Population Profile of Arusha Region

REPORT PREPARED FOR

Regional Development Directorate, Arusha

Regional Commissioner's Office
Arusha Region
P. O. Box 3050
ARUSHA

January 1980

TABLE OF CONTENTS

LIST OF TABLES

List of Tables continued

LIST OF FIGURES

LIST OF APPENDICES

PREFACE

This report on the population of Arusha Region has been prepared for the Arusha Regional Development Directorate by the Arusha Planning and Village Development Project. The major objective of the report is to assemble a demographic profile of Arusha Region to be used in planning for the long term development of the Region.

The Arusha Planning and Village Development Project, funded by USAID, was begun in 1979 and combines the regional planning process with the simultaneous development and implementation of village income generating and related development projects. This report on population is one of the first steps in assembling the background information required for the preparation of the Region's Long Term Development Plan.

The population profile of Arusha Region was prepared using three primary sources of demographic information: the 1967 Census, the 1973 National Demographic Survey, and the 1978 Census. The 1978 census figures are the most important source of information for planners, and there is an immediate need to make these available. Therefore three sets of figures have been included as appendices to the report: 1978 village population figures for all villages in Arusha Region, District summaries, and population breakdowns by age group and sex for the APVDP pilot wards. This information will eventually be published by the Central Bureau of Statistics, but there may be a delay of a few years. It is recommended that the regional authorities press for early release of the data and for early analysis of the data from the detailed questionnaire as this will provide the most accurate source of demographic data for planning.

The data required to make reasonable population projections has also been assembled and a series of population projections have been made for Arusha Region and for each of the districts by age groups for five year intervals from 1980-1995. Additional projections for Arusha town and Arusha District were carried out using a range of assumed rates of growth.

The methodology used to carry out these projections is described in Appendix A. Briefly, the base population of each projection was the recorded population from the 1978 Census. The rate of natural increase was based on estimates of fertility and mortality provided for Arusha Region by the 1973 National Demographic Survey. The projections are based on this assumed rate of natural increase and do not include any estimates for migration.

Population projections for the various geographic units are an essential part of the planning process. The material from the above paper on population projection methodology has thus been presented in a very simplified form in a working paper on Population Projection and Planning included as Appendix B. This paper is intended for use by planning officials and would be suitable

for use in a planning workshop if hand calculators could be made available to the participants. The methodology described in the paper should allow planners to carry out whatever population projections are needed at the district, ward or village levels. The paper also emphasizes the fact that the planner must adjust each of the projections for migration based on his knowledge of the present and likely future migration trends in the area he is considering.

The final sections of this report review the policies of the Government of Tanzania on the various aspects of population growth and movement and the demographic implications of the development approach adopted by the Arusha Planning and Village Development Project.

This report was prepared during a period of six weeks in November and December 1979. It should be considered an initial attempt to assemble the population data available for planning in Arusha Region. The collection of accurate population data is essential both for land use planning at the village and ward levels and for long term development planning at the District and Regional levels. The village structure in Tanzania could provide an excellent system for ongoing data collection for regular up-dating of the census figures for use in planning and it is strongly recommended that the Regional Planning Office work to develop such a system.

I would like to thank all of the members of the Regional Planning Office and of the Arusha Planning and Village Development Project for their assistance in preparing this report.

Alan Johnston
January 1980

Introduction: Demographic Information

Tanzania has a long tradition of demographic data collection which has provided a fairly accurate record of the country's components of population change. The high priority that has been given to recent demographic data collection efforts is an important aspect of the government's policy of "participatory socialism" which requires accurate population data for planning purposes at every level of administration down to the smallest planning unit, the village. One essential prerequisite to successful decentralized planning is access to and knowledge of how to use data, including population data, at every level. Nearly all aspects of rural development are related to population size, composition and spatial distribution. From the divisional and district to the regional levels planners need to know in detail such facts as the demand for education (e.g. the school age population), health services and food (e.g. total population and its composition by age and sex), labor and its supply (e.g. working population and participation rates), and maternal and child health care (e.g. women aged 15-49, expected number of births, children aged 0-4), etc.

