

UNITED NATIONS  
ECONOMIC  
AND  
SOCIAL COUNCIL



Distr.  
LIMITED  
E/CN.14/CAS.3/3  
4 April 1963  
Original : ENGLISH

ECONOMIC COMMISSION FOR AFRICA  
Third Conference of African  
Statisticians.  
Addis Ababa, 2 - 11 October, 1963.

METHODS AND PROBLEMS OF AFRICAN

POPULATION CENSUSES AND SURVEYS

1955 - 62.

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## I. INTRODUCTION

### General

1. At the Second Conference of African Statisticians, held in Tunis in 1961, emphasis was given to the value of inter-change amongst countries of experiences in the planning and conduct of censuses and surveys. Special interest was expressed in the 1960 World Population Census Programme and it was felt that there was need for a manual describing the problems of planning, conducting and processing population censuses as revealed by recent operations in Africa.
2. Although the decade to which the 1960 Programme refers (1955-64) is still unfinished, a great deal of material has already become available from various parts of Africa, material which is of special interest in its reflection of the ingenuity which has been brought into play in these experimental years in African statistical activity. It is believed that it is worthwhile to attempt to systematize this considerable volume of information, even before the decade is complete, for several reasons, the first being that the dispersion over time of the operations in different countries and within countries establishes a continuity for the continent as a whole which renders any cut-off point arbitrary. Meanwhile some countries are facing new needs which call for new inquiries on a national or sub-national scale: it would be of advantage if these could be planned in the light of the most recent work carried out in other African countries.
3. These points are the more important in that the post-war years have seen the first wide-spread attempts in Africa to meet, in statistical planning, the challenge of social and economic conditions which differ from those of other regions. A population census is not an isolated activity: it should be seen as part of a general statistical programme, providing for that programme information basic to the formulation of policy in regard to specific problems and basic to more detailed studies geared to

the elaboration of these policy decisions, all seen in the context of planning for economic development. For the newly-developing countries one of the chief problems in achieving a meaningful study of the population by statistical means is that the techniques and resources are limited in relation to the desired ends. Anthropologists and sociologists through their direct interest in social structure and social change have an understanding in depth of many of the relevant factors in various parts of Africa, but this will not meet the needs of policy-makers for information covering whole territories and their main geographical, ethnic or other components.

4. It cannot be claimed that solutions have been found for all the difficulties involved in the African countries, but the practices reviewed in this report show the intense thinking that has gone into planning censuses in a way that would economize scarce technical resources while not sacrificing substance. This is an understatement of the real achievement, which has been a continual experiment with both substance and technical resources in the process of which, in the last decade, almost the entire population of the continent has been surveyed. In the same process, the defects of the old administrative censuses have been revealed and attempts made to avoid their pitfalls and, because of the lack of annual statistics of population movements, the recent operations have mostly sought to extend the functions of the census inquiry so that it will give not only a static picture of the size of populations and the inter-relationships of their components but the dynamics of their growth.

#### Terminology

5. The present intention is to comment only on usage in respect of two groups of terms which need clarification because of the frequency with which they occur in this report.

6. In the use of the terms "census" and "sample survey" the following distinctions are made, purely for convenience, in regard to inquiries in any specified area or population group:

Census:

Complete enumeration by door-to-door visiting or by way of mailed questionnaires.

Administrative census:

Complete enumeration or estimation for administrative purposes, without door-to-door or mailed inquiries.

Sample survey:

Sample enumeration of units selected at random, by door-to-door visiting or mailed inquiries.

7. This distinction is conservative in regard to the increasingly frequent use of the term "census" to connote both total enumerations and sample inquiries. However, there is a need in a methodological study such as this for some readily-understandable terminology which will indicate differences in procedure without labouring the point. It will be seen, for example, that some African countries have carried out a total enumeration followed, as part of the one operation, by a sample survey while others have conducted total enumerations in the towns and sample surveys in the rural areas.

8. The distinction does not preclude the use of the term "census" in its broader meaning where the context does not involve consideration of the particular methods employed and where no confusion is likely to result.

9. The administrative censuses, because of their less systematic methods of securing coverage of the population, are not regarded as constituting part of the census programme reviewed in this report.

10. It is impossible to be even as precise as this in referring to distinctions as actually made in some African countries in respect of major

population groups. There are two main levels of difficulty which can at this stage be only very superficially treated. The first is that national frontiers have in the past meant less in the African context than tribal groupings, which frequently cut across national frontiers; and the second is that some governments have shown themselves in practice less interested in who is and who is not of "local" origin than in the question of who is and who is not of African origin. The former has usually been dealt with by inquiries relating to "tribe or nationality" while the latter has sometimes been approached through a division on administrative grounds into groups such as African, European and Asian. However, a third general approach has been made in areas where separate censuses have been taken of the "non-indigenous" population - sometimes this term refers to non-Africans and at others it has a broader connotation which includes those of African origin exterior to the territory being surveyed. Both the terms "non-indigenous" and "non-African" can be objected to on various grounds. They will be avoided for this reason where possible; where it is impossible to avoid one or other of them the coverage will be indicated where necessary.

#### Sources.

11. Much of the material for this report has been collected in the course of visits to various countries. Some of the information, fortunately very little of it, is not documented and was gathered through personal interviews with statisticians engaged in the planning and conduct of the operations. Where documentation exists, it often consists of preparatory materials such as questionnaires and instructions to field workers in booklet form or in administrative circulars. Occasionally an administrative report already existed even where the field work had been completed only very recently.



12. In other instances, monographs have been prepared, often containing details of the method of enumeration as well as provisional or final results, sometimes for a whole territory, sometimes for particular regions within a territory. There are again a few instances where sufficient time has elapsed for the complete documentation of the operations in all their phases.

13. Where information was incomplete or unavailable, other possible sources of information, such as monthly, quarterly or annual bulletins, have been consulted in an attempt to cover the latest census or sample survey. It has not always been possible to fill the gaps or to be quite certain that it is the most recent operation which has been included. Reports are constantly being received in the Economic Commission for Africa but it is impossible to know whether the present holdings are complete.

14. The sources available in the Economic Commission are shown in the bibliography at the end of the report. They are listed alphabetically by name of country except in cases where the relevant publication refers to a group of countries such as the (former) French West Africa and French Equatorial Africa.

#### Form of the report

15. The report has been designed to follow the United Nations publications reviewing the experience of the 1950 World Census Programme in the light of international recommendations for the conduct of census operations:

#### Principles and Recommendations for National Population Censuses.

(Statistical Papers, Series M, No. 27)

#### Handbook of Population Census Methods.

Vol.1. General aspects of a population census.

Vol.11. Economic characteristics of the population.

Vol.111. Demographic and social characteristics of the population.

(Studies in Methods, Series F, No.5, Rev.1).

## II. GENERAL ASPECTS OF THE CENSUSES

### OR SAMPLE SURVEYS.

#### Coverage of geographic areas and major population groups.

16. As stated above, almost the entire continent of Africa has been covered by censuses or sample surveys in the last decade. However, there are a number of territories which are excluded from the present report because of lack of available information on the methods employed, because they have not yet conducted an inquiry on a national scale, or because operations were conducted before 1955 and it is planned to repeat the operation in the near future.

17. The following is a list of territories which have conducted or are at present conducting censuses, but for which information relating to the method of operation is entirely lacking or of insufficient detail to permit their inclusion in the report.

<u>Territory</u>	<u>Date</u>	<u>Remarks</u>
Angola	31.XII.60	
Basutoland	8.IV.56	
Bechuanaland	8.IV.56	
Cape Verde Islands	15.XII.60	
Chad		Survey begun 1962
French Somaliland	? 1962	Census of Non-Indigenous population taken 12.XII.56
Ifni	31.XII.60	
Madagascar		Census of towns in progress
Mauritania		Census of Non-Indigenous population taken 12.XII.56
Portuguese Guinea	30.XII.60	
Réunion	9.X.61	
Sao Tomé and Príncipe	15.XII.60	
Spanish Equatorial Region	31.XII.60	
Spanish North Africa	31.XII.60	
Spanish Sahara	31.XII.60	

18. The following territories have not yet conducted censuses or surveys covering the whole territory:

<u>Territory</u>	<u>Remarks</u>
Ethiopia	Municipality of Addis Ababa, census taken 10/11.IX.60
Gambia	Census of Colony only taken 4.XI.51; general census planned for 1963.
Sierra Leone	Census of former Colony taken 28.XII.47; general census being prepared for 1963.
Somalia	Census of former Italian Somaliland taken in 1953; census of Non-Indigenous population of former British Somaliland taken 25.IV.1931.

19. In the territories of Burundi and Rwanda a sample survey of which the details are not available was conducted in 1952. This survey though apparently based on random sampling had some features in common with administrative census procedure. Plans have been made to conduct sample surveys at 5-year intervals but it is not known if the first of these has yet been taken. <sup>1/</sup>
20. Censuses were conducted in Algeria and Libya in 1954 and both countries plan, if circumstances permit, to conduct a further census in 1963 or 1964. The 1954 censuses are documented but are omitted from this report because they fall outside the decade of the 1960 World Census Programme.
21. As will be seen below, there are 36 African territories for which sufficient information is at hand to enable a reasonable account of the census or survey methods to be given.
22. In the coverage list appearing in the following pages an attempt has been made to show in summary form the most important general features of these thirty-six inquiries. In principle the list includes the inquiries which are the most recent and which, either singly or in combination, give the widest geographic or population coverage within each territory. It proved necessary to review two main population groups: the "indigenous" or "African" and the remainder; the term indigenous has been retained in the text but it should be noted as remarked earlier that examination of the practice in various countries reveals lack of

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<sup>1/</sup> Lorimer, Frank: Demographic Information on Tropical Africa (Boston, 1961), page 141.

comparability from country to country in the groups which were being distinguished. It is important in this connection to emphasize that the categories referred to here are those which were used in the enumeration itself, and not necessarily those used in the presentation of results. Since detailed presentation of the differences in the enumeration procedures would be tedious, it is perhaps sufficient to note that the basic purpose was the same in most countries; namely to isolate in the statistics two populations living under different social and economic circumstances. <sup>1/</sup>

The more privileged group consisted for the most part of Europeans, but also of Indians, Pakistanis, Syrians and Lebanese. Where specific instructions have been given for the allocation of those of mixed African and other origin, the usual effect seems to have been that they were to be included with the non-indigenous unless they lived, as one government has expressed it, "amongst and in the manner of" the local population.

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<sup>1/</sup> See, for example, République française. Service des Statistiques d'Outre-Mer: Outre-Mer, 1958, page 77.

COVERAGE OF CENSUSES AND SAMPLE SURVEYS CONDUCTED IN THE PERIOD 1955-62  
(N.B. Asterisks mark the operations for which documentation is inadequate for detailed analysis. C=Census, S=Sample survey, d.f.=de facto, d.j.=de jure).

Territory	Coverage	Date(s)	Type	Population enumerated
CAMEROON	<u>Indigenous population</u>			
	Town of Douala	1955 to 56	C	Not stated
	" " Edéa	1956	C	Unknown
	Subdivision of M'balmayo	V to XI.56	C	Not stated
	Town of Yaoundé	1957	C	Not stated
	" " Ebolowa	I.III to 10.IV.58	C	d.f. and d.j.
	North Cameroon division excluding arrondissements of Poli and Rey-Bouba	III to IV.60	S	d.f. and d.j.
	Remainder of N. Cameroon plus Dept. of Adamaoua	IV to VIII.61 <sup>1/</sup>	S	d.f. and d.j.
	East and Central divisions of East Cameroon	1962	S	d.f. and d.j.
	<u>Area not covered</u>			
	Western division of East Cameroon			
	West Cameroon region (formerly UN Trust Territory of Southern Cameroons)			
	<u>Non-Indigenous Population</u>			
+	Total East Cameroon	15.1.57	C	d.j.
	<u>Area not covered</u>			
	West Cameroon			

Territory	Coverage	Date(s)	Type	Population enumerated
<b>CENTRAL AFRICAN REPUBLIC</b>				
	<u>Indigenous population</u>			
	Town of Bangui	XI to XII.55	C	3/
	" " Bambari	I to II.1959	C	d.f. and d.j.
	Central Oubangui	6.VII to 1/ 10.XI.59	S	d.f. and d.j.
	West Oubangui	1960 1/	S	d.f. and d.j.
	<u>Area not yet covered</u>			
	East Oubangui			
	<u>Non-Indigenous population</u>	17.XII.56	C	d.f. and d.j.
COMORO ISLANDS		1958	C	d.f.
	<u>Total population</u>	1958.	S	d.f.
<b>CONGO (BRAZZAVILLE)</b>				
	<u>Indigenous population</u>			
+	Town of Pointe-Noire	1958	C	d.f. and d.j.
+	" " Brazzaville	1961	C	d.f. and d.j.
	" " Dolisie	VIII to XI.60	C	d.f. and d.j.
	Remainder of Congo (B)	VIII to XI.60	S	d.f. and d.j.
	<u>Non-Indigenous population</u>	17.XII.56	C	d.f. and d.j.
<b>CONGO (LEOPOLDVILLE)</b>				
	<u>Indigenous population</u>			
	Whole territory	VI.55 to XII.57 1/	S	d.f. and d.j.
+	<u>Non-Indigenous population</u>	3.1.58	C	Unknown

Territory	Coverage	Date(s)	Type	Population enumerated
DAHOMEY	<u>Indigenous population</u>			
	Total territory except			
	Canton of Tehi	25.V to		
	Towns of Abomey &	30.IX.61	S	d.f. and d.j.
	Bonicon			
	<u>Non-Indigenous population</u>	12.XII.56	C	d.f. and d.j.
ETHIOPIA	<u>Total population of Municipality of Addis Ababa</u>	10/11. IX.60 IX.60	C S	d.f. and d.j. d.j.
GABON	<u>Total population</u>	1960 to 61 " " "	C S	d.f. and d.j. e.f. and d.j.
GHANA	<u>Total population</u>	20.III.60 VI.60	C S	d.f. d.f.
GUINEA	<u>Indigenous population</u>	15.1 to 31.V.55	S	d.f. and d.j.
	<u>Total population of</u>			
	Town of Conakry	2nd quarter 1958	C	Unknown
IVORY COAST	<u>Total population</u>	20.VIII to 25.IX.55	C { S	d.f. and d.j.
	<u>Indigenous population</u>			
	Town of Agboville	1956	C	d.f. and d.j.
	" " Abengourou	1957	C	d.f. and d.j.
	" " Dimbokro	1957	C	d.f. and d.j.
	" " Man	1957	C	d.f. and d.j.
	" " Bouaké	VII to VIII.58 XI.57 to XI.58	C S	d.f. and d.j. d.f. and d.j.
	Rural areas			
	<u>Non-Indigenous population</u>	12.XII.56	C	d.f. and d.j.



Territory	Coverage	Date(s)	Type	Population enumerated
KENYA	<u>Indigenous population</u>			
	Rural areas excluding Northern Province	15 to 16.VIII.62 IX.62	C S	d.f. d.f.
	Northern Province			
	Towns	VII to VIII.62	C	d.f.
	Rural areas	VII to VIII.62	C & S 2/	d.j.
	<u>Non-Indigenous population</u>			
LIBERIA	Urban areas and plots of under 20 acres in the scheduled areas	15. to 16.VIII.62	C	d.f.
	<u>Total population</u>	2.IV.62 ?.62	C S	d.f. and d.j.
	<u>Indigenous population</u>			
MALI	Office du Niger and subdivisions of Mopti, Macina and Djenné	IV.57 to ?.58	S	d.f. and d.j.
	<u>Total population</u>			
	Remainder of territory	15.VI.60 to V.61 <sup>1/</sup>	S	d.f. and d.j.
MAURITIUS and dependencies	<u>Non-Indigenous population</u>	12.XII.56	C	d.f. and d.j.
	<u>Total population</u>	30.VI to 1.VII.62	C	d.f.
	<u>MOROCCO</u>			
MOROCCO	<u>Whole territory</u>	18.VI.60	C	d.f. and d.j.
	<u>Indigenous population</u>			
	Rural areas	VI.60	S	d.f. and d.j.

Territory	Coverage	Date(s)	Type	Population enumerated
MOZAMBIQUE	<u>Total population</u>			
	Indigenous and Non-Indigenous separately	15. IX. 60	C	3/
NIGER	<u>Indigenous population</u>			
	Excluding town of Niamey + Town of Niamey	X. 59 to III. 60 <sup>1</sup> IV. 1959	S C	d.f. and d.j. Unknown
	<u>Non-Indigenous population</u>	12. XII. 56	C	d.f. and d.j.
NIGERIA	<u>Total population</u>	13. V. 62	C	d.f.
	?		S	
RHODESIA and NYASALAND Federation of	<u>Non-Indigenous population</u> and Employees of Non-Indigenous	26. IX. 61	C	d.f.
NORTHERN RHODESIA NYASALAND	<u>Indigenous population -</u> censuses planned for 1963			
SOUTHERN RHODESIA	<u>Indigenous population</u>	10. IV to 20. V. 62	C	d.f.
ST. HELENA & ASCENSION ISLANDS	+ <u>Total population</u>	21. X. 56	C	d.f.
SENEGAL	<u>Total population</u>			
	Whole territory	IV. 60 to ? . 61	S	d.f. and d.j.
SEYCHELLES	<u>Total population</u>	4. V. 60	C	d.j.

Territory	Coverage	Date(s)	Type	Population enumerated
SOUTH AFRICA	<u>Total population</u>			
	Indigenous and Non-Indigenous separately	6. IX. 60	C	d.f.
SOUTH WEST AFRICA	As for South Africa			
SUDAN	<u>Total population</u>			
	68 Towns:	VII. 55 to	C	d.j.
	Rural areas	VIII. 56	S	
SWAZILAND	<u>Total population</u>	VII to VIII. 56	C	d.f.
TANGANYIKA	<u>Indigenous population</u>			
	Whole territory	18. to 19. VIII. 57	C	d.f.
	Rural areas	IX. 57	S	d.f.
	<u>Non-Indigenous population</u>	20 to 21. II. 57	C	d.f. and d.j.
TOGO	<u>Total population</u>	X. 58 to XII. 60	C	d.f. and d.j.
		1961	S	Unknown
TUNISIA	<u>Total population</u>	1. 11. 56	C	d.j.
UGANDA	<u>Indigenous population</u>	18 to 19. VIII. 59	C	d.f.
		IX. 59	S	d.f.
	<u>Non-Indigenous population</u>	25 to 26. III. 59	C	d.f. and d.j.

Territory	Coverage	Date(s)	Type	Population enumerated
UAR EGYPT	<u>Total population</u>	20 to 21.IX.60	C	d.f.
UPPER VOLTA	<u>Total population</u>			
	Whole territory excluding towns of Ouagadougou and Bobo-Dioulasso	30.IX.60 to 22.IV.61	S	d.f. and d.j.
	Town of Ouagadougou	IV to XI.61	C	d.f. and d.j.
ZANZIBAR & PEMBA	<u>Total population</u>	19 to 20.III.58	C	d.f. and d.j.

#### FOOTNOTES

1/ These surveys excluded certain population groups:

Cameroon: Nomadic Bororos.  
Central African Republic: 15,000 Bororos and Balingas  
Congo (Leopoldville): 65,000 persons in 4 areas, 2 of them military  
Mali: 209,000 Nomads  
Niger: 200,000 Nomads in Agades, Tahoua and Northern part of  
Maradi, Goure, Zinder and M'Guigmi.

2/ In the rural areas of the Northern Province of Kenya, dispersion of settlement and nomadism led to ad hoc measures; in some sections the headman gave details of taxpayers and their dependants, in others samples were drawn to obtain raising factors to be applied to the number of tax-paying males.

3/ It is not clear what procedure, if any, was adopted for temporary absentees; the intention appears to have been to establish the de jure population and also the number of temporary residents as a separate group.

23. From this list it is possible to assess the extent to which recent African population censuses or sample surveys have conformed to the international recommendations in respect of certain characteristics which have been specified as essential. <sup>1/</sup>

24. Sponsorship. Comment on national government sponsorship of census or survey operations has to be made in the context of the changes in the political status of many African territories in the last few years. Naturally, in the period preceding the achievement of independence it was the metropolitan governments which, either directly or through their representatives in the local administration, gave legal, technical and financial backing to the operation. More recently African governments have directly sponsored the inquiries in the independent states, sometimes with bilateral assistance and sometimes with assistance from the international organizations.

