessary to ensure that proper recruitment and training of personnel involved in the Census Project, are given the deserving attention.

#### RECRUITMENT

Enumeration of the total population of the country in 1988 required services of approximately 50,000 persons. The overall responsibility for organizing these training programmes rested with the Central Census Office which ensured that each person involved in enumeration had attended at least one training course. Training programmes were implemented in hierarchical order, starting with a small group of professionals at the Central Census Office to district level for junior enumerators. The present chapter will not deal with personnel involved in geographical work. Recruitment and training of these field reviewers has been presented in chapter 3 which deals with the census preparatory geographical work.

The recruitment process of supervisors and enumerators for the 1988 Population Census can be traced back to the two-day Dodoma seminar, held in October 1986. The seminar was intended for Regional Planning Officers who were Chief Regional Census Officers in their respective regions. Other participants came from the Prime Minister's Office, representatives from Zanzibar, CCM headquarters, and survey and Mapping Division.

Nine papers prepared by the Population Census Office staff were presented and discussed and a number of resolutions were adopted. These resolutions, agreed upon at the end of the seminar, were considered to be the fundamental basis for the entire census work. One of those papers was about recruitment and training for enumerators. There was a consensus that primary school teachers be used as enumerators and supervisors during enumeration period.

It should be noted here that after geographical work, geographical supervisors were given the role of Assistant Regional Census Officers and one field reviewer was attached to District Census Office as Assistant District Census Officer.

#### TRAINING

As mentioned earlier training programmes for enumerators and supervisors were implemented in hierarchical order. There were four levels of training:

- National level - level I
- Regional level - level II
- District level - levels III & IV

The training organisation can be summarised as follows:

LEVEL	TRAINERS	TRAINEES	DURATION
National (level 1)	Senior Central Census staff	Officers from Bureau of Statistics, Planning Commission, Ministry of Education and Health and Uni- versity of Dar Es- Salaam	17 days
Regional (level 2)	Trainees at national level	Regional Census Officer and his Assistant, District Census Officers and their Assistants, Officers from District Education Office plus Secondary School Teachers.	13 days
District (level 3)	Trainees at regional level	Education Coordinators, Headteachers and Primary School teachers- to work as supervisors and senior enumerators.	10 days
District (level 4)	Trainees at regional level	Primary School Teachers to work as junior enumerators	5 day

National level training was held in Dar es Salaam from 27-6-88 to 16-7-88. As it can be seen from above, there was no zonal training, instead level 2 training which was at regional levels was held between 27-7-88 to 8-8-88.

**Primary document used was the Training Manual and the main emphasis was on:**

- background
- Use of Census data and publicity
- Census procedure-before, during and after enumeration.
- Geographic materials
- General Questionnaire
- Detailed Questionnaire
- Supervisor's obligations
- Regional and District Census Officer's obligations

Two training programmes were organised at the district level. The first one (i.e. District-level III) was designed to train Enumeration Supervisors and Senior Enumerators.

This was an ten-days programme which dealt with the detailed questionnaire. The second level, (i.e. District, level IV) was designed primarily for Junior Enumerators. This was a five-day programme which essentially dealt on the general questionnaire.

## **CONCLUSION**

It can be inferred that the training programme which was implemented in a hierarchical order contributed considerably to the success of the 1988 Population Census. This type of training maintained consistency and uniformity. It should be noted that in every training level (besides the national level) all trainers were carefully supervised. Regional level trainers were supervised by Senior Staff from the Central Census Office (Zonal Supervisors). District level trainers were supervised by Regional level trainers assisted by Zonal Supervisors. This was done deliberately in order to maintain uniformity and to acquire maximum accuracy. Although it was recommended that Senior enumerators should be grade A teachers, in some places it was not possible to get the required number of such teachers and hence other teachers of lower grades were mobilized.

In spite of Operational problems experienced at different stages and places, the Census was successful due to dedicated efforts contributed either individually or jointly by all persons who were involved in its execution.

## Appendix 7.1 TRAINING TIME TABLES

### National level (level I)

Day	Subject
Day 1	- Background - Use of Census Data & Publicity
Day 2	- Census Procedure - Activities before enumeration - Training organization. - Equipments for enumerators & pre-enumeration work in EA.
Day 3	- General Questionnaire
Day 4,5,6,7	- Detailed Questionnaire
Day 8	- Supervisors obligations - Regional and District Census Officers obligations
Day 9	- Finance and administration Central Census Office obligations - Multiple choice test.
Day 10	- Results of Multiple choice test - Review.
Day 11	- Preparation for the final departure to regions.

*N.B. One week was used for orientation.*

**Appendix 7.1 (con't)**

## Region level (level II)

Day	Subject
Day 1	- Registration
Day 2	- Background - Use of Census data & Publicity. - Census procedure - Equipments for enumerators and pre-enumeration work in EA.
Day 3	- Enumeration-coverage and approach - Geographical materials.
Day 4	- General Questionnaire
Day 5-9	- Detailed Questionnaire
Day 10	- Supervisor's obligations - Regional and District Census - Officers obligations
Day 11	- Finance and administration - Multiple choice test.
Day 12	- Results of multiple choice test - Review
Day 13	- Procedures for the final preparations before departure to districts.