Besides helping planners to determine the quantity of needed services, demographic data can also be useful in making locational decisions as well as determining the levels of needed inputs to achieve given qualitative standards. In situations of tight resources, they are equally useful in determining relative costs and benefits of initiating one program over another. Finally, there is a need for a clear understanding of the two-way relationship between socio-economic development on the one hand and demographic components of change on the other.

Demographic data which can be used for development planning in Tanzania comes from a variety of sources. The major sources are the decennial censuses and a number of surveys of sampled areas. Although there is very little in the way of vital events registration in Tanzania many government offices at every level keep detailed records, some of which can contain important demographic information (e.g. health and education statistics).

Population Censuses. Tanzania has a long history of population censuses including both complete enumerations and sample censuses. Those carried out in Mainland Tanzania are listed below chronologically with their method of enumeration. In the pre-independence period the census procedures were generally different for the African and the non-African populations. The early counts of the African population were in actuality no more than estimates based on the number of adult male taxpayers, multiplied by a factor representing the average number of dependents per adult male. In addition, prior to 1948 the non-African population was enumerated on a de-facto basis and the Africans on a de-jure basis.

Since the 1948 census all censuses have been conducted on a de-facto basis.and have involved an actual enumeration of the entire population. The latest decennial population census was held in 1978 with 26/27 August as the census night. It was a de-facto type enumeration covering the entire population actually present in the area on census night.

Tanzania Mainland Censuses

Census Date/Period	Type of Population	Method of Enumeration	Group/ Individual Enumeration
1921	African	De-jure	Group
24 April 1921	Non-African	De-facto	Individual
1928	African	De-jure	Group
1 July 1931	African	De-jure	Group
26 April 1931	Non-African	De-facto	Individual
23 August 1948	African	De-facto	Group
25 February 1948	Non-African	De-facto	Individual
13 February 1952 *	Non-African	De-facto	Individual
18 August 1957	African	De-facto	Group
20 February 1957	Non-African	De-facto	Individual
Aug-Sept. 1957	African	De-facto	Individual
26/27 August 1967	All	De-facto	Individual
26/27 August 1978	All	De-facto	Individual

* The census covered the non-African population and The African population residing in urban areas.

Surveys. In addition to the censuses a further source of information on demographic factors is found in sample surveys. The most recent and comprehensive (in geographic coverage) survey is the 1973 National Demographic Survey, which collected information on fertility and mortality levels, differentials, and trends by regions.

II. Population Size and Growth

The population of Tanzania and of Arusha Region with its seven districts is presented in Tables 1 and 2. For the country as a whole the population has been growing steadily and rather rapidly-recording a total population of 17.5 million in 1978. The Commissioner for Statistics has announced (Daily News, Nov. 21, 1979) that Tanzania's population has been growing at a rate of 3.3 per cent per year for the period 1967 to 1978. This is substantially higher than the rate of 2.7% used as the basis for the third five-year development plan. This rapid rate of growth emphasizes the need for a careful study of the relationship between development and population change.

The population of Arusha Region at the 1978 census was 924,672. This gives a recorded population growth rate of 3.8% per year between 1967 and 1978. This incredibly high growth rate could very well be an over-estimate, as the 1967 population census is reported to have under-counted the population of Arusha Region, with many of the pastoral people missed by the enumeration. However, the rate of growth of Arusha Region is certainly higher than that of Tanzania as a whole, and may very well be in the range of 3.5 to 3.8 per cent per year. The 1973 National Demographic Survey and analysis of the 1967 census results both indicate that Arusha Region has the lowest mortality level (Crude Death Rate) of any region in Tanzania while its fertility level (Crude Birth Rate) is among the highest in the country. Recently released data from the 1978 Kenya Fertility Survey indicate that Kenya now has a rate of natural increase (births - deaths) of just over 4.0% per year (Kenya, The weekly Review, September 7, 1979). It is thus plausible that Arusha's rate of natural increase might be at this somewhat lower, yet still extremely high level. In addition, Arusha Region has been a focus of in-migration within Tanzania. Data from the 1967 census show that net-migration had contributed 9.5% of Arusha's population at that time. Although interregional migration may have slowed somewhat during this past decade (see Migration) Arusha Region, as one of the more developed areas in Tanzania, has very likely continued to be a net receiver of migrants.