25. The emergence of new political entities, bringing with it an extension of civil rights especially the right to vote, has obvious close relations to the total population of national or sub-national areas, and to the number of persons qualified to vote on the basis of age and/or sex. African governments have had good reason to be interested in the outcome of their census inquiries on this ground alone, and some of the earlier censuses such as the enumerations of Bangui, Dakar and Abidjan in 1955 were conducted with the specific intention of collecting electoral as well as other information even before universal suffrage had been introduced under the loi-cadre of 1956. In other parts of Africa,

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<sup>1/</sup> United Nations, Statistical Office: Principles and Recommendations for National Population Censuses. Statistical Papers, Series M, No. 27 (New York, 1958), page 3.

similar political developments were taking place and under the new suffrage it has been necessary to compile electoral rolls by some means or other. It is for this reason that a number of countries have undertaken field compilations of the electoral rolls independent of their census inquiries, and some censuses were deferred until the first general election was completed. Despite the cost and difficulties of conducting two separate inquiries with some elements common to both, experience confirms the desirability of divorcing the two in the interests of objectivity in the census operations, which serve a wider field of interest than does the electoral roll.

26. Defined territory, universality and simultaneity. The national or territorial boundaries referred to throughout this report correspond to those specified in the most recent available issue of the United Nations Population and Vital Statistics Report. <sup>1/</sup> There is no recorded case of any importance of departure from the observation of these territorial limits as the immediate or ultimate object of the operations, but the difficulties of accurate enumerations have been increased in Africa by the fact that the distribution of population by geographic areas may not coincide with the distribution by customary areas. Some population groups although having a customary area of "residence" or allegiance are so mobile that it is difficult to enumerate them within national boundaries. These inherent problems are further complicated by scarcity of technical and other resources, and the coverage list reflects the process by which countries in Africa have attempted to enumerate the whole of their geographical areas and the major population groups within the total population.

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<sup>1/</sup> Statistical Papers, Series A, Vol. XIV, No.4, 1 October 1962.

27. Of the 36 countries reviewed, 24 have in the period 1955-62 conducted either a complete enumeration or a sample survey covering the whole of the geographical area and all groups in the population. In the Congo (Leopoldville), Mali and Niger complete coverage could not be achieved mainly because of the difficulties involved in enumerating nomads. In Mali and Niger the estimated proportion of the population omitted was 5 and 8 percent respectively, but it was negligible in the Congo. In Guinea there appears to have been no census of the non-indigenous population, and here again it is a very small proportion which has been omitted. In upper Volta, the town of Bobo-Dioulasso has not yet been enumerated; in Dahomey several areas were omitted; in Cameroon and the Central African Republic it is hoped to continue the sample survey operations until coverage is complete; in Northern Rhodesia and Nyasaland it is hoped to carry out censuses of the indigenous population in the near future thus achieving complete coverage within the decade 1955-64. In Ethiopia, so far the only operation has been the census of the Municipality of Addis Ababa.

28. In the 36 territories, the basic operation has been a total enumeration in 24 cases and a sample survey in 12. In most of the sample surveys, the towns were treated as a separate stratum and completely enumerated. In 12 of the countries in which a complete enumeration was conducted, the enumeration was followed by a sample survey designed in some cases specifically both as a check of coverage and content and a means of collecting further information. (See pages 72 to 75 for details of these post-enumeration checks).

29. Only 12 of the operations are known to have met the 3 criteria of defined territory, universality and simultaneity: the Comoro Islands, Ghana, Liberia, Mauritius, Morocco, Nigeria, St. Helena, Seychelles, Swaziland, Tunisia, UAR (Egypt) and Zanzibar. It is probable that, if the details were available, Mozambique, South Africa and South West Africa would be included in this group. Exceptions are found in

two or more geographically separable localities. The following comments include some indication of different approaches to this problem.

De facto and de jure populations.

35. In the coverage list an indication was given of the countries which enumerated the de facto population, those which enumerated the de jure population and those which enumerated both. In that list, the terms are used solely in relation to what categories of people were distinguished on the schedules; that is, to the possible and not the actual totals established from the enumerations. It is necessary also to note that while the de facto population can be defined fairly precisely as those present in the area at the time - reference point fixed for the census, the de jure population may cover those "usually resident" as determined on some criterion of time or alternatively of family, tribal or other customary allegiance.

36. In 17 of the 36 countries, both the de jure and de facto populations were enumerated, in 14 only the de facto population was enumerated, in 2 only the de jure and in the remaining 3 the procedure is yet to be established or is not given in available sources. The infrequency of a straightforward de jure approach reflects the difficulties referred to above in establishing the population by geographical areas. An enumeration of the de facto population is much easier to plan and the basis more readily understood by enumerators; but as such it ignores the question of customary ties and of movements of population. If a question on usual place of residence is added, temporary visitors can be re-allocated to their district of residence and the de jure population can be determined, the numbers of people transferred in this process giving some indication of the importance of temporary movements. In most instances a period of less than 6 months has been taken as the criterion for "temporary" presence or absence. A limitation of this



method is that it is impossible to transfer temporary visitors to their family or household and information on size and structure of family or household may consequently be misleading.

37. If the enumeration takes the de jure population as the basis, it is possible to distinguish between the usual residents who are present or temporarily absent, and to ask an additional question on temporary visitors. This procedure has been used in many sample surveys especially those designed along the lines of the Guinea experiment of 1955. Again the usual criterion for residence has been 6 months or more, occasionally with further details within the 6 months, designed with the primary intention of distinguishing between seasonal and occasional movements.

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38. In addition to the criteria regarded as essential for the success of a modern population census, the international recommendations make reference to some considerations of a less specific nature.

39. In fixing the scope and objectives of a census in the light of national needs and interests, national technical and financial resources and regional and world-wide principles and recommendations, the following points are emphasized:

40. "The scope of the national census programme should never be so extended that the available resources of competent personnel and finances are inadequate for an accurate enumeration and for the compilation and publication of the data collected.

41. "In determining the scope and objectives of the census, due consideration should be given to the fact that the results of a national census are of maximum value only if complete and final tabulations are made available with minimum delay." <sup>1/</sup>

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<sup>1/</sup> United Nations: Principles and Recommendations for National Population Censuses. Statistical Papers, Series M, No. 27, page 3.

42. Experience in Africa in the last decade has suggested that, whatever the quality of the field work, it is possible to complete it, despite limited resources and despite the hazards of climate and terrain, in approximately the time planned. In general there has been less success in compilation and publication of the data within a reasonably short period. There are many reasons for this, including for example lack of qualified staff for editing, coding, punching, verifying and machine operating, or fluctuations in electric current affecting the efficiency of the machines. Many countries planned their enumerations so that field workers could present summary sheets showing population enumerated together with a limited number of basic characteristics; from these it was possible to produce provisional results in a very short time. The more detailed results have usually taken much longer than was planned. The possibilities of delay are such that there is no doubt of the necessity for careful advance programming of all phases of processing nor of the desirability of restricting the tabulation plan in the interest of reasonably early publication of results. Some countries have sampled from the returns in order to produce advance results and though this clearly offers advantages it has in one or two instances involved a considerable postponement of tabulations envisaged on the basis of 100 percent of the returns. It is worthy of note that in Egypt, with a population of 26.1 millions, approximately 180 tables were produced, without sampling, in 15 months; this involved a concentration of 1,100 assistants on the processing of the data. There were critical moments threatening the success of the operation but its completion in the relatively short period is an indication of what can be done if it is possible to mobilize resources on a large scale.

43. The establishment of regular intervals between censuses has not yet become practicable for many African countries. For numbers of them the first operation is not yet complete, and for others the achievement of independence gave priority to other activities which resulted in deferment of the census.

44. For similar reasons, international simultaneity has not yet been sought except in the general sense that the majority of countries have tried to conduct a census around 1960. It was clear from the discussions at the Seminar on Population Problems in Africa held in Cairo in October-November 1962 that for many countries international simultaneity would give useful information especially in respect of nationals living in neighbouring states.

45. The population censuses and surveys of a number of countries were planned in direct relation to other censuses or surveys. For example, in the Ivory Coast, Central African Republic, Togo and Mali the same sample design was used for agricultural and population censuses. Housing data were collected along with the population census in a number of urban censuses in various parts of Africa, sometimes for the non-indigenous population only whether in urban or rural areas. In Ghana, Morocco, Tunisia, Togo and the UAR housing data were collected for both urban and rural areas.

46. A point of special interest arises in considering the relation of the enumeration units as defined for the population inquiry to the units desirable for later sample surveys using the census lists as a frame. Where it is proposed to use the census lists as a frame for household budget surveys, for example, it is necessary to be sure that the living unit in the census has been defined in a way that will isolate the group which operates as an economic unit as well as a social unit.

### III. PRE-ENUMERATION PROCEDURES.

#### Legal, financial and administrative provisions.

47. It is not possible to give a comprehensive review of the legal, financial and administrative provisions made for the censuses and surveys conducted in the period reviewed. For some countries however details are available to which brief general reference is made below.

#### Legal provisions.

48. In several instances legal provisions have been made authorizing an existing government department, such as the statistical service, to conduct censuses at specified intervals or as thought necessary. It is then usual for government notices to be issued prescribing date and coverage of particular operations. Frequently it is only the government notices which are available and it is for this reason that it is not known whether there are legal provisions for confidentiality of the data, or penalties for refusal to give information or for giving false information. However, such provisions are known to exist in the Federation of Rhodesia and Nyasaland, Liberia, Ghana, Morocco, Togo, Tunisia and the UAR.

#### Financial provisions.

49. Financial provisions have been made on varying bases according to whether the census was wholly or partially financed from local funds. In most of the former French territories of West and Equatorial Africa, assistance has been given in both funds and personnel from the Fonds d'aide et de cooperation. The Guinea survey for example was partly financed from local funds and partly from French bilateral assistance.

50. Other countries have received assistance in various forms which cannot be assessed in monetary terms and which therefore makes it difficult to compare such statements of cost as exist. Moreover, some

countries show the direct charges only, omitting salaries of staff already employed and including charges for durable equipment later used for other purposes.

51. The formal census appropriation made against estimated costs of the census operations is only an approximation and may well be exceeded at the completion of the whole operation. Lack of comparability in the data severely reduces the list of countries for which it is meaningful to show costs:

<u>Territory</u>	<u>Population (000's)</u>	<u>Cost in local currency</u>	<u>Cost per head<sup>1/</sup> in US dollars</u>
Guinea	2,600	CFA 22,000,000	.04
Sudan	10,300	£ stg. 513,854	.14(.09)
Tanganyika	8,800	£ " 45,000	.01
Uganda	6,500	£ " 49,119	.02
UAR (Egypt)	26,100	£ E 500,000	.04(.03)
Zanzibar	300	£ stg. 11,666	.11

52. Even here there are points of importance on which comparability does not exist. The figures for the Sudan are based on a very detailed budget which includes items that seem to be omitted in the other instances. For example it seems that for Guinea, Tanganyika and Uganda some or all of the costs of processing and printing are excluded, and the importance of this item can be gauged from the fact that processing alone accounted for more than 30 per cent of the budgets of the UAR and the Sudan. Reduction of the costs per head by approximately one-third to allow for this gives adjusted figures of \$.09 for the Sudan and \$.03 for the UAR as shown in parentheses above. A point of interest is the apparently higher cost per head of the sample inquiries, which suggests the need for close comparative study of census and survey budgets as further information becomes available.

<sup>1/</sup> At official exchange rates of January, 1963.

Administrative provisions.

53. The administrative provisions for the conduct of censuses have, in the nature of the case, differed according to the administrative structure of the territory and also according to whether the basic operation was planned as a complete enumeration or as a sample survey, spread over time. At the national level, while many countries have in recent years set up central statistical offices whose functions include the direction of census operations, few of these have sufficient qualified staff to plan and implement large-scale inquiries, and it has been necessary to rely on bilateral or international technical assistance. A number of countries have established a separate census office under the jurisdiction of the statistical service with staff seconded from other government departments or specially recruited.

54. In the larger-scale operations it has been the usual practice to build the census field organization onto the existing administrative structure. The appropriate minister or head of the statistical service has then been empowered to appoint administrative officers as census officers responsible for the census in their administrative areas. Where the administrative organization is closely tied to customary leadership and where the level of education is low, compromises have been sought in gaining the co-operation of the customary leaders but using other officials for the detailed execution.

55. A less extensive organization is required for a phased sample survey and the general practice has been for a technical director to visit personally or to send representatives to each sample area in turn to gain co-operation from the customary leaders in making the necessary preparations.

56. The general provisions for the census have in certain countries included the appointment of representatives of government departments, private organizations and universities to a co-ordinating committee to which questions of the scope and general design of the operations were to be referred. Examples are to be found in Guinea, Ghana, Liberia, Morocco and Togo.

### Objectives of the censuses

57. Most countries have stated the objectives of their census operations in general terms only, often in a public statement that the census was to be taken in order to obtain information on the size of the population and its demographic and economic characteristics, as a basis for planning the extension of services such as communication, health and education. In the interpretation of these general objectives private organizations and government departments have often urged the need for particular types of data the total of which would extend the scope of the census beyond reasonable limits. The final programme has usually been a compromise between what might be useful and what it was possible to attempt with the available resources. However, the lack of reliable annual statistics of population movements has induced most African countries to include retrospective questions on births and deaths, while many countries have made direct or indirect inquiries into migration, in addition to the standard census coverage.

58. A case of special interest was the 1955 phased sample survey in Guinea the objectives of which were primarily experimental. The French government in its administration of its dependencies overseas, had recognised the limitations of the administrative censuses in regard to bias arising from their connection with taxation and military service, and also in regard to the fact that they gave insufficient information for an understanding of the structure and possible future growth of the indigenous population. This latter point was especially important in view of the probable increase in the rate of population growth consequent upon an expected decline in mortality. There was therefore a desire to obtain comparable data for the overseas territories in respect of the basic demographic characteristics, in order to determine the rates of growth of population in the various territories. A scheme had been outlined as early as 1951-52 but it was not until 1954 that it could be put into effect. Guinea was chosen as the trial ground because (a) its complexity of ethnic groups, climate and geographical variation presented

the conditions that were considered important for study in Africa, and (b) the total population size, the co-operation to be expected from the people and the availability of some local funds made it a convenient setting. This inquiry was designed as an experiment not only in its social and economic content but in its being planned to familiarize a group of European statisticians with the methods employed and in its being viewed as a training project for local enumerators who would be qualified to conduct similar surveys later.<sup>1/</sup>

Timing of operations.

59. A number of countries have prepared detailed and comprehensive time-tables of the various stages of the whole programme, the Sudan, Ghana and Liberia being cases in point. Other countries have undoubtedly made similar preparations but no evidence is as yet available of the details of the plan. Even where the plan is comprehensive and there is apparently adequate time for preparation, it has not proved uniformly easy to keep to the schedule in every respect or in every part of the area to be enumerated. Apart from factors which are in their nature difficult to control - such as weather or political events - in some of the preparatory work unforeseen problems have arisen which delayed the completion of the particular operation. For example, errors have been detected in estimates of population required for the issue of field supplies, and in the translation of questionnaires and instructions into the vernacular; field workers have objected to the rates of pay offered; the director or his immediate assistants have been transferred.

Field preparations.

60. Whether the census has been planned as a complete enumeration or as a sample survey, there is equal need for precise knowledge of the international boundaries, the internal administrative boundaries, the limits of areas of special interest and the geographical position of each locality within the territory. This implies the need for reliable maps showing boundaries, localities and the principal

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<sup>1/</sup> Haut Commissariat de l'A.O.F.: Etude démographique par sondage. Guinée 1954-55. Première partie. Technique d'enquête. February 1956, pages 3-4.



geographic features of the country. Maps of a suitable scale and of a sufficient degree of detail are unavailable in many African countries and in some of the cases in which they do exist the information given is out-of-date and the field workers have been under the constant necessity of checking on the spot. In this situation a great expenditure of time and effort has to be directed to producing maps or into obtaining substitute information. The general census organization has usually in Africa as elsewhere taken the major administrative regions as the primary census regions but, the size of such regions being often too great for effective control, it has been necessary to divide the territory according to the next largest administrative unit. In the Sudan, even this division was insufficiently fine, and a further subdivision was made.

61. It is possible that existing maps, even where corrected for recent changes, may be inaccurate in their representation of boundaries between and within territories and this could be a source of difficulty if the maps are taken at face value without field checking. It is at the succeeding stages, however, that the work of census preparation in Africa becomes most onerous: that is, in determining the name and exact geographical position of each locality within each census district. A list of localities must be prepared in order that completeness of coverage can be secured; if mapping is impossible with the resources available some means has to be devised to indicate the relative position of towns, villages and hamlets. Either on the basis of a list or on the basis of maps, it is then possible to undertake the systematic division of the districts into enumeration areas. Some of the difficulties encountered in African countries and the solutions attempted are summarized below.

Listing of localities and their estimated population.

62. Locality lists have usually been compiled from tax lists as returned by customary leaders or administrative officers, or from more comprehensive lists put together in the course of the administrative

censuses. The administrative census figures comprised estimates of population by locality (or tribe or sub-tribe), the estimates deriving either from a head-count or from the application of some assumption about the number of dependants per tax-payer. In either event, locality lists were likely to be incomplete; for various parts of certain countries such as the Sudan and Liberia there were no lists available. Moreover, where available they were likely to be incorrect in details of crucial importance. There is ample evidence of their unreliability especially in areas of dispersed settlement where hamlets or villages might fragment or disappear without any official record of the change. Changes in names of locality with changes of ownership of the land, mis-spellings of names, confusion between similar names, the existence of groups of people living in towns or villages but with houses near their farm-plots outside the town or village - any of these is sufficient to make the task of a definitive listing extremely complex. It can be readily seen that careful checking is necessary of place names, not only for completeness of coverage but, where machine tabulation is envisaged, for geographical coding in order to secure data for small administrative units.

63. The estimated population of each locality is needed for systematic division of the country into enumeration areas of approximately equal size and for assessing the field supplies needed in each census district. Where information was out-of-date or lacking, field checks had to be made in advance of or immediately preceding the enumeration. In the Sudan, special enumerators were engaged to compile lists of households in sheikhships for which no lists existed. In Liberia, a variety of sources was investigated - schools, hospitals, missions, private companies - in an attempt to fill in gaps in the lists. There were, of course, countries for which relatively reliable data were available from previous censuses but these are still the exception. In practice, most countries have called on their administrative officers or customary leaders to supply supplementary lists of tribes, sub-tribes, clans or castes. In the Sudan, information was sought on "mode of living", that is, a classification of sheikhships according to whether the members were sedentary and

living in well-defined villages; sedentary but living in scattered huts; or living a nomadic life. In the Congo (Leopoldville) additional information was sought on the predominant economic functions of the centres mixtes. In the Sudan and the Congo (Leopoldville) as in other countries where it was proposed to select a stratified sample and where the information on tribe or "mode of living" or economic character of a given area was the basis for stratification, these supplementary data were an indispensable preliminary. Exceptions to this could be found, for example, in parts of West and Equatorial Africa but only where areas known to be homogeneous in respect of a specified characteristic could be treated as a separate stratum without further inquiry.

64. A more systematic effort to compile a pre-list of localities and of population within localities by a field inquiry on a nation-wide basis remains as yet prohibitively expensive for most African countries. It might prove feasible where there is sufficient staff in existing government or semi-government establishments who, by reason of living more or less permanently in the area, could undertake both the pre-list and the later census enumerations. In the UAR (Egypt) where the census was originally planned for 1957, a pre-list was completed and the detailed enumeration about to begin, when international events led to the postponement of the census. This list proved of the greatest value in controlling the accuracy of the enumeration when it was eventually undertaken in 1960.

65. Where pre-listing was conducted immediately before the detailed enumeration, as in Guinea and other parts of French-speaking West Africa, such a listing also was of great value in controlling the subsequent enumeration. Where the houses were numbered, these were obvious advantages in laying a foundation for later surveys. However, such pre-lists, useful as they are, cannot serve the important function of providing preliminary estimates from which the delimitation of enumeration areas can be carried out.

Selection of enumeration areas.

66. The method of enumeration itself has strongly influenced the method of selecting enumeration areas in African censuses. In those censuses in which a total enumeration was conducted and in which the enumerator rather than the householder completed the questionnaires, it was usually the objective to divide the country into areas which could be covered by an enumerator in a period of 2 weeks. In rural areas, there were differences in terrain and dispersion of settlement which would require a longer period for the enumeration of a given number of people. Enumeration areas were therefore selected on the basis of population size in combination with accessibility. In practice this has fixed the average population for an enumeration area at something less than 1,000 in most countries. Villages have been split or combined to produce areas of approximately this population size, while the towns have been divided into blocks or sectors usually arranged to give population groups of more than 1,000.

67. In Ghana, Liberia, Nigeria and the UAR, in the Municipality of Addis Ababa and in most of the urban censuses in French-speaking West Africa, systematic division of the areas was conducted on the above principles. Similar procedures have no doubt been adopted elsewhere but no details of the methods are available.