**Appendix 7.1 (Cont)****District level (level III)**

<b>Day</b>	<b>Subject</b>
Day 1	- Registration. - Background - Use of Census Data & Publicity. - Census Procedure - Equipment for enumerators and Pre-enumerations work in EA - Enumeration-coverage and approach.
Day 2	- Geographical material. - General Questionnaire (briefing only)
Day 3-7	- Detailed Questionnaire - Multiple choice test
Day 8	- Review-multiplechoice test - Finance & administration - Supervisor's obligation
Day 9	- Allocation of Senior Enumerators to EA and to supervisors - Distribution of working materials - Supervisors session with their enumerators
Day 10	- Preparation for departure

**Appendix 7.1 (con't)**

District level (level IV)

Day	Subject
Day 1	<ul style="list-style-type: none"><li>- Registration.</li><li>- Background</li><li>- Use of Census Data and Publicity.</li><li>- Census Procedure</li><li>- Equipment for enumerators pre-enumeration work in EA.</li><li>- Enumeration-coverage and approach.</li></ul>
Day 2	<ul style="list-style-type: none"><li>- Geographical materials.</li><li>- General Questionnaire.</li></ul>
Day 3	<ul style="list-style-type: none"><li>- General Questionnaire.</li><li>- Multiple choice test.</li></ul>
Day 4	<ul style="list-style-type: none"><li>- Review-multiple choice test.</li><li>- Finance and administration</li><li>- Allocation of Senior enumerators to EA and to supervisors.</li><li>- Distribution of working materials.</li><li>- Supervisor's session with their enumerators.</li></ul>
Day 5	<ul style="list-style-type: none"><li>- Preparation for departure.</li></ul>

## **CHAPTER 8**

### **PUBLICITY**

The 1988 Census Organization provided for an establishment of a Census Publicity Office. The creation of office, like in all previous censuses, underlines the importance given to publicity and mass mobilisation for the success of the Census.

Given the political background of Tanzania and its indigenous people nothing whatsoever trivial which involves the people can be done successfully without educating the masses. Improved and modern techniques in agriculture, expanded programme of immunisation, afforestation campaign, elections, just to mention a few, have to be backed up with good political propaganda in order to achieve the best end results. The importance of publicity to the census and the mobilisation of the masses, with a back-up of the party cannot be over emphasized.

#### **CENSUS PUBLICITY OFFICER**

A Senior Information Officer in the Prime Minister and First Vice-President's Office was seconded to the Bureau of Statistics as Census Publicity Officer since August, 1987 twelve months before the census.

It was by sheer luck and coincidence that he was also the publicity officer during the 1978 census. His secondment this time was secured much earlier than it was in 1978 when he was secured only four months before the census. As a result much of what was supposed to be accomplished had to be left out because time was inadequate.

Being the Census publicity Officer for the second time and coupled with experience gained from the previous census he took charge of the professional side of the publicity work which involved preparing and issuing handouts to the press aimed at educating and mobilizing the masses on all aspects of the census, including the census background, the importance of population data in social economic planning for national development, census questionnaires and day-to-day activities of the census programme prior to and after the census enumeration.

#### **CENSUS POLITICAL COMMISSARS**

In February 1988, the President of the United Republic of Tanzania appointed two census political commissars, Hon. Lucy Lameck, M.P. (National) and Hon. Idarus Mwinyiweza (Member of the National Executive Committee) for Tanzania Mainland and Zanzibar respectively.

The main duties of the Political Commissars were:-

- to ensure the success of the census by educating the public on census matters and the need for cooperation from every individual during enumeration;
- to act as a political link between the Party and the Government on matters pertaining to the census; and
- to act as coordinators of all personnel involved in the census work.

## **CENSUS PUBLICITY**

The publicity campaign was aimed at enlightening the public on the following census issues:

### **Census preparatory geographical work**

The preparatory geographical work involved listing the names of ten-cell leaders and heads of households, obtaining the average number of persons living in each household, demarcating and drawing up of Enumeration and Supervision Area maps. In many areas of the country this work was moving slowly, but the situation was improved considerably by the publicity campaign.

### **Pilot Census**

When planning for publicity campaign for the 1988 Population census began, it was expected that the Pilot Census would offer an opportunity for testing publicity techniques and materials. Unfortunately, the opportunity was not utilized because publicity materials (like posters) had not been prepared. This was attributed mainly by the late appointment of the publicity officer which was made just a few days before the pilot census was undertaken. However, the Pilot Census advertisements carried on the Daily News paper just a few days before and after the reference night helped in a rousing public interest in the exercise, especially in urban areas. Additionally, the announcement made by the Minister for Finance, Economic Affairs and Planning over the radio on the night of 27th August, 1987 had a favourable effect on public response and cooperation towards the pilot census.

### **Census Questionnaires**

Before enumeration it was necessary for the general public to understand the various aspects of the questions on the questionnaire and get some guidance as to the manner in which those questions should be answered. Like wise, the publicity campaign was used to educate the people on the use of a detailed questionnaire in a few selected areas and a general questionnaire in other areas.

### **Enumeration Procedures with regard to *de facto* Census**

The public information programme was a vital tool for ensuring completeness of census coverage (particularly among the hard-to-enumerate groups). The campaign explained the *de-facto* approach and the duties of Enumerators and Enumeration Supervisors as well as the Census reference night. In order to effectively publicise the census operation various publicity techniques and materials were applied.

## **CENSUS BOOKLET**

A 13-page comprehensive booklet was prepared in Kiswahili. The booklet, titled "SENSA YA WATU 1988", was aimed at educating the leaders and the public at large on Census matters. About 75,000 copies were printed and distributed to all parts of the country.

## **SPECIAL CENSUS STAMPS**

Tanzania Posts and Telecommunications Corporation accepted a request to issue special stamps for the census. These comprised four denominations of 20/=, 10/=, 3/= and 2/=. The first day cover and souvenir sheet was released on August 8, 1988, and presented to Hon. Idris Abudl Wakil, Second Vice-President and President of Zanzibar at a short ceremony held Wete, Pemba. This was the first time to have special stamps issued in commemoration of the census and was quite a boost to the publicity campaign. The stamps continued to be on sale in all post offices throughout the country until the end of that year.

## **PRINTED CLOTHES**

Khanga and vitenge are a popular ladies prints in most African countries and Tanzania in particular, and women being the majority could help a lot in propagating and publicising the census. The government sanctioned five textile industries to make these special prints but unfortunately only three manager to make the prints. Khanga prints were made of Sunguratex, Urafiki and Polytex. The Polytex mill was the only one make Kitenge prints. These special prints with news messages displayed on them became very popular and created quite a big demand from the general public.