The high rate of population growth within Arusha Region, if continued, will lead to a doubling of the population of the region in just under 20 years. The implications of this rapid growth for the 15 years of this development plan are obviously crucial. In order to indicate the magnitude of this population increase a series of population projections for the next 15 years have been prepared for the region and for each of the districts and are included in a later section of this report.

Within Arusha Region there appear to be wide variations in the rates of population growth by district, according to the census data. Several factors may help to account for these variations. The under-reporting of population at the time of the 1967 census was particularly severe in the Masai and Barabaig areas. Thus the growth rates for the Masai districts and for Hanang District are over-estimated. In addition the inter-censal growth rates may have been affected by inter-district migration during this time period. It seems likely that at the present time migration

Table 1

Arusha Regional and District Population Growth, 1948 - 1978

Region/District	Population (Thousands)				Annual Growth Rate (Per Cent)		
	1948	1957	1967	1978	1948-57	1957-67	1967-78
Arusha Region	324.6	407.5	610.5	924.7	2.5	4.0	3.8
Arumeru District	[111.2]	[148.7]	167.9	235.7	[3.2]	[3.7]	3.1
Arusha District			46.4	88.2			5.8
Monduli District	[62.3]	[70.7]	[71.9]	68.9	[1.4]	[4.1]	[4.3]
Ngorongoro District				47.0			
Kiteto District			35.0	59.8			4.9
Mbulu District	[151.1]	[188.1]	163.5	193.8	[2.4]	[4.3]	1.5
Hanang District			125.8	231.3			5.5
Arusha Town	5.3	10.0	32.5	55.3	7.1	11.8	5.0
Tanzania Mainland	7,480.4	8,788.5	11,958.7	17,048.3	1.8	3.1	3.2

* Brackets indicate that the enclosed districts were grouped as one administrative unit during that time period.

Table 2

Arusha Regional and District Population Growth 1967-1978, Population Density and Sex Ratio

Region/District	Population 1967	Population 1978	Absolute Change 1967-78	Percentage Change 1967-78	Average Annual Growth	Area (Square Kilometers)	Population Density	Sex Ratio
Arusha Region	610474	924672	314198	51.5	3.8	82098	11.3	103.6
Arumeru District	167854	235723	67869	40.4	3.1	2885	81.7	100.6
Arusha District	46362	88155	41793	90.1	5.8	93	947.9	118.9
Monduli District	71854	68906	44083	61.4	4.3	30586	3.8	102.3
Ngorongoro District		47031						
Kiteto District	35038	59790	24752	70.6	4.9	32477	1.8	104.0
Mbulu District	163528	193775	30247	18.5	1.5	7070	27.4	103.5
Hanang District	125838	231292	105454	83.8	5.5	8987	25.7	102.1
Arusha Town	32452	55281	22829	70.3	5.0			122.2
Tanzania Mainland	11,958,654	17,048,329	5,089,675	42.6	3.2	883343	19.3	96.2

flows have diminished, and while their may be substantial differentials in mortality and fertility by district, the present rates of population growth are probably much more nearly equal than the census data indicate. The greatest uncertainty lies in the current rate of growth of Arusha Town, and this is examined separately in the population projections.

III. Population Distribution

The population of Arusha Region is divided among seven districts as shown in Table 1. The population is very unevenly divided among districts, with Ngorongoro District being the smallest, containing only 5.1% of the region's population, while Arumeru and Hanang each contain just over a quarter of the region's total population.