68. The divisions established in this way provided the basis for an enumeration on a strict geographical basis. However, in the case of the town of Bangui, for example, the distribution of population within the town was not investigated on a strictly geographic basis but rather on the basis of social group, in the sense of those under the authority of a particular chief.<sup>1/</sup> Similarly in Fouta Djallon in Guinea, there was so much intermingling, in the geographic sense, of peoples belonging to different villages that separation on a geographic basis was not attempted.<sup>2/</sup> In the case of the Sudan census, similar considerations

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<sup>1/</sup> Haut Commissariat de l'A.E.F.: Recensement et démographie des principales agglomérations africaines d'A.E.F. - Bangui 1955-56, p.7

<sup>2/</sup> Haut Commissariat de l'A.O.F.: Etude démographique..... Guinée. Technique d'enquête, p.11.

apply: geographic boundaries were not considered and people were enumerated in accordance with their tribal and administrative allegiance. In all such instances the concept of an enumeration area loses most of its meaning and if division into geographic units is attempted, the population to be allocated to each such unit cannot be objectively defined.

69. Even if the geographic approach is used, in a phased sample survey the interpretation of what is to constitute an enumeration area must be somewhat different since each enumerator will work for a longer period and cover a larger population usually distributed over a number of villages or hamlets. It is then much more important to investigate the exact limits of each sample locality than to determine in advance the total area covered by an enumerator, and the procedures adopted in the Congo (Leopoldville) and in most of the surveys in West and Equatorial Africa appear to have been planned along these lines.

#### Mapping.

70. The present comments refer only to a limited number of cases in which information exists on efforts to make detailed and up-to-date maps, followed by attempts to map the enumeration areas.

71. In Ghana months of preparatory work were undertaken by a geography unit which made field checks of boundaries and locations and which then proceeded to divide the territory into nearly 7,000 enumeration areas on the basis of estimated population taken together with accessibility of localities. Each field worker was given a map of his area and a description which included names of localities and the position of natural or artificial features which marked the boundaries or would assist in finding each settlement.

72. In Addis Ababa, good aerial maps made it possible to divide the city into blocks of approximately 150 buildings, each block constituting an enumeration area. Each enumerator received a map of his area.

province was one of the reasons for the length of time needed to complete the field work. Recruitment of enumerators was easier because the work was continuous and there was an assurance of later employment in the demographic section of the statistical office. One hundred enumerators were recruited with a minimum of 2 years' post primary education, good knowledge of French and of the language of the area to which they were to be assigned.

Payment of field workers.

79. As is evident from the system of recruitment of field workers, many of those appointed for census work were already in paid employment, a fact which was taken into account in a variety of ways in different parts of Africa in fixing rates for census work. Every government has felt the need for economy and the general attitude was that administrative officials should treat the census work as part of their normal duties. This could reasonably be expected of senior officials who in fact frequently worked almost full-time on census preparations and, during the actual enumeration, often worked for much longer than their official hours. For teachers however it could scarcely be expected that the time and effort required could remain unrecompensed, especially when census enumerations were conducted in school holidays. The rates actually established therefore provided for the payment of honoraria or monthly, daily, hourly or piece rates to "non-officials" and to "officials" (excluding higher officials but including teachers) who worked during their vacations or beyond normal office hours. Some countries paid travel and other allowances, and occasionally over-time was paid to specified classes of officials at rates scaled according to salary.

80. The following examples give an impression of the variety of systems adopted (amounts in U.S. dollars):

81. In the Municipality of Addis Ababa, supervisors received an honorarium of \$24, enumerators \$20; the former received \$6 travel allowance and the latter \$3.

82. In Ghana supervisors received \$20 honorarium and enumerators \$14; both received a bonus of \$3 at the completion of training and travel allowances were paid at prevailing government rates.

83. In the census of the African population in Southern Rhodesia, supervisors were paid \$2 per 1,000 persons enumerated in their area with a minimum payment of \$15. Team leaders received \$1 per hour if they were "non-officials" or if they were "officials" on leave or working outside official hours; government officials not on leave and working at the census enumeration during normal hours received \$0.50 per hour. Enumerators who were "non-officials" received \$0.25; "officials" not on leave or working beyond normal hours received half this rate. Travel allowances at prevailing government rates were paid to team leaders and to enumerators.

84. In Togo, enumerators in the towns received \$0.04 per person enumerated provided a minimum of 40 persons was enumerated per day. Supervisors received a fixed payment of \$50 per month.

85. Without more detailed knowledge of the total amounts received by individuals and the time worked, it is not possible to compare the above figures from country to country. They are of interest mainly in reflecting the attempts to recompense in some reasonable manner consistent with available resources people already in receipt of "official" incomes but required to do extra work involving care and very often requiring considerable physical endurance.

#### Training and publicity.

86. The administrative organization of a training and publicity programme, its content, timing and intensity, are of particular importance in countries where the general public and the field workers themselves are unfamiliar with the purposes to be served by a census and with the concepts underlying many of the items on the questionnaire. The training and publicity programmes are, in these circumstances, two aspects of the one operation, essentially an exercise in education which has not only to instill new ideas but also to remove some preconceived

notions. Illiteracy, language difficulties and lack of variety of communication media make the undertaking especially difficult in the rural areas.

Publicity.

87. The first line of approach has, logically, been a campaign to remove the suspicions connected with taxation and recruitment for military service. This has been attempted through wide distribution of information on the positive uses to be made of census results in planning for the extension of services of various kinds, and through assurances, where applicable, that confidentiality of the census returns was guaranteed by law and that no use could be made of them except for statistical purposes. Additional to that has been the practice of using the channels of administration and customary leadership, especially the latter, to gain the understanding and support of people of influence in their community who could spread advance news and help to create an atmosphere of co-operation from those under the authority of the leader. The effectiveness of these channels cannot be directly assessed but there is no doubt that their use is essential to the success of censuses in many parts of the continent. Particular emphasis was given to the manner of gaining support of the customary leaders in Guinea and field workers were instructed that they must make formal calls on local leaders not only at the beginning of the enumeration but on the conclusion of the work in each area.

88. In the Sudan and in countries where complete enumerations were conducted attempts were made to reach all sections of the community by use of posters, press, booklets, radio, loud-speakers and, in a few cases, films. Intensive efforts were made on these lines in Ghana, Kenya, Liberia, Nigeria, Tanganyika, UAR (Egypt), Uganda and Zanzibar, in a variety of languages according to local needs. The Ghanaian, Kenyan and Liberian publicity campaigns were viewed as national lessons in civic understanding. In Ghana and Liberia much of the work was done through the schools in the hope of reaching parents through children.



### Training.

89. In the phased sample surveys, it was possible for training to be concentrated into a period close to the actual enumeration by reason of the fact that the director and/or his immediate assistants could themselves handle the relatively small numbers recruited, either together or in separate teams as each team was about to begin operations in the field. For the complete enumerations, the usual solution to the problem of training large numbers in a restricted period of time has been the adoption of the "chain" system, whereby each grade trains the grade immediately below in the administrative structure of the census. Because of its advantages in economizing time and travel costs, the method was used in Ghana, Kenya, Nigeria, Tanganyika, Uganda and the UAR (Egypt), and a variant was adopted in Liberia where the district supervisors trained the local supervisors, both groups of supervisors then training the enumerators. In Addis Ababa, the restricted geographic scope of the census made it possible to conduct the training on a centralized basis; supervisors were first trained and then attended the training course for the enumerators.

90. In the Sudan, senior field staff from the central office were sent out to train supervisors and enumerators, at times set in relation to the beginning of the field operations in each area. In Zanzibar, where teachers functioned as supervisors and many of the enumerators were school pupils, the training programme was organized as an extension of class work in the schools. In Guinea, the training was given in 4 centres, one in each of the principal divisions of the territory; supervisors were trained by the central staff, then enumerators were trained. A critical evaluation of the training programme contained the suggestion that it would have been preferable to have conducted the courses in 2 stages, the first being given at one centre and dealing only with aspects of the survey which applied to all 4 areas equally. At a second stage, it would then have been possible to split the field staff into the 4 centres, at each of them emphasizing the points of

special importance in local conditions.<sup>1/</sup>

91. The content of the courses given has included class work of a detailed kind giving instruction in the general objects of the census, the organization of the operation, the concepts underlying the method of enumeration and the questions on the schedules, the duties of the field staff, and the method of conducting interviews. Practical work has been part of the programme of training, first in class, by means of completion and correction of forms for imaginary households and/or by interviewing other members of the training group. In the cases where information on the training programme is available, the general practice has been to follow the class training by practice in the field, and then to return to class work for the consolidation of instruction from what was learnt in the field. Most countries have regarded the census tests as part of the training of the field staff, but in the nature of the case the tests could not involve all enumerators except in the small-scale sample surveys. In Ghana, the supervisory staff for the general enumeration acted as enumerators in the census tests in order to make them familiar with the work they were later to supervise. It has been the usual practice to prepare manuals of instructions to supervisors and to instructors to be used for reference during the course of the actual enumeration.

92. Any of the variants of the "chain" system has the inherent disadvantage that the concepts and procedural rules established for the census may become less precise at each further remove from the central planning office. The preparation of written manuals is essential in helping to standardize the interpretation of the important points, though it cannot be taken for granted that all enumerators will consult them with the necessary care in the field. This general difficulty is intensified in Africa by language differences which may make it necessary to use interpreters for the enumerators in the course of the

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1/ Haut Commissariat de l'A.O.F.: Etude démographique .....Guinée  
Technique d'enquête, pages 66-7.

field work, and perhaps also for the training courses. Also it has been necessary to translate questionnaires and manuals of instruction into a variety of languages in different countries. There are possibilities... and actual instances.... of misleading or positively incorrect versions of the originals being presented, through lack of equivalents for certain terms, through straightforward errors, and through failure to understand shades of meaning in the particular context. The only safeguard possible seems to be to conduct training courses in the most concrete and practical fashion that can be devised and, for the building-up of concepts, to rely on examples rather than on exposition. Even within the limitations of African conditions, there seems to be room for improvement in the emphasis on and practice in recording entries in a precisely standardized fashion; this comment is meant to refer especially to purely technical procedures in indicating such distinctions as those between "not stated", "not applicable" and "zero", which affect particularly the recording of information relating to fertility, leading to difficulties in interpretation of data on the proportion of women who have not borne any children.

#### Census tests.

93. Though many countries have apparently conducted census tests of various kinds, the information is so incomplete that only some general comments can be made, and no attempt is made to classify the tests in any precise way.

94. The most comprehensive operation was probably that conducted in the Sudan in October 1953, when every aspect of the census plan was tested and at the same time information was gathered which was necessary for the successful planning of the actual census. This experimental census covered 59,000 people in 9 areas in 7 provinces. The details have been reviewed in the publication of the United Nations dealing with census experience in the decade 1945-54.<sup>1/</sup>

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1/ United Nations. Statistical Office: Handbook of Population Census Methods - Vol. I. General Aspects of a Population Census. Studies in Methods. Series F. No. 5, Rev. 1, pages 126 and 153-4.

95. In Guinea, 2 tests were conducted in the 2 months preceding the beginning of the survey proper. The first of these covered a little over 8,000 persons in 4 hamlets and 2 villages close to the towns in which the training courses were given. In the second test, 9,000 people were interviewed, these being distributed over one hamlet in one of the 4 main divisions of the country, one principal agglomeration and its associated hamlet in another area, and 6 villages in the 2 areas. Apart from serving the purposes of training of field workers, the tests were useful in suggesting alterations to the questionnaires and to the field plan.

96. A number of tests were carried out in Ghana, the first, in December 1959, being designed to try out the questionnaires and field procedures. Other tests were designed for specific points of the operation and finally a trial census was held. This last was divided into 2 parts, one with emphasis on the sampling procedures and the other with emphasis on the enumeration and post-enumeration procedures.

97. In Liberia, a test was conducted in 5 major administrative areas within which 50,000 individuals were interviewed. The areas were chosen so that difficulties could be assessed in the city of Monrovia, in special areas such as plantations, and amongst clans in various chiefdoms in the rural areas.

98. In Kenya, tests were held in 2 areas 6 months before the census with the intention of trying out the questionnaires and estimating the time required for enumeration in areas of differing density.

99. In Addis Ababa, a test was conducted 6 weeks before the enumeration with the same objects as in the Kenya tests. As a result of the observations made during the trial, considerable alterations were made to the questionnaires and to the plan of work. It would have been desirable to test the new design but the rigidity of the time schedule made this impossible.

Tabulation and processing plans.

100. Little information is available of the extent to which the scope and format of the questionnaire and the plans for tabulating and processing the data have been considered in a sufficiently realistic fashion in African countries. There are examples of the inclusion on the questionnaires of items which are not easily reduced to statistical form and which are wasteful in that they require time and effort in coding and may even not produce the information which was the object of the inclusion of the query. Further testing followed by trial tabulations would prevent waste of this kind. Again, in the format of the questionnaires sufficient attention has not been given to the ease and accuracy with which the data might be transferred to punch cards.

101. However, the greatest scope for improvement in efficiency seems to lie in programming the flow of work. This is true at the stage of planning for editing and coding, but it is even more so at the tabulation stage and especially where machine tabulation is involved: without knowing the capacity of the machines which are to be used, it is impossible to programme the work in any rational fashion. There is little doubt that census results could in general be made available much earlier if sufficient advance planning were directed to this aspect of the operation. Editing and coding are difficult in Africa because of the shortage of people available, at prevailing rates of pay, to undertake the work; the programming of machine operations involves the services of only one or two highly skilled people who, on the experience of this decade of census operations, may perhaps be provided on a consultative basis for a larger number of countries in future censuses.

102. A number of countries, including those in French-speaking West and Equatorial Africa, Kenya, Tanganyika, Uganda and Southern Rhodesia have designed their questionnaires so that provisional results may be speedily obtained for total population distribution by main administrative areas, by ethnic groups or tribe and, in some instances, by broad age groups. For the smaller French-speaking countries, these

provisional results have frequently included a considerable amount of detail obtained by hand-counts in the local statistical office while the more extensive analysis has been undertaken in France.

#### IV. ENUMERATION AND POST-ENUMERATION PROCEDURES.

##### Types of enumeration.

103. With few exceptions, the levels of literacy in African countries have restricted the possible methods of enumeration to the "canvasser" method, whereby the enumerator completes the question according to replies given to him by the respondent. Exceptions are found in Mauritius and in the censuses of the non-indigenous populations in Kenya, Tanganyika, Uganda, the Federation of Rhodesia and Nyasaland, Mozambique, South Africa and South West Africa. In the last 2 cases, the procedure in regard to the indigenous population is not clear from the available information. The forms were issued in advance of the census date in order that they could be completed by the householder and collected on the day after, or in the few days immediately following the census date. The "householder" method has also been used in a number of countries for the enumeration of special categories of population where it would be difficult for enumerators to conduct personal interviews... that is, in institutions such as hotels, lodging houses, hospitals or prisons, where the head of the institution or his representative has been required to complete the returns. Wherever the "householder" method has been adopted it has been necessary to add the provision that an enumerator should check the forms and assist the head of the household or institution if the householder had difficulty in doing so correctly.

104. It is of some interest to note that in Uganda the forms filled in by European householders were found to be much more inaccurate and incomplete than those filled in by enumerators. In the censuses of the non-indigenous population of Tanganyika and of the Federation of

Rhodesia and Nyasaland successful experiments were made with postal returns; it was found that most returns were promptly sent to the census office, and, where this did not occur, it was possible to issue reminders by telephone. The postal method proved considerably cheaper than the use of enumerators.

Duration and time reference of the censuses.

105. As was noted in the discussion of the delimitation of enumeration areas, many countries attempted to choose areas of a size which could be enumerated, under the "canvasser" method, in two weeks. There were instances in which this time-table could not be adhered to because of weather, or breakdown of vehicles, difficulty in finding isolated villages, or opposition due to fears of ulterior motives on the part of the administration in undertaking the enumeration; for the most part, however, the aim was achieved. In Uganda, the census of the indigenous population was completed in many areas in one day, and in the rest in 3 days. The censuses of this type were generally designed to enumerate the population, whether de facto or de jure, as of a fixed moment or fixed date. In order to promote correct recall after the lapse of time during which the enumeration was likely to last, Ghana, Nigeria and Liberia tried to mark the census date by devices such as the beating of drums or ringing of bells in every village.

106. In the census of the indigenous population of Southern Rhodesia, enumerators were instructed to record the population as it was on the night before the enumerator's visit. The enumeration was to be conducted only on week-days in order, by avoiding the days in which movement might be at its greatest, to obtain a picture of the population in its "normal" state. Although the error would be in practice very small, there remains a lack of precision in determining the population as of a specified date from this operation, and in the censuses where the operation was not simultaneous for the different geographic regions and for all population groups, there was the possibility of greater error in trying to adjust the figures for all

components to a given date. This has been a recognized limitation of the separation over time of the indigenous and non-indigenous populations in eastern Africa and of the phased sample surveys in the Sudan and West, Central and Equatorial Africa.

Number of visits by the enumerator.

107. The "householder" method has normally involved 2 visits by the enumerator, one for distribution and one for collection of the forms, while in the postal system the enumerator was eliminated altogether in some cases, but in others made one visit at which he distributed the questionnaires.

108. In implementing the "canvasser" method, the number of visits has varied according to the availability of preliminary information sufficient for adequate planning and according to basic census design. In the Seychelles, Tanganyika, Zanzibar and the UAR (Egypt), the enumeration was planned in 2 visits, a preliminary visit at which were recorded all those expected to spend census night in the household followed by a visit immediately after census night at which the original record was checked and alterations made where necessary to correct for events occurring after the enumerator's visit but before midnight of the census night. In other instances where the "canvasser" method was employed for complete enumerations, as in Addis Ababa, Ghana, Kenya, Liberia, Southern Rhodesia, and Uganda, only one visit was paid for the main enumeration. However, in a number of cases, the main enumeration was followed by a sample inquiry which involved a further visit to the household, usually by a different enumerator. The intervals between the main enumeration and the sample survey are not known for some of the countries, Morocco for example, but in Addis Ababa, Kenya, Nigeria, Tanganyika and Uganda the sample inquiry followed the main enumeration by a very short interval, days in the case of Addis Ababa and something of the order of 2 weeks in other instances. In Ghana and Togo, the sample inquiry was separated from the main inquiry by a longer interval.



109. In the Sudan and in the Congo (Leopoldville) where the basic census operation was a sample survey, one visit only was made by the enumerator, a plan necessitated in the Sudan by the dispersion of settlement over very large areas in which a large proportion of the population was nomadic. In other sample surveys, different procedures were adopted. In Guinea, for example, it had been intended that enumerators should complete the work in one visit, using a list of compounds and a diagram of the village as their guide. During the course of the census tests, it was decided that a pre-listing of houses within compounds would improve the quality of the enumeration, and during the actual survey enumerators visited each house twice, the first visit being for the listing of the house numbers and the names and relationships of those living there (presumably the usual residents and visitors). This was considered necessary for checking the returns especially from large compounds, but it was regarded as a disadvantage in its possible unfavourable effect on response. In Upper Volta it was necessary to retain the practice because the "family" constituted secondary sampling units. It was retained also for the enumeration of the city of Libreville (and perhaps for the whole of Gabon). In Mali and Togo where the prelisting was confined to compounds, it was not necessary to make a preliminary visit to every household or house. The question is closely related to the somewhat complicated matter of the definition of the unit of enumeration which is dealt with below.

110. This summary is confined to visits which constituted part of the actual census enumeration and excludes visits of a more general kind arising from instructions that enumerators were to familiarize themselves with their whole enumeration area before the enumeration began. In closely-settled areas, such visits were necessary for discovering on the ground the boundaries between contiguous enumeration areas allocated to different enumerators, and also for discovering in advance the sort of information which would make for completeness of coverage within the area.

Control of the enumerations.

111. The difficulties of the physical environment, the diversity of custom and living conditions, and the expectation of errors arising from lack of comprehension on the parts of enumerators and respondents, have imposed the need for strict supervision of African enumerations. It has sometimes proved more difficult to recruit the relatively small number of highly-qualified staff required for supervision than to find the large numbers suitable for the work of enumeration and, as previously noted, in the case of the Congo (Leopoldville) the enumeration had to be protracted further than had been planned because of lack of supervisory staff. Nevertheless, by drawing on administrative and school staffs, Nigeria was able to establish a ratio of one supervisor to 5 enumerators, Addis Ababa 1 to 7, Liberia 1 to 9 and Ghana 1 to 10. In the phased sample surveys, the ratio of supervisors to enumerators was as high as 1 to 2 in some areas, and in general the supervisors worked more closely with enumerators because the two together were regarded as a team. Moreover, as the field operation was less extensive and the questionnaire content frequently more extensive than in the complete enumerations, it was both possible and necessary to exercise strict control of the work.