## **RADIO PROGRAMMES**

Radio Tanzania , Dar es Salaam, and Sauti ya Tanzania, Zanzibar, played an exceptionally big role in publicising the census. Through discussions held between the managements of the two radio stations it was agreed that they would:-

- give priority to all the news coming to their desks about the census;
- introduce relevant census messages in all programmes broadcast especially the entertainment programmes;
- grant radio interviews (face the mike) to the Census Commissars and Census Director of 30 minutes each to explain and educate the masses on important aspects of the census;
- stage special radio plays on census (Mvuleni kwa Shingo ya Mbuzi) running twice a week in both radios (total two hours). The play consisted of nine parts running for nine weeks from July 1 to August 27, the eve of the census night;
- Carry special educational programmes on census for both radios(one hour each week) commencing June 3 to September 4, in all 16 weekly programmes. From August 22 to September 4 the programmes were running daily in an effort to prepare the masses for the actual enumeration, emphasizing the meaning of the census night, who are to be counted, the responsibility of heads of households, ten-cell leaders, and also village, ward and divisional leaders. The two radio stations also broadcast the signing of the census order by President Ali Hassan Mwinyi and the census eve message by the Prime Minister and First Vice-President Ndugu Joseph Warioba. For two consecutive weeks before enumeration, all radio stations released one-minute slogans which had a special appeal to the people to prepare themselves for the actual enumeration. The slogans were aired before news bulletins.

## **TELEVISION PROGRAMMES**

Television in Tanzania is viewed only in Zanzibar, Dar es Salaam and Tanga. Like all other media in the country, Television Zanzibar (TVZ) agreed to show special messages in its daily programmes as a publicity boost for the census. The items included:

- census news and cultural programmes;
- two TV interviews with the Census Commissar in Zanzibar (all about 40 minutes) to explain, educate and mobilise the masses on the importance of the census;
- special TV drama programmes directed by the following groups:-
  - Police cultural group;
  - Chimbeni group-two play series: IJUE SENSA;
  - Zanzibar cultural group: SENSA NI WAJIBU WETU;
- the staff of the TV programmes who proved to be very active in the census publicity campaign in the Isles also travelled to Dar es Salaam to cover the official signing of the Census order by President Ali Hassan Mwinyi which was followed by the President's address to the Nation on the importance of the census, the events which were repeatedly screened in Zanzibar;
- as the census day approached TVZ also carried special slogans and other census messages appealing to the people to the people to prepare themselves for the census;

## **NEWSPAPERS**

The overall coverage by the media (newspapers) was good and encouraging. They played their good role to inform, educate and entertain the public through various news bulletins feature articles and cartoon strips.

Due emphasis in their coverage was given to various calls and appeals made by Government and Party leaders both at the national and regional levels. As the enumeration days approached the media also increased its coverage by making it possible for census articles to appear in the newspapers almost every day.

## **CINEMA SLIDES**

Like in 1978 census, arrangements were made to prepare cinema slides to be shown in all theatre halls in the country where slide projectors were available. Each theatre hall was given two slides; one in English and another in Kiswahili. All the slides aimed at mobilizing the masses and prepare them for the census. The screening started in early August 1988 and ended in the first week of September, 1988.

## **POSTERS**

Whereas in 1978 only one poster was issued for the census, in 1988 five different posters were issued carrying special census message intended to enlist people participation and cooperation in giving correct answers during the enumeration. The five posters, all in Kiswahili and coloured depicted:-

- serious water shortage which is prevalent in both rural and urban areas;
- the serious transportation problem countrywide;
- the chaotic situation in most of our schools in the country due to lack of basic necessities;
- a typical rural dispensary where people of all ages and ailments can be seen in agony due to lack of adequate facilities;
- a typical rural household showing a head of the household with all the members of his family gathered around responding to questions asked by the enumerator. The poster was considered necessary to show that during the census every one would be counted irrespective of sex, age, or colour.

About 3,000 posters of each type were produced and distributed throughout the country, and all emphasized on the need for correct data in planning to solve the above mentioned problems.

## **OTHER ACTIVITIES**

Public and private firms were requested to contribute to the census publicity through industrial goods made by them. A number of firms responded positively to the request and these were as follows:

### **KIBO MATCH**

Issued match boxes with special census message on them. The match boxes were out for sale in July, 1988 and distributed throughout the country.

### **JV GROUP**

Made special prints of T-shirts. About 500 of them were made to coincide with the CCM Solidarity Walk on 1st July, 1988. The T-shirt were delivered to the Census Commissar (Hon. Lameck) who distributed them to various Government and Party leaders including the President during the Solidarity Walk. Due to high production cost the Group could not more for sale to the public.

### **TANZANIA CIGARETTE COMPANY (TCC)**

Like in 1978 TCC also agreed to carry census messages printed on packets of cigarettes. In addition, TCC agreed to put up a flashlight billboard carrying census message at the Magomeni roadside along Morogoro road. The flash sign was quite an attraction during the night and was a big contribution to the census publicity. Other firms which also put up flashlight billboards at various points in the city included the National Bank of Commerce (at Ubungo), Board of External Trade (at Nyumba ya Sanaa) and Board of Internal Trade (at Mnazi Mmoja).

## **KIBO PAPER**

Agreed to print special census messages on boxes and other items produce by them.

## **REGIONAL TOURS**

As part of the mass mobilisation programme, regional tours, led by the census commissars were also organized. During these tours the commissars got the opportunity of addressing the masses and local leaders in mobilizing them about the census, and it was in such gatherings that the commissars had a good opportunity to answer questions raised by the public about the census.

Since it was not possible to visit all the regions and districts (in case of Tanzania Mainland) it was expected that regional, district, divisional and ward leaders would make similar visits in their respective areas and deliver the message that would ensure that people were well prepared for the census.

In Zanzibar, given its small geographical area the census commissar was able to cover all regions and districts in Zanzibar and Pemba.