The urban-rural distribution of the population is given in Table 3. Arusha Region, as with all the regions in Tanzania, is predominantly rural, with 92% of the population living in rural areas. Aside from Arusha District which contains Arusha Town, none of the other districts have as much as 5% of the population living in urban places. It is important to note, however, that the 1978 census uses an administrative criterion for defining urban places. Thus while a district may contain places larger than the district headquarters, only the district headquarters may be classified as urban. Thus, in Monduli District both Mto wa Mbu and Makuyuni were larger than Monduli Town in 1978, yet only Monduli Town was classified as an urban place. However, regardless of the definitions used, the overwhelmingly rural character of Arusha Region is evident.

The uneven distribution of the population in Arusha Region is also shown in Table 2, which lists the area and the population densities in 1978. Whereas Arusha District is very limited in extent, containing only 93 square kilometers, Kiteto District is one of the largest in the country and contains 32,477 sq. km. The population densities in the rural districts also vary widely, from 81.7 persons per square kilometer in Arumeru District to 1.8 persons per square kilometer in Kiteto District. Comparison of the districts with the national average of 19.3 for Tanzania Mainland shows Arumeru to be substantially higher, Mbulu and Hanang somewhat higher, and the three Maasai Districts very much lower than the national average. Crude population densities are limited in their usefulness, as they do not take into account the substantial differences in the quality and productivity of the land, yet they do point out the enormous differentials in population distribution in Arusha Region.

Below the district the administrative hierarchy consists of divisions, wards, and villages, with the village being the smallest planning unit in the region. Not only is the village the smallest administrative unit, but it is also the basic territorial community in terms of production, commerce, transportation, and social services. It is thus particularly important to look at the distribution of the population in villages.

In 1978 Arusha Region consisted of 445 villages and five urban areas, the regional headquarters at Arusha and four district headquarters. Appendix C lists the male, female, and total population, and the total number of households for each village in each of the seven districts. Appendix D gives a summary of the number of villages in each ward and division for each district, along with the size of the largest and smallest village in each ward. From Table 4 it is evident that the number of villages varies widely between districts. Whereas Arusha District contains only eleven villages, and Ngogongoro District only 31, Arumeru District contains 130 villages and Hanang District 104. These differences correspond closely with the differences in the total populations of the districts, yet there is some variation in village size. The average siz e for all villages in Arusha Region is 1912. The average populations of villages in the districts varies from 2235 for Mbulu to 2130 for Hanang, 1813 for Arumeru, 1666 for Monduli, 1517 for Ngorongoro, down to 1299 for Kiteto. There are also differentials in the number of villages per ward, varying from one to nine, and the numbers of wards per division, varying from 2 to 11.

It is particularly important to note the variation in the sizes of the individual villages. From Appendix D we note that the villages range in size from the smallest, 269 (in Kiteto District), to the largest, 5307 (in Arumeru District). The distribution of villages by size of village is given for each district in Table 4. This table gives the size of the village by the number of households. For Arusha Region the average size of household was 5.3 persons. From Table 4

it is noted that 31.9% of the villages in Arusha Region have fewer than 250 households. This is at odds with the government stipulated minimum size of a village of 250 households. There is also considerable variation among the districts in terms of the distribution of villages by number of households. Monduli, Ngorongoro, and Kiteto Districts have 47.5%, 58.1%, and 56.8% of their villages, respectively, with fewer than 250 households. In the remaining districts fewer than 30% of the villages have less than 250 households. These figures include both registered and non-registered villages.

Since the Villages Act of 1975 the Ujamaa and Cooperative Development Department has undertaken the task of registering the villages in Arusha Region. As of December 5, 1979 437 villages had been registered in Arusha Region. An additional 25 villages are remaining to be registered, from Monduli, Hanang, Mbulu, and Kiteto Districts, before the target number of 463 villages is reached. The numbers of registered villages for each district are given in Table 5 (Note: These should be checked!

---

* Here it might be useful to review the 1975 Villages Act. In 1975 the Government of Tanzania passed what has become known as the Villages Act. At that time all Ujamaa Villages were officially dissolved. Henceforth villages were to go through a process of registration in two stages.