112. In each country, the supervisor was instructed to accompany the enumerator where it was possible to his area, show him its limits, make contact with the local authorities, and subsequently to see each enumerator in the very early stages of the interviewing work to ensure that the area was being systematically enumerated and that the details of the questionnaires were being correctly entered and the additional records being properly kept. It was expected that there should be close communication between the supervisors and enumerators, and that enumerators should report regularly to the supervisor, with daily or in any event frequent calls at the local census office to have work checked and to deal with any problems that had been encountered in the field. The supervisors were able in Ghana, Liberia, Nigeria and in Addis Ababa to check the progress of the enumeration visually through the evidences

of enumeration provided by the use of crayon or tape or labels affixed to the entrances to houses or compounds as each was visited by the enumerator. At the conclusion of the enumeration, supervisors were expected to collect all forms issued whether used or not, see that they were arranged systematically and that they met the required standard of care and accuracy, and often to establish summaries of the returns for each enumeration area or separate locality so that preliminary totals could be quickly derived from hand-counts as soon as the returns were sent to the regional, district or central office.

Non-conventional enumerations.

113. The nomadic and semi-nomadic peoples of north, west and eastern Africa present difficulties of enumeration for which only partial solutions have yet been found. Scarcity of resources as well as the essential difficulties, persuaded the governments of the Central African Republic, Mali and Niger to exclude some or all of the nomads in their territories.

114. In the Northern Province of Kenya, the dispersion of population and the nomadic way of life led the Administration to reject the possibility of taking a complete census. After a detailed consideration of the different conditions within the region it was decided to combine total enumeration of the towns with sampling methods and "sagalle" counts in other areas. (The "Sagalles" are tribal headmen through whom the Administration works).

115. It was recognized that fear of taxation and of alteration to grazing rights might prejudice the operation. However, it was hoped that customary gifts of camel meat or tobacco might smooth the way. The population in some areas moves freely between Kenya, Somalia, Ethiopia and the Sudan and both the time of year and the basis of the count were important in getting reliable results. It was decided that July to August was the period suitable for most of the Province. The rural population was to be enumerated on a de jure basis, but in 2 districts an attempt was made to obtain the de facto count as well.

116. The techniques used varied over the eight Districts which compose the Province but nowhere was a complete individual count made: either a sample was drawn in order primarily to determine the number of dependants per tax-paying male or the "Sagalle method" was used. The Sagalles were called to District headquarters and were asked the particulars of each man on the register and his dependants. The Sagalles are mostly illiterate but are noted for their memories.

117. A very simple schedule was designed for the indigenous population. Even so, it proved difficult to get information on age and many returns distinguished only between adults and children. The non-indigenous population was enumerated on the same schedule as was used in the census of the non-indigenous population in other areas. The total population of the area was estimated at 200,000 but the preliminary census figure was 593,000.

118. In the Sudan, the estimates from the sample survey indicated that approximately 14 percent of the total population lived a nomadic life. The survey itself would have been seriously deficient if no attempt had been made to extend the coverage to nomadic tribes. The solution adopted in the Sudan was to conduct preliminary inquiries, referred to above, into the "mode of living" of all sheikhships in the country and to see that households in sheikhships were listed for the survey purposes and in fact it was found that there were lists for every nomadic sheikhship in the territory. There then remained the problem of determining the means by which the nomads could be found. This could be achieved only through knowledge of the pattern of movement followed by each sheikhship, and the most satisfactory suggestion was that they should be enumerated in some known and accessible grazing area. Since the period of stay in a given place is often short and differs with the tribe and the part of the country, there was no one period of the year suitable for an enumeration over the whole country. Climatic conditions also operated against the possibility of conducting an enumeration simultaneously in the whole country.

119. The criterion of geographical distribution, in its strict sense, had also to be abandoned as a logical consequence of the definition of the de jure population as including (a) all sedentary people who had lived in the Sudan for 6 months or more in the year preceding the enumeration and (b) all nomads who owed allegiance to a nomadic sheikh of the Sudan, that is, a sheikh responsible for administration or the collection of taxes in the Sudan. In order to correct the allocation of individuals to sheikhships a question was added to the census schedule to determine whether each person was on the tax list of the sheikhship being enumerated or on another tax list. The enumerators were instructed to work closely with the sheikhs, who were to accompany them, where possible, during the enumeration. The sample design was a multi-stage ratio sample, the first-stage units being Omadias, the second-stage sheikhships and the third-stage households. The sheikhships were stratified according to "mode of living" and size, the nomadic population therefore constituting a separate stratum. In each sample sheikhship, enumerators were to interview a specified number of people representing the sampling fraction applied to the population as estimated from the preliminary lists of households in sheikhships.

#### Types of questionnaires.

120. Comparatively few census questionnaires were designed for the enumeration of a single individual: the towns of Douala, Yaoundé and Ebolowa and the sub-division of M'balmayo in the Cameroon and the town of Bangui in the Central African Republic were the only instances where the basic questionnaire was of this type. In the Nigerian post-enumeration survey, the same type of form was used but for the main operation the form was designed for the enumeration of members of as many houses or compounds as could be entered thereon (a multiple housing unit style). The majority of countries have chosen a form designed for the enumeration of a single household or housing unit, the exceptions being Kenya, Uganda, Tanganyika and Southern Rhodesia where for the complete enumeration of the indigenous population each form contained information

for as many huts or houses as could be listed on one page. It is probable from the appearance of the form that the Congo (Leopoldville) should be included with this group but there is no definite information available on the point.

121. Subsidiary questionnaires of the individual type were used in a number of countries for special categories of population, for example, in Ghana, Liberia and Nigeria persons in transit, people without shelters, hunters or the nomadic "cattle Fulani" were enumerated on individual forms. Other countries designed forms for special categories of people as a continuous listing, for example, for the residents of institutions.

122. It should be noted that St. Helena and Seychelles have been excluded from the above review and from the accompanying table because no copy of the questionnaire is available and the other information available is not specific on the points involved. Northern Rhodesia and Nyasaland are excluded from this and all succeeding analyses because their censuses in the 1960 World Census Programme have not yet taken place.

TYPE AND STYLE OF BASIC QUESTIONNAIRE USED IN 32 POPULATION CENSUSES IN AFRICA, 1955-62.  
( "X" indicates that the given type or style was used, "-" that it was not, C = Census; S = Sample

Territory	Date(s)	Type	Type of basic questionnaire		Style of basic questionnaire			
			Individual	COLLECTIVE	Line	Column	Block	
			Single household or household unit	Multiple household or household unit				
CAMEROON								
Town of Doula	1955-56	C	X	-	-	-	-	X
Subdivision of M'balmayo	1956	C	X	-	-	-	-	X
Town of Yaoundé	1957	C	X	-	-	-	-	X
Town of Ebolowa	1958	C	-	X	-	X	-	-
North Cameroon	1960	S	-	X	-	X	-	-
Adamoua & Bénoué	1961	S	-	X	-	X	-	-
CENTRAL AFRICAN REPUBLIC								
Indigenous population								
Town of Bangui	1955	C	X	-	-	-	X	-
Town of Bambari	1959	C	-	X	-	X	-	-
Central Oubangui	1959	S	-	-	-	-	-	-
West Oubangui	1959	S	-	-	-	-	-	-
COMORO ISLANDS	1958	C	-	X	-	X	-	-

Territory	Date(s)	Type	Type of basic questionnaire		Style of basic questionnaire		
			Indiv- idual	Single household or hous- ing unit	Multiple household or housing unit	Line	Column

CONGO(BRAZZAVILLE)	1960	C )	-	X	-	X	-	-
Town of Dolisie			-	-	-	-	-	-
Remainder of territory Excluding Pointe-Noire and Brazzaville		S )	-	-	-	-	-	-
CONGO(LEOPOLDVILLE)	1955-57	S	-	U N K N O W N	-	X	-	-
DAHOMY	1961	S	-	X	-	X	-	-
ETHIOPIA(Addis Ababa)	1961	C&S	-	X	-	X	-	-
GABON	1960-61	C&S	-	X	-	X	-	-
GHANA	1960	C	-	X	-	X	-	-
GUINEA	1955	S	-	X	-	X	-	-
IVORY COAST								
Abidjan	1955	C&S	-	X	-	X	-	-
Other towns	1957	C	-	-	-	-	-	-
	1958		-	-	-	-	-	-
Rural areas	1957-58	S	-	-	-	-	-	-
KENYA	1962							
Indigenous population								
Rural areas excluding Northern Province		C&S	-	-	X	X	-	-
Northern Province:Towns		C&S	-	-	X	X	-	-
Rural areas		C&S	-	-	-	-	-	-

1/ The sample survey form related to all males aged 18 years and over and all females aged 14 years and over in each household.



				Type of basic questionnaire		COLLECTIVE		Style of basic questionnaire	
Territory	Date(s)	Type	Individual	Single household or housing unit	Multiple household or housing unit	Line	Column	Block	
KENYA (cont'd)									
<u>Non-indigenous population</u>		C	-	X	-	X	-	-	
LIBERIA		C	-	X	-	X	-	-	
MALI									
Office du Niger & 3 subdivisions	1957-58	S	-	X	-	X	-	-	
Remainder of Territory	1960-61	S <sup>1/</sup>	-	X	-	X	-	-	
MAURITIUS	1962	C	-	X	-	X	-	-	
MOROCCO	1960								
<u>Total population</u>		C	-	X	-	X	-	-	
<u>Indigenous rural population</u>		S	-	X	-	X	-	-	
MOZAMBIQUE	1960	C	-	X	-	-	X	-	
NIGER									
<u>Indigenous population</u>									
Excluding Niamey	1959-60	S	-	X	-	UNKNOWN			
NIGERIA	1962	C	-	-	X	X	-	-	
		S	X	-	-	-	X	-	
RHODESIA & NYASALAND, Fed. of									
<u>Non-Indigenous population 1961</u>		C	-	X	-	X	-	-	

1/ A separate form was used for additional information relating to all females aged 14 years and over.

Type of basic questionnaire      Style of basic questionnaire

	COLLECTIVE	
Territory	Date(s)	Type
		Indiv- idual
		Single household or hous- ing unit
		Multiple household or housing unit
		Line      Column      Block

RHODESIA SOUTHERN									
Indigenous population	1962	C	-	-	X	X	-	-	-
SENEGAL	1961	S <sup>1/</sup>	-	X	-	X	-	-	-
SOUTH AFRICA	1960								
Indigenous population		C }							
Non-indigenous population		C }	-	X	-	-	X	-	-
SOUTH WEST AFRICA	1960	C	AS FOR SOUTH AFRICA						
SUDAN	1955-56								
68 towns		C }							
Rural areas		S }	-	X	-	X	-	-	-
TANGANYIKA	1957								
Indigenous population									
Whole territory		C	-	-	X	X	-	-	-
Rural areas		S	-	X	-	X	-	-	-
Non-indigenous population		C	-	X	-	X	-	-	-
TOGO	1960	C	-	X	-	X	-	-	-
TUNISIA	1956	C	-	X	-	X	-	-	-
UGANDA	1959								
Indigenous population		C	-	-	X	X	-	-	-
Non-indigenous population		S	-	X	-	X	-	-	-
		C	-	X	-	X	-	-	-

<sup>1/</sup> A separate form was used for additional information for females aged 14 years and over.

Territory	Date(s)	Type	Type of basic questionnaire			Style of basic questionnaire		
			COLLECTIVE			Line	Column	Block
			Indiv- idual	Single household or hous- ing unit	Multiple household or housing unit			
UAR (EGYPT)	1960	C	-	X	-	X	-	-
UPPER VOLTA								
Whole territory excluding Ouagadougou	1960-61	S	-	X	-	X	-	-
Ouagadougou	1961	C	-	X	-	X	-	-
ZANZIBAR	1958	C	-	X	-	UNKNOWN		

Style of questionnaires.

123. The majority of countries have adopted the line form, in which the questions and headings are ranged horizontally across the page. However the column form, with the questions ranged vertically down the page, was used in Mozambique, South Africa, South West Africa and the town of Bambari while in the towns of Douala and Yaoundé and the subdivision of M'Balmayo the form did not correspond to either of these styles, the questions being arranged more or less in blocks.

124. In order both to speed up the processing of the data and to overcome the language problem at the processing stage, a number of countries have experimented in various ways with coding devices. There were cases, such as Nigeria and Addis Ababa, where numerical codes were to be entered for certain items, the list of codes being given on the questionnaire itself. In Liberia and in Ghana, in each column where pre-coding was possible, replies were printed on the form with the numerical code also shown. This second procedure produces a somewhat more complicated appearance, but has the advantage of being more likely to guide the enumerator's eyes to the correct reply. In the Southern Rhodesian census of the indigenous population, the questions and spaces for the entries were arranged so that replies could be indicated merely by putting a check mark in the appropriate column.

The units of enumeration.

125. With the exception of the censuses of the indigenous populations of Kenya, Tanganyika and Uganda, the ultimate unit of enumeration has been the individual; however, there are very few instances - the urban censuses in the Cameroon and the Central African Republic - where no attempt was made to group individuals into larger units during the enumeration itself. The effort to define the social and/or economic "collectivity" characteristic of the region being investigated has been most explicit in the censuses in French-speaking areas where there has been particular emphasis on the need for a sociological approach which would reflect the organic structure of the society. This has involved a consideration of whether the functional unit corresponded to the restricted family (man, wife or wives and their unmarried children), to the extended family (all the descendants of a common ancestor) or to a group of people related and not related living together under the authority of a common head. Because the living arrangements in the second and third of these cases correspond, in many African societies, to a group of people in a number of separate huts or houses in a compound with an enclosing wall or fence, a number of the surveys in French-speaking West and Equatorial Africa have specified the compound as the social unit for the enumeration. It has usually been provided that each restricted family within the larger group should be identified by some device such as leaving a blank line on the form between any 2 successive families.

126. The variation between ethnic groups is illustrated by the fact that in Guinea the average number of persons per compound was 6 in Fouta Djallon and 4 times as great in Haute Guinée. Differences between the average size of family and of compound are illustrated by the following: <sup>1/</sup>

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<sup>1/</sup> Blanc, Robert; Manuel de recherche démographique en pays sous-développé, p. 21.

	<u>Compound</u>	<u>Family</u>
Ivory Coast (Bongouanou)	25.2	6.0
Mali	13.2	5.7
Niger	6.6	4.1
Guinea	11.0	5.3

The extent of these variations is sufficient to suggest the need for careful attempts to identify the operative social or economic unit. The procedures adopted in other African countries have been of a somewhat different kind, but any brief commentary on the essential similarities or differences is hampered by the differences in the terminology in French and in English and by variations within both languages in the use of the terms. Simplifying rather drastically to cut across this problem, it can be said that the basic approach of the compound as a unit composed of a group of individuals under the authority of a common head was used in Guinea, the Ivory Coast sample survey in the rural areas, Mali, Morocco, Niger, Senegal, Togo and Upper Volta excluding Ouagadougou. In various urban surveys and in the sample survey in the Central African Republic and the censuses of Tunisia, South Africa and South West Africa the definition gives less emphasis to the physical idea of the compound as a physical entity, but rather stresses a group which is composed of the restricted family and other relatives, dependants and visitors. On the other hand, in the Ghana, Uganda and Nigeria general censuses and in the censuses of the indigenous population of Kenya, Tanganyika and S. Rhodesia, the direct emphasis was on the physical structure - "hut" in some cases, "house or compound" in others. In Addis Ababa, the Ghana post-enumeration sample survey, Liberia, Mauritius, Mozambique, Sudan and Zanzibar, in the censuses of the non-indigenous population in Kenya, Tanganyika and in the Federation of Southern Rhodesia, the unit was defined on the socio-economic basis of common eating and/or sleeping arrangements. However, the definitions in the case of Mozambique, Morocco, Senegal and Upper Volta are such that the idea of the authority of the common head which underlies "compound" approach in French-speaking countries is merged with the idea of the community of living arrangements and the effect is that the social

unit in these 4 countries is in fact identical. Finally, in the Mali and Niger definitions there are elements which suggest that the social unit is identified with the economic unit, the latter viewed not so much as a consumption as a production unit - the agricultural operator and his family in the former case and those who share the use of fishing boats in the latter.

Sampling procedures.

127. It is proposed to examine here for illustrative purposes, only the instances in which a sample survey was conducted without a complete enumeration of the whole area.

There were 12 countries which followed this procedure: Cameroon, the Central African Republic, the Congo (Brazzaville), the Congo (Leopoldville), Dahomey, Guinea, the Ivory Coast, Mali, Niger, Senegal, Sudan and Upper Volta. The usual practice amongst these 12 countries was to conduct a complete enumeration of the main towns either by regarding them as a separate stratum of the sample to be enumerated on a 100 per cent basis, as in the Sudan, or by conducting a quite separate enumeration, as in the case of the Cameroon, Central African Republic (Bangui), Congo (Brazzaville, Pointe-Noire), Ivory Coast (Abidjan and 4 other towns), Niger (Niamey) and Upper Volta (Ouagadougou).

Because of this and in order to simplify the exposition, the following discussion deals mainly with the sampling procedures in the rural areas, omitting some of the complications arising from the separate treatment of urban areas in the sample design. Ivory Coast is omitted altogether because of lack of adequate information.

128. The United Nations Handbook of Population Census Methods<sup>1/</sup> gave a statement of the principles and recommendations for the conduct of sample surveys where a complete enumeration was not feasible; this statement, though lengthy, is quoted as a background to the consideration of the practices adopted in African countries, since it is especially

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<sup>1/</sup> Vol.1, pages 151-52.

relevant in the context:

129. "Any sample survey which is instituted when a census is not feasible has necessarily to possess the following three features. First, the field work must be designed to win and maintain the confidence and assistance of the population which is to be canvassed. Secondly, the range of information covered by each survey should be limited to a very few subjects. It is desirable to cover a field of different topics by repeated sample inquiries rather than by one inquiry covering the entire field. Thirdly, whenever possible two or more interpenetrating samples should be selected in every administrative district or any other smallest domain of study.

130. "It was emphasized earlier that every country must sooner or later take a complete census even if it is of imperfect quality or of limited scope in terms of information collected. A complete census is indispensable since it forms the basis of numerous subsequent statistical inquiries. It is true that in the short run basic demographic information can be effectively obtained through sampling, since sampling techniques are flexible and so are usually adaptable even in conditions which from the viewpoint of census taking are very difficult. Nevertheless, a sample survey should not entirely replace a complete enumeration of some kind except under conditions which make a complete enumeration impossible. Even when a country is forced to resort to sampling in the place of a census, the sampling scheme used may well serve as an experimental census paving the way to a complete census to be executed in the near future....

131. "In addition to the three over-all features mentioned above, any sampling scheme devised for studying African demography must incorporate certain essential characteristics in the various component parts of the sample plan. Three specific components of a sample plan call for special consideration in the African context. These are the sampling frame, the size of the sample and the analysis of sample data."



132. The planners of African sample surveys have given full consideration to the primary importance of winning and maintaining the confidence of the population which was to be enumerated. This has already been indicated in the references to the devices used in the Sudan and in French-speaking West and Equatorial Africa to secure co-operation from the customary leaders as a necessary step towards gaining the co-operation of the public.

133. In content, the sample surveys have been restricted to a field of inquiry which might reasonably be expected to be covered at one interview without damage to the quality of the results. The surveys have in all cases been fairly detailed but have concentrated on the closely-related demographic, economic and social characteristics of the population under investigation. It must remain a matter of judgement whether certain topics - for example, retrospective questions on migration or on births and deaths - would be better relegated to a separate inquiry. This is a question of balancing existing resources against the needs for data and there is little doubt that separate surveys would have been difficult, if not impossible, to organize in the countries under discussion.

134. The advantages of selecting interpenetrating samples in every smallest administrative district or separate domain of study were seen after the event by the organizers of the Guinea survey and were recommended as desirable for the checking of the quality of the field work. As far as can be ascertained from available accounts of sampling procedures - and some of these are presented in the most summary form - no country has made use of this type of sample.

135. The lack of a complete census and the defects of tax and other lists have been a basic difficulty in the sampling procedures. In order to provide a reliable frame it has been necessary to attempt to bring up-to-date the lists which existed and to supplement these lists with varying types of data (for example on tribe or type of agricultural activity or "mode of living") in order to improve the accuracy of the results. Reference to these attempts has already been made in the

discussion of the pre-enumeration procedures of listing localities and their estimated population.<sup>1/</sup>

The Cameroon. (a) North Cameroon.

136. Three population groups, Moslems, pagans of the plain and mountain dwellers, were stratified according to type of agricultural activity. The 9 agricultural strata were supplemented by an urban stratum.

137. Within each rural stratum, the primary units were clusters totalling about 300 inhabitants. In the most important concentrations of population a substratum of clusters of 210 inhabitants was distinguished. The primary units were chosen with equal probability by one-stage sampling, the sampling fractions varying from 1 in 10 to 1 in 40 in the rural areas. In the urban stratum, the sampling fraction was 1/20. In the rural strata, 102 clusters were selected from those with a population of 300 and 26 from those with a population of 210.

(b) Adamaoua and Bénoué

138. The rural population was divided into 6 strata according to criteria of ethnic or geographic type and agricultural activity. Each stratum was divided into 2 sub-strata geographically according to means of communication. The town of Ngaoundéré formed a separate stratum.