Also the commissar had the opportunity to re-visit the districts one month before the census to make on-the-spot evaluation and interviewed some people on their understanding about the census which was later broadcast by Sauti ya Tanzania Zanzibar. The evaluation centered mainly on how much the people knew about the census, and especially about the questionnaire and how much they were prepared for the census, etc. The programme was not only creative but also very popular.

As for the Mainland, the commissar managed to visit Arusha, Dar es Salaam, Dodoma, Iringa, Kagera, Kigoma, Kilimanjaro, Mara, Mbeya, Mwanza and Rukwa regions.

## **STATISTICS SWEDEN**

Apart from realising the need for undertaking a successful Census, Statistics Sweden also contributed substantially in publicising the census. The following were their contribution.

- designing of a special logo for the census with the colours of the national flag as a background; with the words TANZANIA SENSA 1988 imprinted on them. The logo became very popular and was taken and accepted as an emblem for the census.
- Special stickers of three different sized depicting the logo above were made. The stickers, were distributed throughout the country and were on display in offices and stuck on motor-vehicles, brief-cases, handbags, market stales, public notice boards, and in all business and recreation centres. The smallest in size had to be reserved and worn on the lapels by the census enumerators as their official identity during the enumeration;
- About 300 special T-shirts were made and distributed to all census staff at the headquarters; and
- Few ladies' scarfs were also made, and depicted the census symbol.

## CONCLUSION

It is important to mention here that apart from the population census, many other valuable surveys and studies are being undertaken by the Bureau of Statistics. Most of these surveys are not caudally known to the public. It is, therefore, inevitable that the Bureau of Statistics tries as much as possible to educate the public on its activities; how the data collected can be helpful to the people and on the various publications available at the Statistical services, etc.

The important role of the census political commissars in the success of the census cannot be over-emphasized, and it is suggested here that during the next census their appointments should be made much earlier, preferably before the Pilot Census. A further consideration is needed to have an assistant commissar appointed for the Mainland which is primarily due to the wide geographical area.

Nevertheless, much of what was accomplished in publicising the Census could not have been done single-handedly. It is in this respect that sincere gratitude and appreciation is offered, to all those who contributed and assisted in one way or another in publicising the census and to the success of the 1988 census.

## CHAPTER 9

### ENUMERATION

Enumeration in a population census in simple terms, means counting the people of a particular place, in the recognised geographical boundaries. To be more scientific, enumeration is a procedural activity, whereby the information about the people, needed for planning, research etc are collected from primary sources. The initial key factors in deciding on the enumeration procedures, is the type of information needed, the level of details needed, and the unit of analysis desired. In the 1988 census, early plans were aimed at having information needed by the nation, various organizations, and interested individuals, and in doing so, these factors were put into consideration.

In planning, enumeration activities were given a special attention in order to make profound preparations before enumeration. The importance of the administrative machinery during enumeration cannot be over-emphasised. The delicacy and complexity of the work is characterized by the enormous manpower and materials involved.

#### ACTIVITIES PRIOR TO THE ENUMERATION

Like in the past censuses, various preparations for the 1988 census had to be done before enumeration. This was aimed at having a successful enumeration which would bring about reliable information. Most of the census preparations were done within a period of two years before the enumeration exercise. These activities which have been separately discussed in other chapters, included the establishment of the organizational structure suitable for the census project, the Geographical work, design of the questionnaires, conducting of the pilot censuses, publicity campaign, and recruitment and training of the manpower. Essentially, these were part of the enumeration preparations, which had direct and indirect impact on the quality of the results. Nevertheless, some important aspects with regard to the aforementioned activities are highlighted in this chapter.

In order to implement efficiently the census activities, obviously there was a need of having a powerful organizational structure from ten cell units to national level. The Census organization consisted of the Central Census Committee (CCC), under the chairmanship of the Prime Minister and First Vice-President. In the Regions and Districts, Regional and District commissioners respectively chaired those Committees. On the other side, the Central Census Office (CCO), had the task of implementing the decisions made by the CCC. In the Regions and Districts, Regional and District Census Officers, and their Assistants, were implementers of the decisions which were made by their respective committees.

Geographical work was done purposely to avoid double counting or under enumeration. Also the results of this work facilitated sampling procedures for detailed questionnaire. It was during geographical work when problematic areas were earmarked, and such areas were given special attention. During enumeration, eg, Nomadic areas, private mineral prospecting areas, etc. Creation of EAs necessitated a simplified field work supervision during enumeration across the whole country, and it helped Enumerators and Supervisors to understand specifically the boundaries of their areas allocated to them.

A careful design and better phrasing of questionnaires promoted the understanding of the questions by enumerators and respondents. Failure to understand the questions would have resulted into poor quality of information collected. Also good design of the questionnaires simplified the process of filling in the information and making simple additions in the questionnaires, without creating much confusion to enumerators.

Before enumeration, two pilot censuses were conducted. The first pilot census was done in January 1987, and it was aimed at testing the design, acceptance and the reliability of questions. The second pilot census was held in August, 1987, exactly one year before the census. This was aimed at testing the entire census mechanism.

In 1987, a publicity officer from the Prime Minister's office was attached to the census project. His role had impetus to the project, promoting peoples awareness about the census activities.

Recruitment and training was the last but an important stage before the enumeration. The 1988 census training structure was designed in such a way that enumerators and supervisors were uniformly trained across the whole country. The aim was to get properly trained enumerators and supervisors who would work in a uniform manner so as to extract the desired information from the field.

## **ENUMERATION PROCEDURES**

In the preceding paragraph it is already indicated that the importance and complexity of enumeration procedures are characterised by the volume of manpower involved in the whole exercise. Also the involvement of different people, with different personalities, is an indication that enumeration is a complicated work which needs close attention from the entrusted personnel. Therefore the success of enumeration in 1988 census was not entirely countable only for enumerators, supervisors and DCOs, but even those who participated in mobilizing the people. In this case, two groups could be identified, that is; the first group which worked in the field directly, and the second one which mobilized and educated people about census activities.