1. In the first step the District Development Committee received the application from the village for registration. This application included a written description of the boundaries of the village. If the village had 250 households and its boundaries and several other conditions were approved the village received a certificate of registration.
2. In step two the registered village selected a village council. Minutes of the meeting were then sent to the Regional Development Director and the village was Incorporated (Halmashauri).

In the Maasai Districts, which are predominantly pastoral, the official minimum of 250 households was changed and the limit was set to 175 households. As noted from Appendix C, however, many villages in Kiteto and Monduli Districts do not meet this minimum. However, according to the Ujamaa Villages (Declaration

of Minister's Powers) Order, 1975, Section 4 (1), the prime minister has powers to authorize two or more villages to register as one village as well as to authorize the registration of a village notwithstanding that there are less than 250 households within the village (For details see Subsidiary Legislation to the Gazette of the United Republic of Tanzania No. 35 Vol. LVI dated 22nd August, 1975, Supplement No. 38, p. 197.)

In the second stage of the registration process some of the villages will be re-organized as Ujamaa Villages. The selection of these villages will depend upon the degree of communal activities carried on in the village. The Prime Minister's Office has designed a set of criteria for this selection including:

1. More than 50% of village activities must be communal, and
2. The village must have reached a certain level of socio-economic development.

These criteria are now under consideration and have not yet been approved. No village in Tanzania has as yet been recognized as an Ujamaa Village.

In principle, according to the Villages Act of 1975, all villages are deemed to be, or should be regarded as, cooperatives. In Arusha Region all registered cooperatives are located in urban areas, and none are located in the villages. Nevertheless, a number of villages have a certain degree of cooperative activity.

At the present time the Bureau of the Census at Dar es Salaam is preparing a map of the population distribution in each district in Tanzania. In preparation for the 1978 Census each of the enumeration areas was redefined from the previous census, and thus it is not possible to compare village population figures from the previous census in 1967. (It is possible to prepare a map of population densities by enumeration areas using the maps discussed in Appendix A and the 1978 Census Vol. 1 to be published in December, 1979). Table 6 provides a listing of the number of households in each district that were located in towns, in villages, and outside of villages.

TABLE 3. URBAN-RURAL POPULATION DISTRIBUTION OF ARUSHA REGION AND DISTRICTS, 1978

REGION/DISTRICT	URBAN		RURAL		TOTAL		NAME OF TOWN
	NUMBER	PER CENT	NUMBER	PER CENT	NUMBER	PER CENT	
Arusha Region	73693	8.0	850,979	92.0	924,672	100.0	1 Regional Headquarters 4 District Headquarters
Arumeru District	0	0.0	235,723	100.0	235,723	100.0	--
Arusha District	55281	62.7	32,874	37.3	88,155	100.0	Arusha Town
Monduli District	2248	3.3	66,658	96.7	68,906	100.0	Monduli Town
Ngorongoro District	0	0.0	47,031	100 0	47,031	100.0	--
Kiteto District	2621	4.4	57,169	95.6	59,790	100.0	Kibaya Town
Mbulu District	3784	2.0	189,991	98.0	193,775	100.0	Mbulu Town
Hanang District	9759	4.2	221,533	95.8	231,292	100.0	Babati Town
Tanzania Total	2,328,929	13.3	15,198,635	86.7	17,527,564	100.0	All Urban Areas

NOTE: The census definition of urban areas uses an administrative criterion, rather than population size. Although a district may have places with a population greater than the district headquarters, only the district headquarters is considered urban.

Table 4. PERCENTAGE DISTRIBUTION OF VILLAGES BY SIZE ARUSHA REGION AND DISTRICTS, 1978

REGION/DISTRICT	TOTAL NO. OF VILLAGES	SIZE OF VILLAGES BY NUMBER OF HOUSEHOLDS (PER CENT)				
		LESS THAN 250	250-449	450-649	650-849	850+
Arusha Region	445	31.9	46.3	17.3	3.6	1.3
Arumeru District	130	30.0	50.8	16.2	3.1	1.5
Arusha District	11	18.2	18.2	36.4	0.0	27.3
Monduli District	40	47.5	42.5	5.0	2.5	2.5
Ngorongoro District	31	58.1	38.7	3.2	0.0	0.0
Kiteto District	44	56.8	34.1	9.1	0.0	0.0
Mbulu District	85	23.5	52.9	18.8	4.7	0.0
Hanang District	104	18.3	47.1	27.9	6.7	0.0