139. Village clusters, varying in size from stratum to stratum, constituted the primary units. Within each sub-stratum the sample was either 1 in 10 or 1 in 20, the rural sample including 47 clusters with a total population of 14,140. In the urban stratum, the primary unit was the compound, one in every 10 of which was sampled.

Central African Republic.

140. Central Oubangui was divided into 3 strata and West Oubangui into 7, on the basis of agricultural activity and ethnic group. Villages in

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<sup>1/</sup> See pages...31.to.33..... above.

each stratum were divided into 2 sub-strata according to size: those with more than 500 inhabitants and those with less than 500 inhabitants.

141. The primary units consisted of clusters of approximately 500 inhabitants formed by grouping small villages or splitting large villages. The sampling fraction was 1 in 10, in each stratum, 438 primary units being included in the sample.

Congo (Brazzaville).

142. The territory was divided into 11 strata according to ethnic group and agricultural activity. Villages in each stratum were divided according to whether they contained more or less than 500 inhabitants.

143. The primary units were clusters of about 250 persons. Villages below 500 in population were sampled at 1 in 10, 221 being included in the sample. Of the villages of 500 or more inhabitants, 1 in 3 were selected and fully enumerated.

The town of Dolisie was fully enumerated.

Congo (Leopoldville)

144. The localities of the territory were divided into 3 strata, rural, urban and "mixed". The rural stratum was sub-divided by tribe; the dwellings in the urban stratum by administrative sub-divisions; the "mixed" stratum by economic function. Further stratification was effected on the basis of size: dwellings in the urban stratum were grouped according to whether they contained less than 5, 5 to 9, or 10 to 14 inhabitants; in the other 2 strata, localities were grouped according to whether the population was less than 50, 50 to 99, or 100 to 149.

145. In the rural stratum, the village was the primary unit; in the "mixed" stratum the locality; in the urban stratum the dwelling or lot. For most of the country, single-stage sampling was used, the sampling fractions being 1 in 10 in the rural stratum and 1 in 7 in the other 2 strata. The sample covered 1,360,000 individuals or approximately 11 per cent of the total population.

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### Dahomey.

146. The country was divided into 6 strata on the basis of administrative divisions. The primary units in the rural areas were villages. The sampling fraction varied by stratum from 1 in 10 to 1 in 29, a total of 202 villages being selected. In addition the sample included 5 towns in which the sampling fraction was 1 in 5.

### Guinea

147. The territory was stratified according to the 4 main administrative divisions which corresponded to 4 different geographic and climatic types. Preliminary attempts to find a sampling design which would maximize the accuracy of the results in the rural areas suggested difficulties of various kinds, principally the difficulties of travelling any distances in areas where the settlement was dispersed and there was overlapping of villages and of hamlets. Eventually considerations of time and cost led to the choice of slightly different methods in the rural areas of Fouta Djallon and Guinée Maritime from those adopted in Haute Guinée and Guinée Forestière. In the 2 latter cases, after stratification by cercle, ethnic group and population size, an overall fraction of one-tenth of all villages was drawn, the sampling fraction varying by stratum according to the average size of village in the stratum.

148. In Fouta Djallon and Guinée Maritime, hamlets rather than villages constituted the primary units. In Fouta Djallon, after stratification according to cercle and canton, one administrative hamlet in 40 was selected and completely enumerated together with the 2 nearest administrative hamlets. Because of the homogeneity of the area, the sampling fraction of 3 in 40 was considered adequate for the desired degree of accuracy. In Guinée Maritime, the hamlets were stratified by population size - 500 and over and less than 500. In the former group, one administrative hamlet in 10 was selected and in the latter one in 40, together with the 3 nearest hamlets provided that the group so constituted had an average population per hamlet equal to that of the

corresponding canton.

Mali

149. The summary information given here excludes the survey in the Office du Niger. In the remainder of the territory there were 7 strata, the urban areas constituting one stratum which was further stratified by size of population. The rural areas were divided into 6 economic regions which were further stratified into 47 strata on the basis of demographic and agricultural characteristics and size of population.

150. In the urban areas, the smaller towns were sampled in 2 stages: one town in 4 and one village in 5. In the larger towns, the sampling fraction was one (village) in 20. In the rural areas, clusters of 400 inhabitants formed the primary units of which 1 in 50 were selected. In all 214 villages were included, with a population of 105,000.

Niger

151. The territory was divided into 6 strata according to ethnic group, density of settlement and agricultural activity. One stratum was divided into 4 sub-strata because of the differences within the stratum in ethnic group and density. The villages were grouped into clusters within each stratum, the clusters being equal in population size to the average size of village in the stratum. These clusters constituted the primary units from which different fractions were selected in the different strata, the over-all sampling fraction being 3 in 100. A total of 256 villages was selected representing an estimated population of 71,000.

Senegal

152. The rural stratum was divided into 3 sub-strata on the base of size of village: 0 to 99, 100 to 499 and 500 or more inhabitants. The urban stratum was not sub-divided. In the rural areas, the compound was the primary unit and 1 in every 20 was selected for the sample. In the urban areas, the same sampling fraction was applied but the primary unit was the dwelling.

Upper Volta.

153. The urban areas constituted a separate stratum in which 10 centres were studied and 2 omitted because of the impossibility of completing the work in the time envisaged. The primary unit was the compound and the sampling fraction 1 in 10. The rural areas were divided into 9 strata on the basis of ethnic group and geographic area, and the villages were divided into 3 sub-strata on the basis of population size: less than 500, from 500 to 1,099 and 1,100 and above. The sampling fraction in the smallest villages was 1 in 50; in the group from 500 to 1,099 inhabitants 1 village in 25 was selected and 1 compound in 2 within the village; of the largest villages, 1 in 10 was selected and 1 compound in 5. A total of 235 villages was selected for the sample.

The Sudan.

154. The 68 towns constituted a separate stratum which was completely enumerated. The rural sample was chosen after stratification of sheikhships within "omodias" on the basis of size, mode of living and in some cases of the estimated percentage of Westerners in the population of the Sheikhship. All "omodias" were included in the sample, but at the next stage varying sampling fractions were applied to select the sheikhships, ranging from roughly 1 in 100 to 1 in 11 with an over-all fraction of 1 in 30. At the third stage, the sampling fractions ranged from 1 in 100 to 1 in 7, the units being the households in the case of the sedentary population and the estimated population in the nomadic sheikhships; the over-all sampling fraction at this stage was approximately 1 in 20. The following account of the detailed method of control of the operation in the field is taken from the census report:<sup>1/</sup>

155. "An enumerator detailed to enumerate a particular sheikhship took with him the lists of supplementary data for that sheikhship. When he had enumerated the specified number of people or the specified proportion of households, he then checked to see which of the people enumerated were on the lists of supplementary data. He then recorded his number - all

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<sup>1/</sup> Republic of the Sudan: First population Census of Sudan.  
1955/56. Methods Report. Vol.1, p.32

persons on the lists of supplementary data were alphabetically arranged and numbered consecutively - in column 28 in the questionnaire. If a name was not there he simply wrote "No". Thus from the sample of selected sheikhships a ratio was obtained of the number of all people enumerated to those enumerated and found on the list. This ratio suitably weighted was then applied to the total number of persons on the lists of supplementary data in the census area. The fact that the supplementary data might not have contained all the people it should have contained in no way invalidated the sampling method; for if the tax lists were deficient, the ratios of persons to taxpayers obtained from the sample were correspondingly higher, thus compensating for the deficiency in the tax lists. Consequently the population estimate was not affected. The fact that the number of persons in a sheikhship and the number of persons on the list of supplementary data for the sheikhship were closely correlated, ensured the efficiency of the method.

156. "The same basic method was used through the rural part of the country differing only in the method of selecting households. The selection of households varied according to the mode of living of the people depending on whether they lived in well-defined villages, in scattered tukls, or whether they were nomads, or a mixture of all three."

157. The accounts of the sample design make it evident that it was hoped to adjust the sample size to the acceptable level of error but it is also evident that other considerations have had to be taken into account - the recurring limitations of lack of resources, difficulty of terrain and complexity of the social organization have led to modifications of what was theoretically desirable. It is as yet impossible to review the accuracy achieved in the surveys in any comprehensive fashion but the information when available for a sufficient number of countries will be of value not only in interpreting the results of individual surveys but in the planning of future operations.

Field checks of coverage and quality.

158. Few African countries have attempted field checks which meet the requirements of (a) independence of the original census or survey, (b) freedom from bias and (c) matching of records to produce an identical sample from each investigation.<sup>1/</sup> The few instances which appear to meet some or all of these criteria are reviewed in the following:

159. Three months after the total enumeration in Ghana, a re-enumeration was carried out in a 5 per cent random sample of the houses enumerated in the main census. This in itself was not independent of the original census, but in a further field check a listing was made of all houses in a 5 per cent random sample of census enumeration areas. This latter check could therefore detect omissions or duplications of houses and thus constituted a means of assessing the accuracy of coverage in the census, while the former check acted as a means of testing the content of the returns. Ghana is the only known instance in which a matching of the returns is being attempted and appears therefore to be the only instance of a field check which theoretically meets all three of the specified criteria.

160. In Tunisia, two months after the total enumeration a re-enumeration was carried out in a random sample of areas representing approximately 27 per cent of the total population. This check was designed to test both coverage and content but no details are given of the methods of assessment used.<sup>2/</sup>

161. In Kenya, Uganda and Tanganyika random samples were drawn of small administrative areas (sub-locations, parishes and "Headmen's areas" respectively) from a frame that was independent of the census; these areas were re-enumerated 2 weeks after the complete enumeration. It seems

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1/ United Nations Economic and Social Council:  
Evaluation of Population Census Results by Post-Enumeration Field Checks. E/CN/CONF.11/L.17. June 1960.  
Paper presented to the UN Seminar on the Utilization of Population Census Data in Asia and the Far East.

2/ United Nations Handbook of Population Census Methods. Vol.1.General Aspects.....p. 134.



that these countries did not attempt matching of individual events for the assessment of the degree of accuracy of coverage and the content check was subordinate in all 3 instances to the coverage check.

162. In Morocco, in the rural areas, a random sample of electoral circscriptions was separately enumerated in order to obtain the characteristics of individuals. Since a separate listing of household population was made in the course of the census, the rural sample could be viewed as a check on the accuracy of the total enumeration.

163. In Nigeria and in the Municipality of Addis Ababa, field checks were conducted which did not meet the criterion of independence of the census enumeration. In Nigeria, every fortieth individual enumerated in the census was to be re-enumerated, and in Addis Ababa every fifteenth household. It was therefore impossible to detect omissions of households or of individuals in the former case and to detect omissions of households in the latter case. In other words, such checks can act as a partial measure of overenumeration but cannot measure underenumeration. In Nigeria, a content check was incorporated by a method which automatically matched the individual events - for each individual in the sample, certain characteristics were entered from the questionnaire used in the complete enumeration and against these entries the enumerators in the sample check were to record the replies which they considered to be correct on the basis of a more intensive questioning. Individual matching for the check of coverage and quality had been envisaged in the processing of the Addis Ababa census but was eventually abandoned because of pressure of time on the mechanical unit and because of lack of supervisory staff.

164. With the possible exception of Tunisia (for which details are not available) all of the field checks referred to above were designed to obtain data additional to that obtained in the main census operation.

There is only one known instance in which the field check was planned solely as a check of the census - this was in Liberia but unfortunately the details are not available.

165. The Sudan and Guinea provide examples of ad hoc checks which, though not designed to conform to the theoretically desirable pattern of field checks, nevertheless produced information that was of real value in assessing the accuracy of the original surveys or in suggesting improvements that might profitably be introduced in further operations. Two factors were believed to be likely to lead to incorrect results in northern Sudan: the prevalence of a superstitious reluctance to reveal all the members of the family and the seclusion of women in Moslem households. It had proved impossible to recruit sufficient female enumerators to interview the Moslem households in the original sample, and a solution was found in selecting a group of 90 teachers and postmistresses who were given training specially designed to enable them by slow and apparently casual questioning to obtain a more correct picture of the family or household composition. Approximately one seventh of the total number of households were re-enumerated by these women - every second household in areas which had been purposively chosen as being (a) subject to error and (b) accessible with reasonable ease.

166. It was found in Guinea that some families and compounds and one whole village had been double-counted. The 2 sets of records were compared for content and coverage. The entries on sex, age, number of live-born children per woman and births and deaths in the last 12 months were compared case by case and discrepancies were observed when the same enumerator had by mistake re-enumerated the compound or household and when 2 different enumerators had each included the household or compound. Another check was possible where 81 women in the town of Kouroussa were re-interviewed - by a more highly-skilled enumerator - because of apparent errors in the replies. A third instance occurred where 2 teams of different levels of ability enumerated a border village in Fouta Djallon: the less skilled team had omitted most of the inhabitants of a

satellite hamlet and there were in addition considerable discrepancies in the reporting of age. The outcome of these more or less fortuitous checks were the recommendations that (a) a sample of villages or of inhabitants should be re-enumerated and the individual events matched and (b) interpenetrating samples should be selected in homogeneous areas. <sup>1/</sup>

Data processing operations.

167. Reference has already been made to some of the difficulties which have arisen through failure at the planning stage to think the problems through to the final stage of publication. It would be misleading to suggest that these defects in planning are specific to Africa or the less-developed countries in general. It is only in recent years that some European countries have begun to appreciate the increase in efficiency to be derived from rational planning of the data-processing operations.

168. At present, there is so little information on hand of the details of the procedures adopted that comment is necessarily restricted to a few countries. The experience in the Sudan reveals some points which are of interest in that they reflect the difficulties of African conditions as well as illustrating some general problems of organization:

169. "Two major mistakes were made in connection with the staff in the analysis wing. Whereas only three of the sub-sections of the editing section were installed, almost the full strength of coders, computers, and punch operators were recruited at the same time. Training courses were given to all of them and editing (the first step) was started. However, owing to an insufficient number of persons suitable as editors, and insufficient training, together with lack of senior personnel to supervise their work, a bottleneck occurred in the editing section and the subsequent sections (coding, computing and punching) received no work.

170. "Errors, which were not apparent until a late stage, when the reports were ready for printing, were often the results of bad editing.

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<sup>1/</sup> Haut Commissariat de l'A.O.F.: Etude démographique.....  
Guinée Technique d'enquête, p. 80

In one case there were two different tribes, one living in the north of the Sudan and the other living in the south of the Sudan, but with similar names. The editor's job was to facilitate the coder's work, as the latter was required to work at speed, and if the enumerator did not write the names of the tribes clearly the coder was liable to give the code for the southern tribe to the northern tribe.....

171. "A second bottleneck at the machine stage both in the punching room and later in the machine room, was caused by similar circumstances as those of the editing work. A similar hold up in the punching room meant that the subsequent work dealing with cards was delayed. This section also required more intensive training."<sup>1/</sup>

172. The suggested solutions were the early recruitment of all editing staff, greater attention to training and the completion of a considerable amount of editing before any coding was begun. In Tanganyika and in the Municipality of Addis Ababa also editing and coding were difficult operations, one of the recurring problems being the lack of precision in the use of names in Africa which enormously complicates geographical and tribal coding. The situation is not helped by the temporary nature of the employment offered and in Tanganyika staff turnover proved wasteful, necessitating repeated training of new recruits mostly not well-qualified for the work. In Addis Ababa, as in the Sudan, there were errors in editing and coding which were not detected until some of the tabulations were complete and the correction of which involved adjustments and checks which were laborious and time-consuming.

173. The lack of adequate storage space for punched cards has been a further source of inaccuracy in that packs have been mixed and it has been necessary to re-run the cards when the errors have been detected.

174. These experiences underline the necessity - which must be emphasized as of the first importance - for the most rigid control of the quality of work and of its flow, if the tabulations are to be completed within a reasonable time limit and at an acceptable level of

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<sup>1/</sup> The Republic of Sudan. First Population Census of Sudan 1955/56. Methods Report, Vol.1, pp. 219-20

reliability. Some saving in time has been achieved by preparing advance tabulations from a sample of the returns: this has been done in Ghana, Morocco and South Africa and is planned for Togo and Southern Rhodesia.

Evaluation of population census results.

175. As a result of the growing realization that no census can hope to achieve 100 per cent accuracy in both coverage and content, it has become the practice in many countries to regard an evaluation of the census results as an integral part of the census operation. This evaluation can best be carried out by certain formal procedures which will not become possible in African countries until comprehensive and reliable vital statistics systems are established, yet the need for appraising census results is perhaps greater in Africa than elsewhere. The recent series of operations has indicated in a number of countries that the population was considerably higher than had been estimated: for example, in Ghana the census count was nearly one-third higher than the estimated population; in the Sudan the estimate from the sample was 18 per cent above the estimated population derived from the administrative censuses; in Southern Rhodesia the indigenous population was 20 per cent above the estimate; in Upper Volta the excess of the estimate from the survey over the previous estimate was 22 per cent; in Guinea the difference would have been of a similar order had it not been for the fact that the estimate was raised as the result of more careful inquiries conducted because of the proposal to carry out the experimental sample survey.

176. These discrepancies can be and have been attributed, in part, to the recognized defects of the old administrative types of censuses which were known to be subject to errors of omission. However, the extent of the underestimation could only be guessed at and this leaves open the question of the rate of increase of population, reducing the reliability of one possible method of evaluation of the total count, that is, the comparison of totals at successive censuses. Of course it is still profitable to make a check of this kind for the country and on the basis of regions within the country in order to pin-point areas in which there were marked discrepancies.

177. It is in instances such as this that the value of field checks of coverage are most useful in that they give, if correctly designed, independent evidence of the accuracy or otherwise of the count. In the case of the Sudan, the field check was intended to give special attention to omissions of children in the first 5 years of life; the results showed that omissions had occurred in this age group and in the higher age groups but there was no evidence of omissions on any considerable scale even in the least sophisticated areas of the country.

178. The Ghana experience is one of the more interesting examples of the complexity of interpreting results and evaluating them carefully. The figure of 6.7 millions from the complete enumeration was so much higher than had been expected that the results of the post-enumeration field checks were of particular importance: but these results eventually seemed to indicate a slight under-enumeration in the complete census. A comparison of the results of the 1948 and 1960 census totals, even after allowing for a quite extensive possible under-enumeration in 1948, still suggested an annual rate of increase which was above what could be accepted as likely on the basis of natural increase alone. Without annual statistics of births, deaths and migration for the whole country it was impossible to attempt a reconciliation by use of the "balancing equation" - that is, adding the difference between births and deaths and between arrivals and departures to the 1948 census total and comparing the results with the 1960 total. When the data on place of birth were tabulated it was discovered that there had been a net migration into Ghana since 1948 of 362,000 persons born abroad. During the interval between 1948 and 1960 this migrant population would itself have been subject to natural increase which might have accounted for a further part of the discrepancy between the results of the 2 censuses. The conclusions to be drawn from the calculations cannot be very precise but the instance illustrates the light which internal checks can throw on the value of the data - in Ghana the evidence of migration from the census itself gave more support to the accuracy of the census count than did the field check and the suggestion is that the census may have been the more accurate of the two.

Since the field workers were of higher quality and more highly trained for the post-enumeration survey than for the main census, the quality of the work should have been higher. It is possible that the explanation is that there were shifts of population in the 3 months between the 2 operations and that the post-enumeration check might have been of higher quality in the measurement of content - the detailed characteristics of individuals - than it was in the measurement of coverage.

179 Further evaluation of the content and coverage of the Ghana census is at present being carried out on the basis of individual matching of events and on the basis of tests of accuracy of reporting of age and sex such as those referred to in the United Nations census handbook.<sup>1/</sup> In the UAR no field check was undertaken but the data are being evaluated on the basis of consistency with previous census data and annual records of births and deaths, and of other tests of accuracy similar to those referred to in the United Nations census handbook. In Kenya, Uganda and Tanganyika the accuracy of coverage of the total enumeration of the indigenous population was evaluated against the results of the sample survey which followed the enumeration and checks of an analytic nature were made or, in the case of Kenya, are contemplated for the further assessment of the results. However, it should be noted that where additional information was collected in the course of the post-enumeration survey, the accuracy of this additional information can be checked only by analytical methods or by comparison with data derived from other records; for example, employment data might be checked against information in labour bureaux or from other surveys while school attendance might be checked against school enrolments.

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<sup>1/</sup> United Nations Handbook of Population Census Methods Vol.1. General Aspects of a Population Census, p.111.

Preparation and publication of the results.

180. There are greater gaps in the information on preparing and publishing census results than on almost any aspect of the recent African censuses. The general procedure can be deduced in a few cases but more frequently it is impossible to conclude with any certainty what was done. The following is a summary of the main points on which it is possible to comment.