## **ENUMERATION STAFF AND THEIR FUNCTIONS**

During enumeration, the field work group comprised Enumerators, Supervisors, DCOs, and RCOs. Enumeration work started in the night of 27/28 August 1988. However, before the census night enumerators and supervisors had to spend three days updating lists of ten cell leaders, heads of households, EA boundaries, and supervision area maps, etc. This job was done with the help of local leaders like village chairmen, ten-cell leaders etc. The types of Enumerators and Supervisors have been discussed in chapter 7 on Recruitment and Training for Enumeration. The main task of the Enumerator was to enumerate all household members in his/her respective EA. With the help of local leaders, EA maps, lists of ten-cell leaders, and lists of heads of households, enumerators ensured that all household members were enumerated. Local leaders, especially ten-cell leaders, had tasks of introducing enumerators to the household members. They also acted as interpreters between enumerators and respondents whenever the language problem cropped up. The role of supervisors was to ensure that the enumeration was properly done by the enumerators. Supervisors were always in contact with enumerators, solving all problems which faced the enumerators in the field. As part of the quality control, supervisors had a task of checking and correcting the questionnaire after being filled in by enumerators. During and after enumeration, major part of the workload was laid upon DCOs, whereas the primary function of the RCOs was to co-ordinate all census activities within their respective regions. The DCOs had the following tasks:-

- Recruitment of suitable Enumerators and Supervisors,
- Preparation of the training venues and the required facilities.
- Preparation of the geographical materials for Enumerators and Supervisors and ensuring that all materials are distributed properly to the Enumerators.

- Arrangement of special enumeration procedures which were used to enumerate special groups.
- Checking the Supervisors and Enumerators work after completion of enumeration work.
- After enumeration they received questionnaires and other materials from Supervisors.
- Finally they packed and sent the questionnaires and other materials to RCOs. This was done after the compilation of EA, village and ward population totals by sex.

## **ENUMERATION APPROACH**

It was decided that the 1988 census should follow a **de facto** count approach. This means that people were enumerated referring to where they spent the census night. This approach was more convenient than the **de jure** approach (enumerating a person referring to where he/she usually lives), or self enumeration (Filling in the information in a questionnaire by any member of household instead of Enumerator) because of the following reasons:-

- For continuity and comparison reasons, since all post-independence censuses had been conducted by using the **de facto** approach.
- Comparatively, this approach costs less than **de jure** approach.
- Technically, there were worries that if strict carefulness is not taken, the 'de jure' approach would have resulted in having more omissions compared with the **de facto**.
- Due to economic and education limitations, the nation does not allow the application of self enumeration. This system is applicable in developed countries where communication system is highly developed and very efficient.

## **EQUIPMENT AND MATERIALS**

The experience which was gained from the past censuses played an important role in revising census documents. In this exercise, new documents were prepared in order to promote the efficiency of various personnel during enumeration. Among many documents which were prepared to enlight implementers are Instructions to enumerators, handbook for supervisors, and handbook for RCOs and DCOs. These documents helped the intended persons to understand their roles during enumeration. Other materials and documents for Enumerators and Supervisors are indicated in the handbook for Supervisors and in the instructions to Enumerators, Section 2.2.

## **ENUMERATION OF SPECIAL GROUPS**

There were different approaches to enumerate different population groups. Groups could be identified as private households, communal households, people with no permanent residence, travellers, and nomads.

### **Private households**

Persons who shared living costs were considered as members of one household. However, during enumeration persons who were enumerated were those who slept in that household on the census night. Two types of questionnaires were used. A detailed questionnaire was used to enumerate private households in sampled EAs, while the general questionnaire was used to cover other private households in non-sample EAs.

### **Communal households**

This category comprised groups like army camps, schools, hospitals, hotels, prisons etc. Again, only the persons who spent the census night in such places were enumerated and the general questionnaire was used.

### **Nomads**

This category comprised people who usually move from one place to another. The reason might be due to looking for grazing grounds, looking for new fishing areas, etc. Despite backlong known difficulties in enumerating such groups, during the 1988 census there were no reported problems faced by enumerators in locating such population groups. The general questionnaire was applied in such households.

### **People without permanent places to live**

From the beginning such groups were identified as Vagabonds, Mentally retarded persons, etc. These people were enumerated with the assistance of police and DCOs. Special Enumerators were assigned to such groups, and the general questionnaire was applied. These groups were only enumerated during the night because it was only at that time they could be found.

### **Travellers**

Those who travelled during the census night were enumerated at the point of embarkation. Enumerators were placed at the bus stands, railway stations, various ports and harbours. This group was enumerated using general questionnaire, and each traveller was given a special identification card showing that he/she was already enumerated.

## **ELIGIBILITY CRITERIA**

The general rule applied in identifying eligible persons to be enumerated was that the person must have spent the census night in a certain household. Apart from the above rule, other factors which were put into consideration were as follows:-

### **Persons who were included in the enumeration were**

- Those who slept in a household but were absent when the Enumerator arrived, eg those who left their households in the early morning to look after their gardens, farms etc;
- All visitors who slept in a household;
- Those who did not spend the census night in the household but were out because they were on night shift;
- Those who spent census night in Tanzania but crossed the border to neighbouring countries, in the

next morning to work;

- Those who are not citizens, but spent the census night in Tanzania;
- Those who died after census night;
- Those who had no permanent residence but usually do shift from one place to another provided they were in the country during the census night.

#### **Persons who were excluded in the enumeration were**

- Diplomats and their families;
- Foreign military attaches;
- Children who were born after census night;
- Those who died before census night;
- Those who were residents in neighbouring countries or other countries but crossed to this country in the morning of census date,
- Diplomats and their families who represent our country abroad. However if some of them happened to have passed the census night in this country they, were enumerated.