TABLE 5. REGISTRATION OF VILLAGES IN ARUSHA REGION AND DISTRICTS AS OF DECEMBER 5, 1979 (a)

REGION/DISTRICT	TARGET NO. OF VILLAGES	VILLAGES IN OPERATION	PER CENT OF TARGET VILLAGES IN OPERATION	VILLAGES NOT YET IN OPERATION	REGISTERED VILLAGES	VILLAGES NOT YET REGISTERED	INCORPORATED VILLAGES
Arusha Region	463	444	95.9	19	437	25	363
Arumeru District	131	131	100.0	-	131	--	112
Arusha District	11	11	100.0	--	11	--	11
Monduli District (b)	67	64	95.5	3	59	8	50
Kiteto District	51	41	80.4	10	40	11	34
Mbulu District	88	85	96.6	3	85	3	83
Hanang District	115	112	97.4	3	111	3	73

NOTES:

(a) The number of villages in operation for Monduli, Kiteto, and Hanang Districts does not correspond with the total villages listed in Table 4 or Appendix D. These figures will have to be checked at the District Headquarters before being included in The Plan.

(b) Monduli District includes the present Monduli and Ngorongoro Districts.

Table 6. ARUSHA REGION AND DISTRICT HOUSEHOLD TOTALS

FROM THE 1978 CENSUS

Region/District	Households in Villages	Households not in Villages	Households in Towns	Tanzanian Households	Non-Tanzanian Households	Total Households	Ave. Household Size
Arusha Region	141,723	14,687	18,936	173,070	1770	175,346	5.3
Arumeru District	41,951	3981	0	45,244	543	45,932	5.1
Arusha District	6464	2	15,001	20,811	541	21,467	4.1
Monduli District	15,343	3198	575	18,781	234	19,116	6.0
Kiteto District	9232	1298	576	10,840	227	11,106	5.4
Mbulu District	29,316	2931	748	32,907	36	32,995	5.9
Hanang District	39,417	3277	2036	44,487	189	44,730	5.2

Table 7.

REGIONAL POPULATIONS AS A PROPORTION OF THE NATIONAL MAINLAND TANZANIA POPULATION AT THE 1978 CENSUS

REGION	PER CENT OF TOTAL POPULATION
Dodoma	5.5
Arusha	5.3
Kilimanjaro	5.1
Tanga	5.9
Morogoro	5.4
Coast	2.9
Dar Es Salaam	4.9
Lindi	3.0
Mtwara	4.4
Ruvuma	3.2
Iringa	5.3
Mbeya	6.2
Singida	3.5
Tabora	4.7
Rukwa	2.6
Kigoma	3.7
Shinyanga	7.6
West Lake	5.8
Mwanza	8.2
Mara	4.1

Table 8.

Population Distribution by Broad Age Groups and Sex in Tanzania and in Arusha Region and Districts (1978)

Area/1978	0-14 Years			15-64 Years			65+ Years			Age Dependency * Burden
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
All Tanzania	46.7	45.6	46.1	51.1	50.7	48.8	2.2	3.7	4.1	100.9
Arusha Region	47.2	47.7	47.4	49.0	49.0	49.0	3.9	3.3	3.6	104.1
Monduli District	45.2	45.0	45.1	51.1	51.8	51.4	3.7	3.2	3.5	94.6
Arumeru District	48.8	49.1	48.9	47.1	47.2	47.2	4.1	3.7	3.9	112.0
Arusha District	35.9	43.8	39.5	62.4	54.4	58.8	1.7	1.8	1.7	70.3
Kiteto District	45.0	45.5	45.3	50.6	50.9	50.7	4.4	3.6	4.0	97.3
Hanang District	48.3	47.6	47.8	47.3	48.8	48.2	4.4	3.6	4.0	107.3
Mbulu District	50.9	50.0	50.5	45.2	47.0	46.0	3.9	3.0	3.5	117.3

*Population 0-14 + Population 65+/Population 15-64, the age-dependency ratio is the number of persons in the dependent Ages for every 100 persons in the working ages.