181. Surprisingly, some publications are undated and some do not give an unambiguous indication of the agency responsible for publication and the place of publication. This applies to the final census publications of a number of the smaller African countries and to a very large number of ad hoc pamphlets or monographs or press releases. The result is that it is impossible to judge the promptness of issue or the sequence which has been followed, nor to know whether it is local or exterior factors which may have led to delay or efficiency in producing the census results. However it is clear that for most of the relatively small populations of French-speaking West and Equatorial Africa, there has been a general plan for the quick release of provisional results based on hand-counts carried out locally, to be followed by the later publication of final results based on machine tabulations. A methodological report has been incorporated in one or other of these volumes or has been planned as a separate volume.

182. Provisional results have appeared in published form within a few months in the case of the Cameroon, the Central African Republic, Congo (Brazzaville), Dahomey, the Ivory Coast rural sample and Upper Volta. Final results have so far appeared in only a few of these instances. Certain countries with larger populations have issued provisional results of less detail within weeks of the conclusion of the enumeration, for example, Ghana, Kenya, Southern Rhodesia, South Africa and the UAR (Egypt).



183. These summary statements were followed at the end of 1962 by detailed volumes for Ghana based on a sample of the returns giving the main results of the census. The UAR results have been available since mid-1962 and are in the process of publication. The Uganda results were published within 15 and 14 months respectively for the non-indigenous and indigenous populations but the Tanganyika results were delayed by the deferment of the machine tabulations and the final report is now in process of publication. The report on the Congo (Leopoldville) sample survey appeared three and a half years after the survey and the last volume of the Sudanese report appeared after four and a half years. These delays do not indicate that results were not available to users before the actual publication, and it should be noted that these cases of delayed publication were cases in which considerable analytic detail was contained in the reports.

184. Various methods of reproduction have been used, from roneoing in Togo, Dahomey, the Congo (Brazzaville) and in the report of some of the urban centres of the Ivory Coast, to photo-offset printing in the Congo (Leopoldville) and some volumes of the Sudan survey, to letterpress in the case of Abidjan, Ghana, Tunisia, Uganda and some volumes of the Sudan census. The methods have clearly had to be adapted to the resources available and the delays would have been considerably increased in a number of cases if more emphasis had been given to the appearance of the product.

## V. CONTENT OF THE QUESTIONNAIRES

### General

185. No attempt has been made to analyse the content of the questionnaires exhaustively. The purpose of the following sections is to provide a guide to the types of data collected, in the countries for which information is available, on items which have been given priority in the international recommendations contained in the United Nations Handbooks of Population Census Methods. Volumes II and III of the Handbooks give considerable detail on specific types of data relating to demographic, social and economic characteristics of the population. This report follows closely the approach adopted in those two volumes, but, since it would not serve any useful purpose to repeat the comments on the uses of the data, the review is confined to the method of collection of the data, that is, to the types of questions asked and to any special difficulties in the African context.

186. The international recommendations do not give priority to data on population movements: that is, to the investigation of births, deaths and migration. However, many African countries have included these topics in their censuses because of special need for information that would give a measure of the rate of increase of population; the types of data collected on movement of population are reviewed below.

### DEMOGRAPHIC AND SOCIAL CHARACTERISTICS OF THE POPULATION.

#### Sex and age.

187. Information on sex and age was collected in every African country which conducted a census or sample survey in the last 8 years. The table given below shows for 28 territories the variety in approach to the problem of obtaining statistics on age in the less-developed countries where the concept of number in general may have little meaning except amongst the educated minority. The difficulties are naturally greatest amongst the rural indigenous population, and a number of countries

did not attempt to inquire into exact age but preferred to instruct enumerators to allocate individuals to certain specified age groups, with an additional statement of age in completed years or approximate age if known.

188. In the Congo (Leopoldville) and in Zanzibar, only the age groups specified in the footnotes to the table were investigated. In Kenya, the total enumeration of the indigenous population asked for information only on those aged under 16 (children) and those aged 16 and over (adults) but the sample survey asked for age in completed years. In Uganda and Tanganyika in the complete enumerations of the indigenous population, 5 age groups were specified - under 1 year, 1-5, 6-15, 16-45, 45 and over. The sample survey in Tanganyika asked for the same information but in Uganda age in completed years was to be given in the sample if known. In Nigeria in both the census and the sample survey, age was to be specified in groups except in certain areas where it was believed that age could be given with reasonable accuracy in completed years.

189. Southern Rhodesia and the Sudan adopted a similar general approach, although the type of question asked was different. The underlying intention was to obtain broad physiological age groups corresponding to childhood, the reproductive ages in women, and the higher ages. In Southern Rhodesia the question related to year of birth in 3 broad time periods corresponding to ages under 16, 16-44, 44 and over in 1962; exact year of birth was to be specified for those born since 1945. In the Sudan the question related to age, specifying ages under 1, 1-5, 5 to over puberty (14 years for males and 12 for females), and, for females, whether or not past the menopause.

190. With some discrepancy around the ages 12 to 15 years in the Sudan, the age groupings adopted in these countries corresponded to the following international recommendation: <sup>1/</sup>

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<sup>1/</sup> United Nations Principles and Recommendations for National Population Censuses, p.12.

191. "In areas where it is not possible to obtain the ages of the persons enumerated in terms of either date of birth or completed years, it is suggested that age groups be used which would roughly differentiate among: (1) infants under 1 year of age, (2) young children between 1 year and 5 years of age, (3) older children (6-15), (4) men in the economically active ages and women in the childbearing ages (16-45), and (5) men and women beyond these ages."

192. Amongst the countries which asked for more exact statements of age, 6 asked for year of birth, 4 asked for day, month and year (but 3 of these asked the details only for the non-indigenous population) 14 asked for age in completed years or age last birthday (2 of these cases being for the non-indigenous population only), while 11 asked for age in years and in months. In 3 instances questions were asked both on date of birth and on age.

193. Methods of stating ages of children under 1 year have varied with the general method of recording the entries on age - for example, in Southern Rhodesia, the Congo (Leopoldville) and the complete enumerations of the indigenous population in Tanganyika and Uganda, either a check mark or a number representing those of a specified age in the house was entered on the schedule. Amongst the non-indigenous populations various instructions were given for entering the ages of infants: in Uganda, the entry was "under 1", in the Federation of Rhodesia and in Mozambique it was "0" while in Tanganyika the number of completed months was to be recorded. This last practice was followed in Mauritius and in a number of the sample surveys in West and Equatorial Africa.

194. Every country has used historical calendars of national and/or local events as an aid to securing more accurate reports on age. The lack of evidence of birth date is almost general in Africa, but in a number of countries enumerators were asked to check whether individuals had any such record in their possession. In Senegal, the towns of the Cameroon, the Central African Republic, Congo (Leopoldville) and the

("X" indicates that ut details not stated in sources available)

Territory		
	Days	Age groups
CAMEROON		.
Douala	-	-
M'balmayo	-	-
Yaoundé	-	-
Ebolowa	-	-
N. Cameroon & Adamaoua	-	-
CENTRAL AFRICAN REPUBLIC		
Bangui	-	-
Central & West Oubangui	-	-
CONGO (Brazzaville)	-	-
CONGO (Leopoldville)	-	X 3/
DAHOMEY	-	-
GABON	-	-
	-	-
GHANA	-	-
	-	-
GUINEA	-	-
IVORY COAST		
Towns	-	-
Rural (1st.ag.sector)	-	-
KENYA		
Indigenous	-	X 4/
	-	-
Non-indigenous	-	-
LIBERIA	-	-
MALI		
MAURIT		
MO		

197. Of the 27 countries listed in the table, 3 only omitted any reference to marital status: Uganda, Zanzibar and Southern Rhodesia. Of the remaining 24, 23 asked for information on the categories of single, married, widowed and divorced, while 3 of these - Kenya, Liberia and Mauritius - added the category of separated. In Tanganyika, the only reference was to polygamous marriage.

197. A lower age limit has not usually been set for the marital status questions, the reason presumably being the lack of a legal minimum and the fact that in many African societies age at marriage is very low, the attainment of puberty being regarded as the qualifying age for marriage. In the Sudan puberty was specified as the lower limit of age for the marital status questions. In the UAR (Egypt), where a legal minimum does exist, the questions were to be answered only for males aged 18 and over and females aged 16 and over.

198. The types of marriage in Africa are so numerous and dissolution and re-marriage so common in certain communities that it is not surprising to find the definitions of the marital status categories rather vague in most cases. Few countries have stated unambiguously what was meant by single, married, widowed or divorced, and of the 3 which inquired into separations, only one stated that this referred to legal separations.

199. Because of the variations in local custom in regard to marriage, a number of countries have inquired into the type of union, the majority of these queries being directed towards distinguishing only between consensual or de facto unions and other types of union. Here again there is variation from country to country in the 11 instances in which the type of marriage was investigated. Of these 11 countries, 10 asked whether marriages were consensual; 3 of these added a query on whether marriage ceremonies were civil, religious or customary, Mauritius inquired into religious marriages and Senegal into civil and customary marriages.

Territory	SING	Separated	Polygamy
CAMEROON		-	X
Douala	X	-	-
M'balmayo	X	-	X
Yaoundé	X	-	-
Ebolowa	X	-	X
N.Cam. & Adamaoua	X		
CENTRAL AFRICAN REP.		-	-
Bangui	-	-	-
Central & West	X	-	X
Oubangui		-	?
CONGO (Brazzaville)	X	-	X
CONGO (Leopoldville) <sup>1/</sup>	X	-	X
DAHOMEY	X	-	X
GABON	X	-	X
GHANA	X	-	X
GUINEA <sup>2/</sup>	X	-	X
IVORY COAST			
Towns	X	-	X
Rural (1st.ag.sector) <sup>3/</sup>	X	X	-
KENYA	X	X	-
LIBERIA	X	-	X
MALI	X	X	-
MAURITIUS	X	-	?
MOROCCO	X		
MOZAMBIQUE	:		
NIGERIA	:		
RHODESIA, SOUTHERN	.		
SENEGAL <sup>4/</sup>			
SOUTH AFRICA <sup>5/</sup>			
SUDAN <sup>6/</sup>			
TANG'			
TOR			

200. Of the 24 countries which included questions on marital status, 15 were concerned to establish the frequency of polygamy. In the Congo (Leopoldville) married males were asked whether they were monogamous or polygamous, and married females were asked whether their husbands were monogamous or polygamous. Divorced and widowed females were asked whether the previous husband had been monogamous or polygamous. In the other instances the questions were fairly standard in form relating usually to the number of legal wives of each married male. It was the general practice to add after the abbreviation "M" (for married) a numeral indicating the number of legal wives of each male.

201. Both in classifying women as married or widowed, and in deciding whether a union was polygamous or otherwise, the question of "inherited widows" was a problem. A male who by custom inherited the wife or wives of a deceased relative might merely take the women into his charge and they were not normally regarded as wives unless actually cohabiting or, in some instances, unless they had borne a child. In Guinea, such women were regarded as married if they had borne a child by the new husband but were regarded as a special category if they had not yet had a child. In Senegal, all the "inherited widows" were treated as a separate category while in the Congo (Leopoldville) they were regarded as wives, in consensual unions, if cohabiting with the inheritor.

202. It is evident that variation in practice might be fairly substantial in its effect on the comparability of the statistical compilations. This might be of importance, for example, in the analysis of the fertility of "married" women as distinct from fertility of all women of child-bearing age. However, the information is of real importance as a reflection of the social structure especially in view of the likelihood of future changes when and where economic development affects the existing social pattern.

#### Place of birth.

203. A question on place of birth was asked in each of the 28 censuses or surveys reviewed in the table. It is impossible to know, without access to the instructions for the completion of the entries, the exact nature of the information obtained in the Central African Republic



survey and in the Congo (Leopoldville) and the UAR (Egypt).

204. One of the main points of interest in each of the countries was to determine the extent of international migration by a measure of the number of persons born outside the national territory although this would furnish only an indication of the net gain of foreign-born persons over an unspecified period of time, without reference to the duration of their stay in the given country or the number of past moves across the frontier. The data obtained on internal divisions could likewise provide evidence of internal migration, with similar limitations. A number of the countries required a statement of whether or not each person was born in the locality in which he was enumerated; as in Guinea, this would provide a two-fold classification (those born where enumerated and those born elsewhere), which would be useful as a measure of gain by migration in each locality or in localities of special interest.

205. Only in the case of Mauritius is there evidence of an attempt to define national boundaries: they were to be taken as those in existence at the time of the census. In Ghana, persons born away from the usual place of residence of their mother were to be recorded as born in the normal residence if the mother had been absent for less than 6 months.

206. In Mozambique, the question on birthplace was combined with questions relating to nationality in the case of the non-African population. "Portuguese" were asked to specify whether they were so by birth, marriage or naturalization; while Portuguese and "foreigners" born in Mozambique were to provide information on the place of birth of their parents and grandparents.

Ter	Sub-division or locality
CAMEROON	X
Douala	X
Mbale	X
Yaounde	X
Ebolo	X
N. Cam	
CENTRAL	X
Bangu	
C. &	X
CONGO (	
CONGO (	X
DAHOMEY	X
GABON	X
GHANA	X
GUINEA	
IVORY (	X
Town	
Rural	-
KENYA	X
LIBERIA	X
MALI	-
MAURIT	

FOOTNOTES

- 1/ A question on birthplace was asked but the details for completing it are not available.
- 2/ From the form of the published tables, it appears that distinction was made only between those born in the sub-division in which they were enumerated and those born elsewhere.
- 3/ Usual residents only.
- 4/ The question is a combination of birthplace and nationality or citizenship and required information on birthplace of parents and grandparents for Portuguese and other non-Africans born in Portuguese territory.
- 5/ Not applicable to persons of nomadic parentage or to those living in scattered huts because some of the areas had no names.
- 6/ Applicable only to those born in France.

Citizenship and ethnic characteristics.

207. In whatever manner the actual questions have been framed these topics have frequently been regarded as alternatives for the indigenous and non-indigenous populations in the countries studied in this report. The question has occasionally been worded in a way that directly indicates that ethnic group should be stated for the "indigenous" or the "African" population while citizenship (in the sense of legal nationality) was to be stated for others - for example, in Dahomey, Gabon, Liberia, Morocco, Nigeria, Togo, Tunisia and Uganda. However, 9 countries asked for information relating to ethnic group of the non-indigenous population: Mali, Morocco, Mozambique, Senegal, South Africa, Tanganyika, Tunisia, Uganda and Zanzibar. Thus 3 countries - Morocco, Tunisia and Uganda - asked both for citizenship and ethnic group of the non-indigenous population.

208. The information on citizenship is limited in its usefulness by the fact that legal nationality has only become meaningful for most African territories in the last few years, and the questions on citizenship were therefore relevant mainly to nationals of sovereign states such as France, Great Britain or Portugal. However, 12 countries asked for country of citizenship of aliens, in the case of Tunisia and Mozambique this was supplemented by a question distinguishing citizens of France and Portugal respectively by the method of acquisition of citizenship. In addition to these 12 countries there were 2 instances, limited to urban areas only, in which aliens were classified by country of citizenship - Ebolowa in the Cameroon and the main towns of the Ivory Coast.

209. It should be noted that this question and the succeeding review of the practices in regard to determining "ethnic group" are complicated by the fact that, in the countries which conducted separate censuses of the indigenous and non-indigenous populations, the question of citizenship

had been pre-judged on the basis of a distinction that was essentially social and economic. <sup>1/</sup> It could be safely assumed that the indigenous population did not have full citizenship status and that the relevant query was essentially a question of ethnic origin.

210. No systematic attempt has been made in African censuses to define "ethnic" group or "tribe" or "race". It has usually been assumed that for the indigenous population ethnic origin should be interpreted as tribe or sub-tribe and that for the non-indigenous population "race" was the appropriate term. In East Africa it was specifically stated that the "racial" categories were based on administrative convenience only and did not pretend to any precision. This could be said to apply equally to South Africa, Mozambique and Mauritius where concepts of colour and ethnic origin (in its more formal sense) are mixed in the "racial" classification.

211. The resulting data when available in its entirety must suffer from lack of comparability from country to country. Improvements will undoubtedly be possible when the idea of citizenship is uniformly applicable in African countries; but even if this concept could be generally applied, questions on ethnic origin would still be as difficult in Africa as they have proved elsewhere.

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<sup>1/</sup> See pages 4 and 8 above for the basis of distinction between indigenous and non-indigenous.

<sup>2/</sup> See United Nations: Handbook of Population Census Methods. Vol.III, pages 45-49.

TYPES OF DATA COLLECTED ON CITIZENSHIP AND ETHNIC CHARACTERISTICS IN SELECTED COUNTRIES, 1955-62

Territory	C I T I Z E N S H I P		ETHNIC GROUP
	Distinguishing citizens & aliens	Country of citizenship of aliens	
CAMEROON			
Douala, M'balmayo, } Yaoundé	-	-	X
Ebolowa	X	X	X
N. Cam. & Adamaoua	-	-	X
CENTRAL AFRICAN REP.			
Bangui	-	-	X
C. & W. Oubangui	-	-	X
CONGO (Brazzaville)	-	-	X
CONGO (Leopoldville)			
DAHOMY	-	X	X
GABON	-	X	X
GHANA <sup>1/</sup>	-	-	X
GUINEA	-	-	X
IVORY COAST			
Towns	-	X	X
Rural (1st.ag.sector)	-	-	X
KENYA	-	X	X
LIBERIA	X	X	X
MALI	X	-	X
MAURITIUS	-	X	X
MOROCCO	-	X	X
MOZAMBIQUE			
Indigenous	-	-	X
Non-indigenous	X	-	X
NIGERIA	X	X	X
RHODESIA & NYASALAND	-	X	-
Fed. of.			
RHODESIA, SOUTHERN			
Indigenous	-	-	-

Territory	C I T I Z E N S H I P		ETHNIC GROUP
	Distinguishing citizens & aliens	Country of citizenship of aliens	
SENEGAL	-	-	X
SOUTH AFRICA	-	-	X
SUDAN <sup>2/</sup>	X	-	X
TANGANYIKA			
Indigenous	-	-	X
Non-indigenous	-	-	X
TOGO	-	X	X
TUNISIA	-	X	X
UGANDA <sup>3/</sup>	X	X	X
UAR (Egypt) <sup>4/</sup>	?	?	-
UPPER VOLTA	-	-	X
ZANZIBAR & PEMBA <sup>5/</sup>	-	-	X

- 1/ An additional question was asked on country of origin for persons of African descent. "Country of origin" was defined as the country where the person's father was born, or where the grandfather was born.
- 2/ Sudanese citizens who had acquired citizenship were asked their country of origin.
- 3/ A separate question was asked on race, distinguishing African, Arab, European, Goan, Indian, Pakistani, Mixed, other.
- 4/ A question on nationality was asked but the details of the entries are not available.
- 5/ A separate question was asked on "country or tribe of ancestry" with the following instructions: If Arab, state whether Omani, Yemeni, etc. If Indigenous person, state tribe. If Asian, state Goan, Indian, Pakistani. If other, state country.

Language.

212. There were 13 countries (of 28) which included a question on language in their censuses. Of these, only Mauritius and Mozambique (non-indigenous population) inquired into "mother tongue"; in both countries the definition given was the language spoken in childhood, Mauritius adding the provision that the language need not be spoken at present. In the census of the non-indigenous population of Tanganyika, the term "mother tongue" was used on the questionnaire but the definition clearly indicates that the question in fact related to "usual language" or language spoken in the home.

213. Mauritius, Mozambique (non-indigenous population), South Africa, Sudan and Zanzibar inquired into "usual language" in the sense referred to above.

214. Ten countries inquired into ability to speak languages specified on the questionnaire or to be specified by the respondent. In the Congo (Brazzaville), the Congo (Leopoldville), Gabon, the Ivory Coast towns, Mali and Senegal, the query related only to knowledge of French; in Tunisia to Arabic and French; in Morocco to Arabic, French, any Berber dialect and Spanish; in Mozambique to Portuguese and (in the census of the indigenous population) to any other language spoken; in South Africa to knowledge of the 2 official languages, English and Afrikaans.

215. The nature of the questions reveals the special national interests which have motivated the inquiries. These reflect an emphasis on the languages which are of importance in government and in education. Despite the enormous complexity of the language problem in Africa, only 2 major territories - South Africa and the Sudan - inquired into the language usually spoken by the indigenous population. It is presumably this very complexity which accounts for the omission; there is also the point that questions on tribe would give fairly reliable substitute information.



Educational characteristics.

216. There were 22 countries (of 28) which inquired into educational characteristics either through questions on literacy, level of education or number of years of schooling, while several countries added inquiries on school attendance.

Literacy.

217. Direct questions on literacy were asked in 8 countries (Ghana, Liberia, Mauritius, Morocco, Mozambique, South Africa (indigenous population), Togo and Tunisia and also in the urban censuses in the Cameroon and the Ivory Coast. In addition, Gabon included provision for information on literacy in the replies to a question on level of education. In the sample surveys in Cameroon, Central African Republic, Dahomey and the Ivory Coast, it is probable that the same procedure was adopted as in Gabon but definite information is not available. For the UAR (Egypt) also information is not available.