### **FILLING IN THE QUESTIONNAIRE**

The first task of an Enumerator was to list all eligible persons, (as per above paragraph) in a household. The head of the household had to be listed first, in the first column, followed by family members eg wife, children, ending with adult non- relatives. In the absence of the head of household, any person was obliged to answer census questions on his behalf. The second and the third columns were filled in simultaneously with the first column. With the exception of private households, and Nomads, other groups had no head of household, and the relationship throughout was coded as "6" (other persons). After filling in the first three columns, the questionnaires had to be completed row-wise for each person listed. The first five questions which constituted the general questionnaire were compulsory to all persons. Enumerators who used detailed questionnaire had to fill in twenty seven more questions apart from the compulsory ones. In the detailed questionnaire not all questions were asked to all listed members as there was age limit and sex categorization, as to which question should be asked to which category. (see chapter 6 on census documents)

### **ACTIVITIES AFTER ENUMERATION**

After enumeration basically two tasks were performed in the district census office. The first task involved various checks of entries in the questionnaires. Secondly after the DCOs had been satisfied with the quality of entries in questionnaires, they worked on compilation of totals for males and females, together with the total number of households in the districts. DCOs together with their assistants compiled the summary sheets from which the total population by sex in each EA, village, and ward/branch within a district were compiled. These summaries were an important input for the preliminary report. Thereafter, the questionnaire booklets and other materials were dispatched to the Central Census Office.

## QUALITY CONTROL

Quality control was an important aspect before, during enumeration and after enumeration, and was carried out at every stage of census operation. During the planning stage it was noted that enumeration was a huge operation, which involved many people, a lot of movements and appropriate decisions. Thus, throughout and after enumeration there was a well established system of checking documents to ensure consistency so as to achieve maximum quality. Enumerators were required to review entries in each questionnaire at the conclusion of the interview. Enumerators had to check in their notebooks to see if they were required to make callbacks, otherwise some persons would have been left out without being enumerated. The Supervisors had to carry out physical and statistical checks in all columns to find out if they were complete, consistent, clear and eligible. If any mistakes were detected, enumerators were asked by supervisors to go back to the field to correct the mistakes. The same kind of editing was done by the DCOs, with the help of some selected supervisors.

For well known reasons in census, it is impossible to have accurate information despite having edited the questionnaires in the field. This necessitated another editing at the Central Census Office. The criterion which guided manual editing at this stage is that changes were made on entries whose answers were most likely known to editors. To ensure better editing, the editors had to be exposed to the concepts of questionnaires. In general the editing procedures continued in other stages like computer editing, and continued during the technical review prior to publication of the results.

## CONCLUSION

Generally, the objectives of conducting the 1988 census were achieved after the completion of the enumeration. However, it should be noted that information from any census cannot be completely free from errors. The general assessment from the manual editing at the Central Census Office indicated that most enumerators and supervisors did a commendable work, while others did not. Where the required standard of the results did not meet the anticipated quality, such concern could be due to unforeseen factors during planning and preparations. The type of errors which were noted during, manual editing in the office can be grouped as follows:-

- Some errors were caused by negligence or lack of commitments by some of the enumerators and supervisors who did not put much effort to edit the booklets which had omissions and other errors. This indicated that some enumerators and supervisors, did not follow the laid down procedures of checking all entries in the questionnaires. Other errors indicated that some enumerators and supervisors did not grasp properly some concepts which resulted in inserting wrong entries. It also indicated that instructions in the manuals were not properly followed in the field.
- Poor preparations in certain areas could have affected the quality of the census results. For example, the planned time to complete enumeration in one EA was four days, and such a short period was set purposely with the intention of collecting data of high quality. However, enumeration in some EAs lasted for more than four days, and possibly this could have been due to the fact that the population of some EAs was underestimated during the pre-enumeration stage as compared to the actual population enumerated. This means enumerators had to spend more time in the field than scheduled. Also several EAs had large areas with scattered population settlements and this involved long distance walking and thus spent some time to move from one household to another. Absence of some respondents especially in single-person households created a problem of many callbacks which increased the time duration spent on enumerating one EA. In other areas enumerators ran short of questionnaire booklets and had to stay idle for some time waiting for additional booklets. Obviously other unnoticed factors could have caused some delays, but on average the enumeration exercise was completed in about 5 to 10 days.

In future, more attention should be focused on better planning mechanism in order to improve preparations, training, and supervision. All these, if properly implemented, would help to improve the performance in the enumeration work.

## **CHAPTER 10**

### **DATA PROCESSING**

The general and detailed questionnaires including other census documents from the regions started to flow into the Central Census Office beginning mid-September 1988. The documents were thoroughly checked, worn out boxes were replaced and clearly marked with proper geographical code numbers. The following are details of various data forms submitted to data processing section for data capture and processing:

#### **DETAILED QUESTIONNAIRE**

Each questionnaire (Form SWT1) can accommodate ten member's information and housing conditions records. Fifteen such questionnaires were bound into a booklet with a cover form SWT2 on which summaries of males, females and total for each questionnaire were recorded.

#### **GENERAL QUESTIONNAIRE**

Form SWT4 for the general questionnaire is similar to that for the detailed questionnaire except that it has only five questions, name, relationship, sex, age and citizenship.

#### **ENUMERATION AREA SUMMARY SHEETS (FORM SWT14)**

The Enumeration Area Summary sheets were compiled by the Enumerators and checked by the Supervisors and the District Census Officers. Information on these summaries include village names, number of households, males, females and total population for each enumeration area. The Area File was used as a master check against both general and detailed questionnaire summary data.

#### **WARD SUMMARY SHEETS (FORM SWT16)**

The Ward Summary sheets were also compiled by the enumerators and checked by both the Supervisors and District Census Officers and verified by Regional Census Officers. The information on Ward Summary sheets were similar to that provided on the Enumeration Area Summary sheets but at ward level. These summaries were used to produce the 1988 Population Census Preliminary Report.

#### **MANUAL EDITING**

A team of personnel was set up to manually edit both general and detailed questionnaires with emphasis on the identification on each questionnaire. Similarly all forms earmarked for processing were manually edited.