Table 9.

DISTRIBUTION OF SEX RATIO BY AGE IN ARUSHA REGION BY DISTRICTS, 1978

AGE GROUPS	ARUSHA REGION	MONDULI DISTRICT	ARUMERU DISTRICT	ARUSHA DISTRICT	KITETO DISTRICT	HANANG DISTRICT	MBULU DISTRICT
0-1	95	89	93	97	92	96	99
1-4	99	91	99	98	95	101	104
5-9	103	105	100	98	105	104	105
10-14	109	127	104	97	118	110	108
15-24	95	88	92	112	85	96	95
25-34	99	93	97	157	93	87	92
35-44	114	121	106	172	123	104	105
45-54	118	122	110	157	141	117	110
55-64	126	125	131	149	137	117	123
65+	122	117	113	113	127	125	133
ALL AGES	104	102	101	119	104	102	103

Table 10.

ARUSHA REGIONAL AND DISTRICT 1978 POPULATION

CENSUS BUREAU FIGURES *

Region/District	Males	Females	Total
Arusha Region	472,503	455,975	928,478
Arumeru District	119,383	118,637	238,020
Arusha District	47,180	39,665	86,845
Monduli District	60,048	58,708	118,756
Kiteto District	30,478	29,312	59,790
Mbulu District	98,552	95,223	193,775
Hanang District	116,862	114,430	231,292

* Note: The totals for Arusha District, Arumeru District, and Monduli District, and for Arusha Region differ slightly from the figures available at the districts. These discrepancies, amounting to a total of 6,103 people, are examined in Appendix O. When Census Vol. 1 is published, in December or January, it should be possible to reconcile these differences and incorporate corrected figures in the final Planning document.

IV. Components of Population Change

Unlike the case of total population size and composition, information on the components of population change (i.e. fertility, mortality, and migration) for Tanzania and for Arusha Region and its districts is still far from satisfactory. The principle sources of information are the results of the 1967 population census and the 1973 National Demographic Survey.

Fertility

Information on fertility is obtained from two questions on censuses and surveys: 1) a question is asked of all women aged 12 years and over as to whether they have borne a child during the previous 12 months (used for calculating crude birth rates and general fertility rates) , and 2) a question is asked of all women aged 12 years and over as to the total number of children born alive they have ever had, which provides information on the average number of children born alive by age group of women, and in the case of women who have passed reproductive age, the average size of completed families. In addition, data on age distribution of the population can be used to calculate 'child-woman' ratios for examining fertility differentials.

From the 1967 census a crude birth rate of 47 (per 1000 population) and a total fertility rate (mean completed family size) of 6.6 were considered plausible estimates for Tanzania Mainland. These were only slightly higher than estimates made on the basis of the 1957 census which indicated a CBR of 46 and a TFR of 6.3. A total fertility rate of 6.6 and a crude birth rate of 47.2 were estimated for Arusha Region, putting it right at the national level, but still among the highest of the regions.

The 1973 National Demographic Survey (NDS) estimated a CBR of 47 for Mainland Tanzania with a total fertility rate of 6.3. Again the estimates for Arusha Region, a CBR of 48 and a TFR of 6.6, were near the national average, or slightly above.

Although both the 1967 census and the 1973 NDS give estimates for each of the districts within Arusha Region the variations in the estimates indicate that they are not very reliable. In particular, the 1973 NDS estimates are based on four clusters of 900 households each, and the clusters may not be representative of the districts within which they were located. Whereas the 1973 NDS estimated the CBR of Masai District to be lower than that of Arusha District or Mbulu District, the 1967 census indicated just the reverse. It is probably safer not to rely on these district estimates and to consider only the regional estimates as satisfactory. For Arusha Region then we can assume a crude birth rate of approximately 47 per thousand and a total fertility rate in the range of 6.3 to 6.8.