218. In 9 of the 11 cases shown below literacy was by inference defined as ability to read and write a language; in 2 of the 9 cases, the query was restricted to ability to read and write one special language and in 4 of the cases the question related to 2 or more specified languages. In Mauritius and South Africa separate information was collected on ability to read a language or languages. In Mozambique the only query related to ability to write Portuguese, while in the Congo (Leopoldville) it related to ability to read and write any language whatever.

219. The countries which inquired into level of education or years of schooling but not into literacy would presumably derive data on literacy from the assumption that those who had completed a given grade or number of years had acquired the ability to read and write.

Level of education.

220. Of the 28 countries reviewed, 18 inquired into the level of education of each individual. Only 2 countries, Uganda (indigenous

population) and Kenya, asked the number of years of schooling. In 4 instances, the question related to the type of school attended without specifying the grade or course reached or completed. Ten countries asked for a statement of the level reached within a specified type of school or other educational category, but the statements of grade or level were in a few instances in groups corresponding to 2 or 3 grades as, for example, in Southern Rhodesia and Nigeria. In 3 of the 10 countries which inquired into grade or course, the reference was to grade attained, in 6 it was to grade or course completed, and in one reference was made both to attainment and completion of the educational category.

221. Mauritius, Mozambique and South Africa asked for reports of any degrees, diplomas or certificates held by each person.

222. There are unfortunately no details available of the reports of educational level in the UAR (Egypt) and in the sample surveys in the Cameroon, Central African Republic, Dahomey and the Ivory Coast.

#### School attendance.

223. A number of countries included questions on school attendance; in Ghana the object was to determine those attending school full-time at present or in the past and those who had not been to school. In Liberia, the question related to full or part-time attendance at school in the current term. In Mozambique (non-indigenous) and Southern Rhodesia grade or course attended was asked for those attending school, in Uganda the question was a query on those who had ever been to school, either now or in the past, while in Mauritius, Morocco, Senegal, Tanganyika (non-indigenous), Togo and Tunisia information on those attending and not attending school was included under the questions on economic activity.

TYPES OF DATA ON LITERACY COLLECTED IN SELECTED CENSUSES, 1955-62

("X" indicates that the given type of data was collected, "-" that it was not collected)

Territory	Literate in the no. of languages specified below	Ability to read	Ability to write	Ability to read & write
CAMEROON (Towns)	1	-	-	-
CONGO (Leopoldville)	-	-	-	X
GABON	1	-	-	X
GHANA	<u>1/</u>	-	-	X
LIBERIA	1	-	-	X
MAURITIUS	<u>2/</u>	X	-	X
MOROCCO	4	-	-	X
MOZAMBIQUE	1 <u>3/</u>	-	X	-
S. AFRICA (indigenous)	2	X	-	X
TOGO	4	-	-	X
TUNISIA	2 <u>4/</u>	-	-	X

1/ There were 3 queries, relating to literacy in (a) any language, (b) any Ghanaian language, (c) any non-Ghanaian language.

2/ Languages to be specified by the respondent.

3/ Portuguese was specified but in addition ability to write any other language was to be indicated.

4/ Provision was made for specifying one other language in which the person was literate.

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Specifying degrees, plomas or certificates obtained.	
CAMEL	-
CENTH	
CONGO	-
DAHOI	
GABON	-
GHANA	-
IVORY	
KENYA	-
LIBERIA	-
MAURITIA	X
MOZAMBIQUE	
INDIA	X
NETHERLANDS	X
NIGERIA	-

or divorced) at the time of the census. In all other instances the questions were to be asked of all women aged 14 (or 15) years and over or to all women, age unspecified. In other words the intention has usually been to study the fertility of all women rather than the fertility of married or "ever-married" women.

227. In one instance only - the city of Abidjan - males aged 18 years and over were asked their age at marriage and the number of marriages they had contracted.

TYPES OF DATA ON DURATION OF MARRIED LIFE COLLECTED IN THE CENSUSES OF SELECTED  
COUNTRIES 1955-62

("X" indicates that the given types of data was collected; "-" that it was not collected)

Territory	Duration of marriage	Age at marriage	No. of times married	Population from which data were collected
CAMEROON <u>1/</u>	-	-	X	Females aged 14 years & over
CENTRAL AFRICAN REPUBLIC <u>2/</u>	-	X	X	" " "
CONGO (Brazzaville)	-	X	X	" " "
DAHOMEY	X	X	-	" " 15 "
GUINEA	-	-	X	" " 14 "
IVORY COAST <u>3/</u>	-	X <u>5/</u>	X	" " "
MAURITIUS	X	X	-	All women ever married once only.
MOZAMBIQUE				
Indigenous	X	X	X <u>6/</u>	Females aged 14 years & over
NIGERIA	-	X	-	" " 15 "
SENEGAL	-	-	X	" " 14 "
SOUTH AFRICA				
Non-indigenous	X	-	X <u>6/</u>	All women ever married
TUNISIA	-	X	-	All women.
UGANDA				
Non-indigenous <u>4/</u>	X	-	-	All married women.

1/ Ebolowa and the sample survey in N. Cameroon and Adamaoua.

2/ Sample survey in C. & W. Oubangui.

3/ Abidjan and the first agricultural sector.

4/ Refers only to present marriage.

5/ Abidjan only.

6/ Refers only to whether married more than once.

Total Fertility.

228. There were 23 countries which inquired into total fertility of each woman at the time of the census by questions which would give the total number of children born to these women. In 20 of these instances, live-born children only were to be included; in the remaining 3 cases it appears that still-born children were to be included in the total. In the UAR (Egypt) the total was to refer only to children born during the present marriage or the last marriage; elsewhere the intention was that women should report all the children they had ever borne, irrespective of the number of marriages, except in Dahomey where the children of different marriages were shown separately.

229. In addition to the question on total children borne, a question on the number of these children surviving at the time of the census was added in 19 of the 23 countries. Such a question clearly does not provide direct information on fertility but is useful in checking the accuracy of the replies on fertility. The direct information provided by the question relates to total mortality, analagous to the information given on total fertility.

230. In 12 countries, the fertility questions were asked of all females aged 14 (or 15) years and over. In 10 countries, the questions were directed to "all women" or to females past puberty. In practice, in these 22 countries the population investigated would presumably be comparable, while in the 3 remaining countries the questions were restricted to women who had ever been married.

TYPES OF DATA ON NUMBER OF CHILDREN BORN, COLLECTED IN CENSUSES IN SELECTED  
COUNTRIES, 1955-62

("X" indicates that the given type of data was collected, "-" that it was not collected)

Territory	Number of live-born children		Population from which data were collected
	Total to census date	No. still living	
CAMEROON	X	X	
Douala	X	X	Men & women with children(?)
M'balmayo	X	X	" " " " " "
Yaoundé	X	X	" " " " " "
Eholowa	X <u>1/</u>	X	Males & Females aged 14 years & over
N. Cam. & Adamaoua	X	X	Females aged 14 years & over
CENTRAL AFRICAN REPUBLIC			
C. & W. Oubangui	X	X	" " " " " "
CONGO (Brazzaville)	X	X	" " " " " "
CONGO (Leopoldville)	X <u>2/</u>	X	All women
DAHOMEY	X <u>3/</u>	X	Females aged 15 years & over
GABON	X	X	" " 14 " "
GHANA	X <u>2/</u>	X	" " 15 " "
GUINEA	X	X	" " 14 " "
IVORY COAST			
Abidjan	X	X	" " " " "
Rural (1st. ag. sector)	X	X	" " " " "
KENYA	X	X	All women
MAURITIUS	X	-	All women ever married once only.
MOROCCO	X	X	All women
MOZAMBIQUE			
Indigenous	X <u>4/</u>	X	Females aged 14 years & over.
Non-indigenous	X	X	All women



Territory	Number of live-born children		Population from which data were collected.
	Total to census date	No. still living.	
NIGERIA	X	X	Females aged 15 years & over
SENEGAL	X	X	Females aged 14 years & over
SOUTH AFRICA			
Non-indigenous	X	-	All women ever married
SUDAN	X	-	Females past puberty
TANGANYIKA			
Indigenous	X	X	Adult females
TOGO	X <u>1/</u>	X	All women
TUNISIA	X	X	" "
UGANDA			
Indigenous	X	X	All adult females
Non-indigenous	X	X	All women ever married
UAR (Egypt)	X <u>1/ 5/</u>	X	?
UPPER VOLTA <u>6/</u>			
ZANZIBAR	X	X	All women

1/ Still births appear to be included.

2/ Still births included.

3/ Children of each marriage shown separately.

4/ A separate question was asked on the total number of children including still births.

5/ Children of the present or last marriage only.

6/ A small-scale survey on marital history and fertility was carried out but no details are available.

Current fertility.

231. Attempts were made in 18 countries to obtain data of the number of births occurring in a specified time period preceding the census, by asking each individual woman how many children she had borne. Except in 3 instances - Congo (Leopoldville), Ghana and Kenya - the question related to children born alive. The time period specified was the 12 months preceding the date of the census, except in Nigeria where Independence Day (1 October, 1961) was chosen as the beginning of the period because of the probability of its being clearly remembered. In 2 or 3 instances, the period was specified as "since last Ramadhan", but the census date was fixed so that the period was approximately one year. The population investigated in each country was the same as that given in the preceding table showing the total number of children borne by women up to the census date.

232. The following table lists the countries which investigated births in the period preceding the census. The table includes data on mortality which will be discussed below.

TYPES OF DATA COLLECTED FROM INDIVIDUAL WOMEN ON BIRTHS AND DEATHS IN THE CENSUSES  
OF SELECTED COUNTRIES 1955-62

("X" indicates that the given type of data was collected; "-" that it was not collected)

Territory	During the last 12 months					Deaths of infants at any time in the past
	Live births		Deaths	Age of children at death		
	Total	Still living		Infants	Others	
CAMEROON	X	X	X	X	X	-
CENTRAL AFRICAN REPUBLIC						
C & W Oubangui	X	X	X	X	X	-
CONGO(Brazzaville)	X	X	-	-	-	-
CONGO(Leopoldville)	X <u>1/</u>	X	<u>2/</u>			
DAHOMLEY	X	X	X <u>3/</u>	X <u>3/</u>	-	-
GABON	X	X	X <u>4/</u>	X <u>4/</u>	-	-
BHANA	X <u>5/</u>	-	X	X	X	-
GUINEA	X	X	X	X	X <u>6/</u>	
IVORY COAST						
Abidjan	X	-	X <u>3/</u>	X <u>3/</u>	-	-
Rural(1st. ag. sector)	X	X	X	X	X	-
KENYA	X <u>5/</u>	-	-	-	-	-
MOROCCO	X	X	X <u>3/</u>	X <u>3/</u>	-	-
NIGERIA <u>1/</u>	X	X	X <u>3/</u>	X <u>3/</u>	-	-
SENEGAL	X	-	X	X <u>8/</u>	X <u>8/</u>	-
SOUTH AFRICA						
Indigenous	X	-	X <u>2/</u>	X <u>2/</u>	-	-
SUDAN	X	-	X <u>2/</u>	X <u>2/</u>	-	-
TANGANYIKA	X	-	X <u>2/</u>	-	-	X <u>10/</u>
UGANDA						
Indigenous	X	-	X <u>2/</u>	-	-	X <u>10/</u>
Non-Indigenous	X	-	-	-	-	-
ZANZIBAR	X	-	X <u>2/</u>			X <u>10/</u>

FOOTNOTES

- 1/ Includes still births. The questionnaire distinguished issue of polygamous and monogamous unions and legitimate and illegitimate children.
- 2/ At the time of the survey a separate inquiry was made into deaths in the last 18 months. Enumerators obtained data on deaths from the civil registration offices and checked the accuracy of the records in the course of their visits to the sample houses.
- 3/ The questions related only to deaths of children born in the last 12 months without specifying exact age.
- 4/ The questions related only to deaths of children born in the last 12 months with dates of births and of death specified.
- 5/ Includes still births.
- 6/ Children only, in age groups 1-4, 5-13 years.
- 7/ The period of reference was fixed in relation to Independence Day (1 October).
- 8/ Dates of birth and of death were to be specified.
- 9/ ~~Relates to~~ all deaths in the last 12 months of children aged under 1 year.
- 10/ Relates to deaths, occurring at any time previous to the last 12 months, of children aged under 1 year. In the case of Zanzibar, the question related to those who died before weaning.

233. The questions on current births reviewed in the preceding section were directed to individual women. A collective approach was used in 10 countries (8 of which had used the individual method as well); all births occurring in the household or compound or family in the last 12 months were to be recorded on the household or family form. In 5 of these instances, a question was added on number of these children still living at the census date.

234. The individual and collective data, although not precisely comparable in coverage, will provide useful checks of the accuracy of reporting and, when taken together with the total number of children borne by women up to the census date, will give a more detailed picture than has yet been available of the pattern and level of fertility in Africa.

TYPES OF DATA COLLECTED FROM HOUSEHOLDS OR FAMILIES ON BIRTHS AND DEATHS IN THE  
CENSUSES OF SELECTED COUNTRIES, 1955-62

("X" indicates that the given type of data was collected; "-" that it was not collected)

Territory	During last 12 months					
	Live births		Deaths			
	Total	Still living	Age at death		Sex	Cause
			Infants	Others		
CAMEROON						
N. Cam. & Adamaoua	X	X	X	X	X	X
CENTRAL AFRICAN REPUBLIC						
C & W. Oubangui	X	X	X	X	X	-
CONGO (Brazzaville)	X	-	X	X	X	-
CONGO (Leopoldville) <sup>1/</sup>	-	-	X	X	X	-
DAHOMEY	X	X	X	X	X	X
GABON	X	X	X	X	X	-
GUINEA	X	-	X	X	X	-
IVORY COAST						
Rural (1st. ag. sector)	X	X	X	X	X	-
MALI	X	-	X	X	X	-
MOROCCO	-	-	X	X	-	-
SENEGAL	X	-	X	X	X	-
TANGANYIKA						
Indigenous	-	-	-	-	X	-
UGANDA						
Indigenous	-	-	-	-	X	-
UPPER VOLTA	X	-	X	X	X	-
ZANZIBAR <sup>2/</sup>	-	-	-	-	-	-

<sup>1/</sup> The period of reference was the last 18 months.

<sup>2/</sup> A question on deaths in the household was included, with no specification of sex or age at death.

Mortality.

235. The last 2 tables included information on the types of data on mortality collected in recent African censuses. As in the investigation of fertility, efforts were made to obtain the data not only from individual women but on a household or family basis. As might be expected, in the questions asked of women emphasis was placed on deaths of the children borne by the women. The result is that, of the 16 countries which were interested to establish the number of deaths which had occurred, 13 asked directly or indirectly whether the deaths of the preceding 12 months had occurred before the child had reached 1 year of age. In the remaining 3 cases, the only difference lay in the period of time reference - the question asked for the number of children who had died at any time in the past under the age of 1 year (in Zanzibar, before weaning). In 6 countries, a question was asked on age at death of children, other than infants, who had died in the preceding 12 months.

236. The information on deaths collected from households or families in 14 countries theoretically covered all deaths which occurred in the specified time period. Sex and age of the deceased were to be specified in most instances, except Uganda and Tanganyika where sex only was to be specified, and Morocco where age only was to be recorded.

237. Two countries asked for an entry on the cause of death.

238. Several countries added questions on the most recent death in the household previous to the last 12 months; these have been omitted from this review since they were presumably asked only as a check of the other data on mortality.

Migration.

239. Migration within and across territorial boundaries has been of such importance, and the available data so inadequate, that 25 countries included questions designed to furnish information on transfers of population. There have been 3 main aspects of migratory movements in Africa which account for the emphasis placed on their measurement in censuses: the movement to the towns from the rural areas; the traditional nomadic pattern of living amongst large sections of the population; and the movement of labour for fixed periods or seasonally to areas where employment opportunities offered special inducements.

240. There has been little explicit attempt to define different types of movement: the necessity for such definition has usually been avoided by attempts to establish the length of time spent by individuals (a) in the place of present residence or (b) absent from the usual residence. In a number of French-speaking countries, the method has become formalized into a distinction between residents (present and absent) and visitors. On occasions, the latter category has been subdivided into "seasonal" and "occasional" visitors, but usually the duration of the period of absence or of visit has been asked for, as well as the place of usual residence in the case of visitors and the place of present residence in the case of absentees. There were 13 countries which used this method for absentees and 9 for visitors. Several countries asked only for place of present or usual residence without specification of the time period. In 7 countries a question was added on the motives for movement, the possibilities usually being given as employment, education, family reasons or health.

241. There were 17 countries which asked for the length of residence in the place of enumeration for those born elsewhere. In 5 of these cases the object was to determine the period of residence of the non-indigenous population within the territorial borders, that is to say



the emphasis was on international movement. Two of the 17 countries asked also for place of previous residence, while in Mozambique (non-indigenous population) the only query related to place of previous residence of those who had moved in the last 12 months.

242. In the Congo (Brazzaville), an inquiry was made into persons aged 15 years and over who had left the household in the last 10 years. For each such person, age, year of departure, place of residence and occupation were to be stated. In the Congo (Leopoldville), age of departure was recorded, while in Nigeria details were required of occupation and date of movement of those who had left their village for a continuous period of 3 months or more.

Territory		
	Place of usual residence	Reason for moving
CAMEROON		
N. Cam. & Adamaoua	X	-
CENTRAL AFRICAN REPUBLIC		
C & W. Oubangui	X	-
CONGO (Brazzaville)	X	X
CONGO (Leopoldville)	-	X
DAHOMEY	X	-
GABON	X	X
GHANA	-	-
GUINEA	-	-
IVORY COAST		
Abidjan	-	-
Rural sample	X	-
KENYA	-	-
LIBERIA	-	-
MALI	X	X
MAURITIUS		
MOROCCO		
MOZAMBIQUE		
Ind*		
NC		
N		

## ECONOMIC CHARACTERISTICS OF THE POPULATION.

243. The information given in the following table does not exhaust the types of data on economic characteristics collected in the African censuses taken in recent years. It is presented only as a summary of those types of data on which information must be collected if it is desired to conform to the first-priority recommendations on international comparability. These recommendations refer to type of activity, occupation, industry and status (as employer, employee, etc). <sup>1/</sup> The types of activity shown in the table are sufficient to demonstrate whether or not data have been collected on the basic groups (economically active and not economically active) and the optional sub-groups (employed, unemployed, home-makers, students, others). The divisions of the employment status category represent the 4 principal groups usually investigated in this context.

244. It should be emphasized here more than in preceding sections that the presentation cannot fully reflect the coverage of the censuses of a number of countries because, even where it is known that type activity or employment status was to be recorded, the categories could not be entered in the table unless instructions were available showing the kind of classification that was required.

245. By inference from other surveys of the same general type, it could be concluded that in the Cameroun, the Central African Republic and Dahomey, employment status categories would distinguish own-account workers, employees and family workers and perhaps employers as well.

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<sup>1/</sup> United Nations: Principles and Recommendations for National Population Censuses, P.19.

TYPES OF DATA ON

("X" indicates that the given data is available in the available sources)

Territory	Employment Status			
	Employ- er	Own Account worker	Em- ploy- ed	Fam- ily- Work- er
CAMEROON				
Douala	X	X	X	X) 4/
M'balmayo	X	X	X	X)
Yaoundé	X	X	X	X)
Ebolowa	X	X	X	X)
N. Cam. & Adamaoua		N.	S.	
CENTRAL AFRICAN REPUBLIC				
Bangui	-	-	-	-
C & W. Oubangui		N.	S.	
CONGO (Brazzaville)		N.	S.	
	-	-	-	-
CONGO (Leopoldville)	-	X	X	-
DAHOMY		N.	S.	
GABON	X	X	X	X
GHANA	-	X	X	X
GUINEA		N.	S.	
IVORY COAST				
Abidjan	X	X	X	X
5 towns	X	X	X	X
Rural survey		N.	S.	
KENYA 8/	-	X	X	X
LIBERIA	X	X	X	X
MALI	X	X	X	X
MAURITIUS	X	X	X	X
MOROCCO	-	X	X	X
MOZ				
				X

Territory	Employment Status			
	Ref	Own Account Worker	Emplo- ed	Fam- ily workers
SOUTH AFRICA	ti	X	X	-
SUDAN		-	-	-
TANGANYIKA				
Indigenous		-	X	-
Non-indigenous		X	X	-
TOGO		-	-	-
TUNISIA		X	X	X
UGANDA				
Non-indigenous		X	X	X
UAR (Egypt)			N. S	
UPPER VOLTA		X	X	X
ZANZIBAR		-	-	-

FOOTNOTES

- 1/ It is not clear whether the category includes housewives and others not economically active.
- 2/ In 3 categories only: office workers, skilled workers, labourers.
- 3/ As for 2/ above, but for the public sector only.
- 4/ Private sector only.
- 5/ In 4 categories only: directors or officials, office workers, skilled workers, labourers.
- 6/ For the unemployed, last occupation was to be entered.
- 7/ Certain differences were to be observed in specifying occupations of those in the private and those in the public sector.
- 8/ The question on occupation applied to the non-indigenous and indigenous populations. All others applied only to the non-indigenous population.
- 9/ Applies only to new entrants to the labour market. All other information relates to the experienced labour force.
- 10/ For the unemployed, usual occupation was to be entered.
- 11/ Duration of unemployment was to be stated.
- 12/ The principal occupation was defined as that from which most income was earned or which was considered permanent.
- 13/ Employment status was to be recorded in both the principal and secondary occupations.
- 14/ Questions were included on principal and secondary occupation, occupation at the time of the survey; duration of unemployment; underemployment.
- 15/ Principal occupation was defined as that at which more time was spent during the year.
- 16/ New entrants to the labour market were to be distinguished. For the unemployed, usual occupation was to be specified.
- 17/ A separate census of employees was taken.
- 18/ Principal occupation was defined as that at which most time was spent.
- 19/ Distinguishing permanent, temporary and seasonal work.
- 20/ For the unemployed, previous occupation was to be specified.
- 21/ The lower age limit of 6 years applied to the questions on industry and employment status. A limit of 14 years was set for an additional question on duration of present employment.