## AUTOMATIC DATA PROCESSING

The Key Edit 6950 System used in data capture for the 1978 population census was not functioning properly due to old age and also because about 50% of disc tracks were unusable. This ageing data entry equipment could not effectively be used to enter the 1988 population census data. As a result in December 1986 a memorandum requesting for a data entry equipment was forwarded to the British Government. Through the Overseas Development Administration (ODA) the British Government assisted the Bureau of Statistics with four ICL DRS300 Min-computers with 32 workstations. Three of the clusters each with 10 workstations were dedicated to data entry while the fourth cluster was used as the controller. The data entry equipment was installed in July/August 1988. Sixty data entry operators were recruited and trained by Computers and Telecoms Systems (T) Ltd. the local ICL representative, for two days and further training by the programmers carried out within the Bureau for two months using the new data entry equipment.

The software FormFill supplied QCL Systems of U.K. was used to enter the census data. The initial version of the FormFill software was installed on the three clusters and tested in August 1988. Within the first few days of its application problems started to arise which suggested that the FormFill was incompatible with the DRS300 CDDS, the operating system. QCL were informed by local ICL representative in April 1989 and QCL responded with a new version of the FormFill which was installed late in May 1989. For the first five months of 1989 only data for two regions had been entered both for general and detailed questionnaires.

Cleaning of census data was a difficult and cumbersome activity. The data batch files keyed by the operators were collated and district identification validity checked by program written by ODA computer consultant and corrections made where necessary before data file was transferred to the master cluster through OSLAN or by diskette. District data files were then archived on streamer tapes while the same district data files were shipped over Microlan 2 to PWS micro computer for further checking and processing. A number of programs for checking the data were developed by the computer consultant. These checks included records with invalid district identification codes, records containing any characters other than blanks and digits, records type was neither '1' (population records) or '2' (household records), records with duplicate identification numbers, records which were out of sequence, population records with no associated household record and household records with no associated population records.

Errors originating from the above runs were manually corrected using a text editor. For those errors which could not be easily corrected, reference to the questionnaires was necessary. The questionnaires were stored at the Central Census Office about a kilometers away from the data processing section. Retrieval of questionnaires to enable programmers effect corrections would take two to three days due to the fact that they not properly stored once the questionnaires were keyed.

This process was repeated for each batch of data until the data batch is clean. These were then merged to form a complete district. These were then merged to form a complete district. The district file was than checked for any possible errors as well as matching the sample data or general questionnaire data against Enumeration Area master file.

Once the district sample data file was clean the data was edited using CONSistency and CORrection software (CONCOR) program with minimal imputations. The Concor edited file was later passed on to CENSus Tabulation System software (CENTS) programs which produced district tally records file (TRF). These tally records were then weighted using district rural and urban weights. Tally records for all districts in a region merged and tabulated.

## **DATA CLEANING AND WEIGHTING PROCEDURES FOR DETAILED AND GENERAL QUESTIONNAIRES**

As shipped from the DRS300 system, the data files for the General and Detailed Questionnaires should have names of the form **GENdddnn.DATA** and **CENdddnn.DATA** respectively where **ddd** is the 3-digit district LD., and **nn** is a 2-digit number. The first thing to be done after the files have been transferred to the DRS PWS System is to back them up, either on diskette or on streamer tape. The files to be cleaned should be moved to the directory \POPDATA. Most of the procedures described below are mainly applicable to the General Questionnaires and some to the Detailed Questionnaires. The data are then cleaned using the procedures described below, and finally archived on to diskette or streamer tape.

### **1. Initial Data Cleaning**

Run the batch procedure **INITCHK** on each of the files. This procedure requires that the amount of free space on the disk is approximately the size of the input file. This batch procedure generates a report which is in three parts

- i - The Household Break Report which lists
  - a. Records whose IDs do not match the 3-digit district ID,
  - b. Records containing any characters other than blanks or digits,
  - c. Records whose record type is neither '1' (population records) or '2' (household records).
  - d. Records which are out of sequence.
  - e. Population records with no associated household record.
  - f. Household records with no associated population records.
- ii - A Duplicates Report, listing those records with duplicate ID numbers.

### **2. Data Sorting and Checking of Enumeration Counts**

Next the procedure **DATTOSRT** should be run on each of the files. This procedure performs the following functions:

- Removes blank records from the input file, and sets the 3-digit district I.D. in each record to match that specified as the second parameter to the procedure. The output from this stage has the extension **.FIX**.
- Sorts the **.FIX** file, on its first 20 characters, and writes the sorted output to a file with extension **.SRT**. The **.FIX** file is then deleted.
- Checks the **.SRT** file for duplicates, in the same manner as in the procedure **INITCHK**.
- Produces a Household Break Report, in the same manner as **INITCHK**.
- Checks the household and population counts against the appropriate district batch file and generates the Match Report.

At this stage, there should be no errors reported by the duplicate check or household break procedures. The match report must be carefully checked and any required corrections made to the input (.DATA) file, and the procedure repeated. The cleaned .DATA files should be backed up onto streamer tape or diskette, and may then be deleted from the disk, as the next step uses the .SRT files only.

### **3. Merging the Sorted Files**

This third step is carried out by the CENMERGE procedure, which will merge up to 8 previously sorted files at a time. Space limitations will almost certainly require that only a few files be merged at a time. After each merge step, the procedure MERGECHK should be run on the output file, and any errors corrected. The final merged file for the district should be named GENddd.SRT, where ddd is the 3-digit district I.D. and should be archived to diskette or streamer tape.