246. All of the 28 territories included questions of some kind on economic characteristics of the population but the scope of the inquiry and the definitions of the concepts involved varied from territory to territory.

Time-reference period.

247. For 19 of the 28 territories, no time reference appears to have been specified; in 6 instances the economic data related to the position at the time of the census; in 2 instances the data referred to the position during the year preceding the census; in one instance to the week and in another to the month preceding the census.

Population investigated.

248. Again there was a relatively large number of cases in which no indication was given of the procedure adopted. There were 10 territories in which no limitation appears to have been placed, either of age or of sex, on the population to whom the questions on economic characteristics were to be directed, and a further 4 instances in which a limitation was stated for part of the territory or of population but was not stated for the remainder. Of the 14 remaining instances, 4 specified that the questions were to be asked for all those aged 14 years or over; 4 specified the age as 15 years or over but in one of these instances the age limit was to be observed only for new entrants to the labour market, while in the UAR (Egypt) a lower age limit of 6 years was set for

questions on industry and employment status and of 14 years for an additional question on duration of present employment; in 4 instances the inquiries were to be made of males only (all males in Kenya, adult males in Tanganyika in the census of the indigenous population, males aged 15 years and over in Congo (Brazzaville) and 17 years and over in Southern Rhodesia). In Zanzibar, economic characteristics were investigated only amongst urban adults.



Type of activity.

249. The majority of countries have not attempted to ask preliminary "sorting" questions as a method of establishing the numbers economically active and not economically active though there were exceptions to this, for example in Ghana and Liberia. The more common methods have been either (a) to include under the question on occupation instructions for allocating every person to a category which would provide the basis for later classification into the 2 main activity groups; this would usually entail specific entries for home-makers, students and others not economically active, and a method of identifying the unemployed; or (b) to ask separate questions on occupation (and/or industry) and employment status and to include under the latter entries from which it would be possible to identify the employed and perhaps also the unemployed. Both of these methods have tended to be relatively imprecise in regard to the definition of unemployment.

The economically active population.

250. There were few territories in which the data on economic characteristics provided a basis for the determination of the number of persons who were economically active. It is the absence of specific data on unemployment which lessens the value of the data on type of activity and there were many instances in which information on type of activity was collected but in which unemployment was not precisely defined. For example, where instructions were given to enter "not working" or some such term it is impossible to determine, unless it is clearly stated, what procedure was adopted for housewives, the retired and others not working and not looking for work. Taking account of defects of this kind in the data, there were in fact only 7 instances in which the definition of the unemployed was unambiguously given as those not working but seeking for work - these were Ghana, Morocco, Mozambique (non-indigenous population), Nigeria, Federation

of Rhodesia and Nyasaland, South Africa and the Sudan. The result is that these 7 instances appear to be the only ones in which the total number of economically active persons can be determined correctly.

251. These comments should not be read without taking into account the fact that in subsistence economies the distinction between the economically active and inactive and between the employed and the unemployed is difficult to make no matter how careful the approach and this no doubt has influenced the planners of African censuses to some extent.

The population not economically active.

252. It is clear that where the unemployed have not been precisely distinguished as those not working and not seeking work, neither the economically-active nor the not economically active populations can be precisely distinguished. However, a number of countries have asked for an identification of certain of the optional sub-groups within the non-active population as suggested in the international recommendations. Those who have been separately recorded are home-makers (in 12 instances) and students and/or school children (in 15 instances) while it was only in a few other instances that categories such as pensioners or inmates of institutions were specifically indicated. The tendency has been to employ one general term for those not working but, as in the cases previously mentioned, to ask for a separate record of school children and home-makers.

Occupation and industry.

253. There has been more consistency in the definitions of occupation and of industry than appears in other aspects of the collection of the data on economic characteristics, but there have been some differences in the treatment of occupation in respect of the unemployed, and in the approach to the matter of principal and secondary occupations.

254. In all but 4 instances a question on occupation was asked but there were 12 countries, or parts thereof, which omitted any reference to industry in their censuses. Here again it is presumably the fact that for the majority of workers in a subsistence economy the industry is given with the occupation - that is, agricultural activity of some kind. The Congo (Leopoldville) and Southern Rhodesia were the only territories in which there was no query either on industry or occupation.

255. Except in some minor instances, the type of occupation to be entered have been left to the enumerator who, however, has been given instructions on the types of error to avoid in making the entries. It is in only a few cases that the procedure is known for the reporting of occupation of the unemployed; last occupation was to be specified in Gabon and Tunisia; the usual occupation in Morocco and the Federation of Rhodesia and Nyasaland.

256. There were 10 territories which asked for both principal and secondary occupation, but definitions have not usually been given in the available sources. The few given vary between the occupation at which most time was spent and that from which most income was earned.

#### Employment status.

257. The Sudan and Zanzibar were the only territories which omitted any inquiry into the status of the economically active population (or at least of the employed) as employers, own account workers, employees or family workers. As was noted previously, the categories to be entered are unknown in respect of a number of countries but it can be seen from the table that most countries were interested to determine the numbers of own-account workers, the number of employees and the number of family workers. In the French-speaking territories it has been the usual practice to show apprentices as an additional category.

Miscellaneous items on economic characteristics.

258. Duration of unemployment, underemployment and income have been investigated in a very few instances. Despite the interest of the data, they have been excluded from this report of census practices because of the restricted number of cases which could be reviewed.

## VI. RECOMMENDATIONS.

259. Despite the advances made in the collection of population data in Africa in the last few years, the detailed review of the practices followed in each country clearly indicates that there remains a great deal to be done before the standard of African demographic work can be regarded as satisfactory. A number of countries have succeeded in conducting operations which meet the basic recommendations in regard to universality of coverage and simultaneity in the sense that the data refer to a fixed point of time for the whole population. Even for these countries, however, it would be altogether too optimistic to believe that the data are of uniformly high standard. Unfortunately, it is impossible to check precisely the extent of the errors and, even where post-enumeration field checks have been carried out, there is the possibility that either or both inquiries may be in error.

260. Four general recommendations are made in the interests of striving for improvement in the scope and quality of population censuses and survey in Africa:

### Complete enumerations.

261. Every country should eventually aim at conducting a complete enumeration on the grounds that (a) a sample survey cannot provide data for small administrative units and (b) while sampling is the more effective method for investigation of topics requiring a higher level of skill on the part of interviewers, a complete enumeration is the more effective in determining total population size. The recent African censuses and surveys have produced total counts or estimates which have been, in a number of cases, 20 per cent above the estimated population. These discrepancies have occurred both where the estimated population was derived from previous sample surveys and where it was derived from what purported to be complete enumerations. The accuracy of both the

earlier and the later operations is thus called into question. Where the more recent operation was a systematically designed and controlled complete enumeration judgement is likely to be in its favour. Where the more recent operation was a sample survey, no matter how systematic its design and control, its accuracy in regard to estimating total population size may be questioned unless the sampling frame is known to be complete. Locality lists, administrative censuses, tax and hut lists in Africa are known to be subject to errors of omission and the necessity of verifying such lists in an adequate manner in itself involves a very considerable burden of work which may not fall far short of the effort required to conduct a complete enumeration of a very simple kind.

262. It is therefore recommended that countries which have not yet conducted a complete enumeration should endeavour to do so. It is also recommended that the complete enumeration should cover all geographic areas and all population groups in reference to the one fixed point of time. These criteria of universality and simultaneity are desirable also for sample surveys, but the criterion of simultaneity is of slightly less importance if the primary object of the survey is to collect data on the characteristics of the population rather than to provide a basis for estimating its size.

Sample surveys.

263. Sampling will continue to offer advantages of economy of staff and of other resources and it is recommended that its use be continued and, where appropriate, extended for the investigation of the more complex demographic and related characteristics of the population. However it should be borne in mind that, on the information available, the sample surveys in the Sudan and Guinea appear to have been more expensive per head of total population than were those complete enumerations with which comparison could be made.

Permanent census organizations.

264. Each country should aim at establishing a permanent census organization with a nucleus of staff capable of designing and conducting the periodic large-scale operations of the census type and other inquiries needed for special purposes. In view of the crucial shortage of staff qualified to undertake statistical work in Africa, the advantage of a permanent organization can scarcely be questioned. Such an organization need not be large but, to be effective, must include in addition to the senior staff a few middle-level statisticians fully acquainted with local conditions and capable of conducting training courses, of supervising field work, of editing and coding returns and of compiling data for publication.

Civil registration systems.

265. The necessity for a comprehensive system of registration of vital events has been felt increasingly in African countries in recent years. Leaving aside the administrative advantages and considering the issue only as it affects demographic field inquiries, there is a two-fold gain to be derived from the existence of accurate statistics of vital events : (a) either by comparison of the numbers enumerated at specified ages against the data derived from the registrations of births and deaths in the relevant period or by checking of the data collected in censuses or surveys on a one-to-one basis back to the records of the registration system, it is possible to assess the accuracy of the field inquiry; and (b) the existence of accurate vital statistics from a registration system would eliminate the difficulties associated with attempting to collect such information by retrospective inquiries during censuses or surveys.

266. Migration statistics by sex and age of those arriving in and departing from the territory would also be of great use in this context.

267. It is recognized that the achievement of complete registration of vital events is not likely to occur in Africa for a long time to come. Meanwhile, general opinion is favourable to the continuation of the retrospective inquiries during censuses or surveys as a method of obtaining estimates of the vital rates. The danger is that more reliance may be placed on rates obtained by the retrospective type of questioning than is justified by their accuracy. Therefore, while it is recommended that the retrospective inquiries be continued, it is strongly emphasized that, even where resources are limited, countries should consider the possibility of introducing a civil registration system beginning with a random sample of registration areas and extending the sample as resources permit. <sup>1/</sup>

268. The remaining recommendations refer to specific points in the various stages of planning, conduct and publication of the results of censuses and surveys :

Planning.

269. (a) Maps of enumeration areas should be regarded as an indispensable aid to good field work. This implies the need for accurate maps of the whole territory showing principal divisions and physical features.

(b) A geographic code should be established for use in all statistical operations within each territory, with provision for inclusion of new administrative units where necessary. Spelling of place names should be standardized to this list.

(c) Consideration should be given to the possibility of establishing a code for the principal ethnic groups in each main region of Africa.

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<sup>1/</sup> See Economic Commission for Africa : Report of the Seminar on Population Problems in Africa, E/CN.9/CONF.3/1, Cairo, October - November 1962, pages 34 and 26-40.



(d) Manuals of instructions or the instructions printed on questionnaires should provide clear definitions of all relevant terms and of the exact entries to be used for specified categories. These provisions are especially necessary in regard to marital status, types of activity or of employment status and the social or other unit on which the enumeration is based.

(e) Training of field workers should be intensified, with especial emphasis on completeness of coverage and on precision in making entries.

(f) Comprehensive pre-testing of questionnaires, field plans and tabulations should be regarded as an essential part of the general census plan.

Conduct.

270. (a) The training programme should be backed by the most minute control of the field work in order to avoid the recurrence of observed errors such as omissions of individuals or the recording of incorrect replies. This has particular application to cases where fertility data have been entered only for the wife of the head of the household or family and not for other women, and to the frequent instances in which entries on occupation and industry have been so lacking in precision that they cannot be classified except on the most arbitrary principles.

(b) Post-censal field checks should, like pre-testing of the census design, be regarded as an essential part of the census and survey operation. It should be based on random sampling from a frame independent of the census or survey itself and designed with the intention of matching individual events.

Tabulation.

271. The tabulation plan should include tables designed for evaluation of the adequacy of the data.

Publication.

272. (a) Publication of the results should be secured at the earliest possible date. To achieve this it is necessary to overcome the tendency noted in a number of countries to relax from the feeling of pressure once the field operations are concluded. The transfer of field staff to other operations has frequently resulted in the necessity for recruiting new staff who need intensive training before they acquire the understanding of the underlying principles which is essential to accuracy.

(b) Census publications should include a clear account of the procedures adopted in every phase of the operation : legal and administrative provisions, preparations of a time-table of activities, selection of enumeration areas, mapping, sample design and so on. The questionnaires and other census or survey forms should be reproduced, together with a brief but precise account of the instructions for completing the entries. It is only from such information that it is possible to deduce the basis of the data and their comparability, or otherwise, with data from other countries.

(c) Each publication should contain a clear map of the zone(s) of inquiry showing the parts in relation to the whole and giving the names and boundaries of the administrative divisions.

- (d) The tables and any analysis accompanying the tables should provide additional information on the nature of the data incorporated, with an explanation of local customs or other circumstances which may account for particular features of the results. Details of practical importance are often overlooked : for example, what procedure, if any, was adopted for distributing persons of unstated age? What age limits, if any, were imposed for the collection of data on marital status or on economic characteristics? What procedure was adopted for persons with two or more types of activity, such as housewives working part-time?
- (e) The general form of census or survey publications must be dictated by facilities available but it would be an improvement if every publication could carry a precise indication of the issuing authority together with place and date of issue. This applies to processed material as well as to more formal publications and even applies to the census or survey questionnaires of a few countries which have omitted to include the name of the territory on the enumeration forms.

Cost.

273.

It would be particularly useful if countries would specify detailed items of cost involved so that comparable figures could be extracted for an assessment of the relative costs of different types of operation. This recommendation gains added force from the apparently higher cost per head of total population of the sample surveys in the Sudan and in Guinea as compared with total enumerations in certain countries.

Intercensal experiments.

274. Experiments should be devised, before the next major census or survey operation, for the enumeration of special categories of population such as nomads.

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275. It may be argued that these are counsels of perfection and take insufficient account of the limitations of resources and of local difficulties of climate, terrain, language, nomadism. However, some of the suggested improvements could be effected even within the limitations of local conditions. It has been the aim of this report to attempt to assess the achievements in the light of the difficulties experienced and the recommendations are intended to indicate the fields in which improvement is desirable if the standard of African demographic statistics is to be raised.

VII. ADDENDUM

276. Since this report was drafted, further information has been obtained on the procedures adopted in a number of censuses and sample surveys conducted in Africa in the last few years especially in relation to French-speaking West and Equatorial Africa. In order to avoid delays in circulating the report, it seemed preferable to add a separate note rather than to attempt to incorporate all of the alterations or additions in the text. On specific points the text has been corrected but alterations involving more detail or more lengthy explanation have been confined to the addendum.

Coverage.

277. The following additions should be made to the list of censuses and surveys given in section II of the report; correspondingly, Angola, Basutoland, Bechuanaland, Chad, Madagascar and Mauritania should be omitted from the list given on page 7 :

...and the

COVERAGE OF CENSUSES AND SAMPLE SURVEYS CONDUCTED IN THE PERIOD 1955-62

(N.B. Asterisks mark the operations for which documentation is inadequate for detailed analysis.

C = census, S = sample, d.f. = de facto, d.j. = de jure).

ANGOLA				
	<u>Indigenous population</u>	30/31-XII.60	C	d.f.
	<u>Non-indigenous "</u>	" " "	C	d.f. & d.j.
BASUTOLAND				
	<u>Indigenous population</u>	8/9 IV.56	C	d.f. & d.j.
BECHUANALAND				
	<u>Indigenous population</u> <sup>1/</sup>	8. IV. 56	S ? <sup>2/</sup>	d.j.
	+ <u>Non-indigenous "</u>	3. X. 56	Unknown	Unknown
CAMEROON				
	<u>Indigenous population</u>			
	+ Town of Doumé	?56	C	Unknown
	+ " " Bafoussam	?57	C	"
	+ " " Eséka	?58	C	"
	+ " " Yaoundé	III to XII.62	C	d.f. & d.j.
CHAD				
	<u>Total population</u>			
	+ Town of Fort Lamy	?62	C	d.f. & d.j.
CENTRAL AFRICAN REPUBLIC.				
	<u>Indigenous population</u>			
	+ Towns of Fort-Sibut, Fort-Crampel & Dékoa	11.59	C	Unknown
CONGO (BRAZZAVILLE)				
	<u>Indigenous population</u> (?)			
	+ District of Kibangou	?58	S	Unknown
GUINEA				
	<u>Indigenous population</u>			
	+ District of Konkouré	?57	S	d.f. & d.j.
IVORY COAST				
	<u>Total population</u> (?)			
	+ Regions of Man, Korhogo and Bouaké	?62	S	d.f. & d.j.

<sup>1/</sup> Some, if not all, of the indigenous population were enumerated by assembly, not by household visits.

<sup>2/</sup> The term sample was used but no indication given of the kind of sample.

COVERAGE OF CENSUSES AND SAMPLE SURVEYS CONDUCTED IN THE PERIOD 1955-62

(N.B. Asterisks mark the operations for which documentation is inadequate for detailed analysis.

C = census, S = sample, d.f. = de facto, d.j. = de jure).

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MADAGASCAR

	<u>Total population</u>			
+	Province of Tananarive	? .57	C	d.j.
+	" " Majunga	? .62	O	d.j.
+	6 urban centres	? .60	C	d.f. & d.j.
+	5 secondary towns	? .62	C	d.f. & d.j.

MALI

	<u>Total population</u>			
+	Town of Bouako	? .58	C	d.f. & d.j.

MAURITANIE 1/

	<u>Total population</u>			
+	Towns	? .61	C	d.f. & d.j.

SENEGAL

	<u>Total population</u>			
	Town of Dakar	IV to V.55	C	d.f. & d.j.
	Vallée du Sénégal <u>2/</u>	IV to XI.57	S	d.f. & d.j.

TOGO

	<u>Total population</u>			
+	Town of Palimé	? .57	C	d.f. & d.j.

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1/ See also the entry under Senegal.

2/ Includes part of Mauritania.



278. Enumeration procedures in French-speaking West and Equatorial Africa.

More explicit information is now available of the procedures adopted in a number of the (former) French countries, as well as some conclusions reached by the organizers of these surveys. A brief summary is given below of the points which require clarification in the text.

279. Complete enumerations and sample surveys.

Experience in West and Equatorial Africa has strengthened the view that a complete enumeration is the more suitable technique for determining total population size and structure, while sampling has come to be accepted as the more suitable technique for the collection of data relating to population movements (inquiries on births, deaths and migration).

280. Mapping. Different procedures were found necessary in the brousse and in the centres. In the former, field workers were required to make a preliminary round of their areas, in the course of which they attempted to determine the position of each village and recorded it schematically. In the towns, aerial maps or plans were available as a basis on which enumeration areas could be delimited and recorded.

281. Publicity. A distinction was made in this respect also between rural and urban areas. In the rural areas, it was sufficient to gain the support of the local chiefs but in the towns organized meetings were necessary to win the understanding and goodwill of the people.

282. Training. The programmes of training were designed to give adequate "psychological" as well as technical preparation, for example in the suitable methods of approaching local leaders, conducting interviews and of avoiding breaches of local custom.

283.        Control of quality of field work.        There was invariably a systematic verification of the work of the enumerators. Supervisors examined a proportion of all returns from each enumerator; inaccurate or incomplete forms had to be corrected by re-interviewing and it was only after this had been done that the supervisors filled in the bordereau recapitulatif for each village.

284.        Content of questionnaires.        The present comment is restricted to the data collected on economic characteristics in French-speaking West and Equatorial Africa. In the surveys conducted in that region, it was the general practice to frame the instructions to enumerators in such a way that (a) those who were economically active could be distinguished from those not economically active and (b) the unemployed could be distinguished from the employed. The distinction applies mainly to the urban areas on the grounds that, in rural areas, distinctions of this kind are extremely hard to make and of limited meaning in subsistence economies.

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