### **4. Adding the Detailed Questionnaires.**

Load the cleaned detailed questionnaire file for the district, DISTddd.CLN, where ddd is the 3-digit district I.D., from backup diskette or streamer tape, and run the batch procedure DQBAT, using this file as input, and specifying the filename DQddd.DATA as output. This output file should be checked by using the batch procedure INITCHK, and any errors corrected. The procedure EACHECK should also be run on the file DQddd.DATA, and the output report compared with the match report for the file GENddd.SRT. No Enumeration Area should occur in both reports. If there is such an occurrence, it must be investigated, and data moved from the General Questionnaire file to the Detailed Questionnaire file as necessary, and both files cleaned. When there are no errors, merge GENddd.SRT with DISTddd.DET, using the CENMERGE procedure, and giving the output file the name GENddd.RAW. Check this output file by using the procedure MERGECHK. If there are no errors, the final cleaning step may now be performed. The final MERGECHK report should be carefully filed as it may be required later for checking.

### **5. Removing extraneous household records.**

This last step uses the batch procedure REMHREC, which copies its input to its output, removing any extra household records. This output file should be called GENddd.CLN and backed up to streamer tape or diskette. The program is invoked by the command REMHREC input-file output-file where input-files the name of the input file of detailed questionnaire data, output-files the name to be given to the output file. DO NOT USE THIS PROGRAM TO PROCESS DETAILED QUESTIONNAIRES.

### **6. HHADD - Increment Household Number Utility.**

It is sometimes necessary to change the household numbers in a series of records by adding a constant, and the program HHADD is provided for this purpose. To use this program, the records which are to have their household numbers incremented must first be moved to a separate file by using the cut and paste facilities of a text editor. HHADD is then applied to this file and the resulting file pasted back into the original file. The program is initiated by a command line of the form HHADD input-file output-file increment where input-files the name of the input file, output-files the name of the output file, increments the quantity to be added to each household number. If the result of adding the increment to the household number in a record would exceed 999 a message is printed on the console and the program is terminated. As written the program will only deal with positive increments.

### **7. Preliminary Tables for Weighting.**

The batch procedure TESTWT may be used to construct tables of Single Years of Age by Sex for rural and urban wards. It is invoked by the command TESTWT gen-file det-file area-file-id district-id

where gen-files the name of the file containing the cleaned general questionnaire data for the district,det-files the name of the file containing the cleaned detailed questionnaire data for the district,area-file-idis the area-file identifier for the area-names file to be used. This is the same as that passed to the procedures ARGEN or PREPA and will be either the characters TZ or MZ.district-idis a three-digit district identifier.This procedure produces six tables. The first is a ward level summary, giving for each ward in the district the population, number of households and average household size. Next is a table of Age in Single Years by Sex for the Rural and Urban sub-populations of the district, based on the General Questionnaire file. This is followed by a similar table, but based on the Detailed Questionnaire file.The fourth table gives the computed weighting factors for the rural and urban populations. One set of weights is based on the ratios of Enumeration Areas covered by the General and Detailed Questionnaires, the other is based on the ratios of populations covered by the questionnaires.The fifth table is Age in Single Years by Sex for the Detailed Questionnaire, weighted according to the Enumeration Area ratios previously given. The sixth table is similar to the fifth, except that the weights are determined by the population ratios.

### **8. Transferring data from the DRS 300 to the DRS PWS.**

Since the Microlan2 FTF transfer is still not functioning properly, the files must still be transferred as print files. Although the procedure XFER is available on the DRS 300 to assist in this transfer, it is possible to simply use the copy command on the DRS 300, and copy the file to the device PRN:. If this procedure is adopted, the command **printer 3** must first be issued at the terminal at which the copy command will be used.It is important that the sizes of the files as given in the DRS 300 directory listing be compared with the size of the file as received by the DRS PWS. There will nearly always be a difference, with the DRS PWS files being smaller than the originals on the DRS 300, but this difference should never exceed 127 bytes per file copied. If the difference is greater than this, it means that the file has been corrupted on the DRS 300. In such a case, the program FIXFILE should be used to send the data.This program should be invoked by the command FIXFILE input-file LST: where input-files the name of the file to be transferred,LST:is the Pascal/MT+ name for the printer. On completion, a message giving the number of bad characters found and converted to blanks is issued at the terminal.

### **9. Checking for missing EAs.**

The batch procedure WILDEA is provided to check the Enumeration Areas occurring in a data file against those in the district batch file and report on two types of mismatches: a - E.A.s in the input data file which do not occur in the district batch file, and b - E.A.s which occur in the district batch file but which are not represented in the input data file.This procedure should therefore only be used on a final general questionnaire file, since a large number of missing E.A.s will be reported on partial files. To initiate the procedure, use the command WILDEA data-file 3-digit-district-id where, data-files the name of the data file to be checked.The full path must be given.3-digit-district-id is the 3-digit district identifier for the district.

The following is a sample output report from this procedure.

06/12/90 16:21:07 Wild/Missing E.As for file \popdata\gen113.cln

	REG	DIST	WARD	EA	HH	MA- LES	FEMA- LES	TO- TAL	R E M A R K S
M-	11	3	013	903	0	5	38	43	NS Not in input file.
M-	11	3	021	902	10	66	47	113	NS Not in input file.
M-	11	3	031	013	175	361	487	848	NS Not in input file.
M-	11	3	031	052	116	229	312	541	NS Not in input file.
M-	11	3	031	073	167	299	453	752	NS Not in input file.
S-	11	3	071	071	208	457	516	973	Not in batch file.
M-	11	3	071	072	208	457	516	973	NS Not in input file.
S-	11	3	071	988	1	97	44	141	Not in batch file.
S-	11	3	093	988	25	351	284	635	Not in batch file.
S-	11	3	101	988	1	1	3	4	Not in batch file.
M-	11	3	151	033	148	269	332	601	NS Not in input file.

### CONCLUSION

From the foregoing a number of problems have, to a certain extent, affected smooth processing of the census data. The hardware and software problems in the early stages of data entry contributed, though not seriously, to the delay of the overall processing and eventually publication of census results. If the proposed monetary incentive package for the data entry operators and extra disc space for DRS 300 data entry equipment is implemented, the data capture activity which has reached a stage will greatly be improved.