As an initial attempt to assess district fertility differentials on the basis of the 1978 census age and sex distribution Table 11 presents 'Child-Woman' ratios for each of the districts, for Arusha Region, and for Mainland Tanzania. With the exception of Arusha District, each of

Table 11

FERTILITY DIFFERENTIALS BY DISTRICT, ARUSHA REGION, 1978

Child-Woman Ratios*

Region/District	Sex Ratio	Sex Ratio Pop. 15-54	Children 0-4	Women 15-54	Child-Woman Ratio
Arusha Region	103.6	101.9	175,965	208,883	842
Monduli District	102.3	99.2	22,876	28,368	806
Arumeru District	100.6	98.0	46,084	52,452	879
Arusha District	118.9	135.9	14,847	20,883	711
Kiteto District	104.0	101.0	11,488	13,923	825
Hanang District	102.1	97.3	42,602	51,638	825
Mbulu District	103.5	97.8	37,708	41,619	906
Mainland Tanzania	96.2	91.3	3,088,658	4,071,196	759

* The Child-Woman Ratio is the ratio of children 0-4 years old to women in the child-bearing ages. In this case, we have defined it as the number of children 0-4 years old per 1000 women 15-54 years old.

$$\text{C-W Ratio} = \frac{C\ 0\text{-}4}{W\ 15\text{-}54} \times 1000$$

the rural districts in Arusha Region has a higher child-woman ratio than the country as a whole, indicating that fertility in Arusha Region may indeed be somewhat higher than the national average. Within the region, Mbulu and Arumeru Districts appear to have the highest levels of fertility, with Monduli having the lowest level and Kiteto and Hanang being at an intermediate level. These differentials correspond to the results from the 1973 NDS and are probably indicative of actual differential fertility, but the magnitude of these differentials is uncertain.

If any trends in fertility can be seen it is that fertility seems to be increasing due in part to a reduction in miscarriages and childlessness while the birth orders of younger married women seem to have increased.

Fertility in Tanzania seems to be determined largely by cultural practices that recognize the need for prolonged breastfeeding to ensure the baby's survival. Although prolonged lactation results in a non-fertile period after childbirth (post-partum amenorrhoea) the practice of sexual abstinence during lactation helps to insure the avoidance of pregnancy until the child is weaned.

The forces of modernization, which may eventually lead people to have smaller families by choice, at present are tending to lead to increased fertility. Substitutes for mother's milk in the form of bottle feeding eliminate the need for prolonged lactation and sexual abstinence, leading to shorter birth intervals. Also, lengthy periods of separation no longer occur. With a decline in the incidence of polygyny, a cultural change which is occurring partly as a response to various forces of modernization including housing and economic problems, there is no longer an alternative wife available to the husband, and with the wife struggling to keep her marriage together sexual abstinence is easily broken.

In this whole process of shorter birth intervals leading to increased fertility there is little attempt to restrict the number of children because children are highly valued both as social and economic assets.

Although family planning services are being made available through maternal and child health clinics the utilization of contraceptives is negligible. The Tanzanian Government is committed to a child-spacing program, both for the health of the mother and the children and for the well-being of the family. But, at least in the short run, the impact of the MCH program is likely to be to reduce infertility and fetal and infant mortality, thus leading to increased fertility and the consequent increase in population growth.

Mortality

The 1967 census reported a crude death rate (CDR) of between 21 and 23 per thousand and a life expectancy of 41 to 43 years for Tanzania Mainland. This indicated an improvement from the mortality rates in 1957 which were estimated to be a CDR of 24-25 and a life expectancy of 35-40 years. The Infant mortality rate (IMR) in 1967 was estimated at around 160, down from a level of 190 ten years earlier. The crude death rate for Arusha Region was estimated at 14, varying from 11 in Arusha District to 15 in Mbulu District to 28 in Masai District. This compares to an estimated CDR of 18-19 for the region as a whole in 1957. Life expectancy at birth for Arusha Region in 1967 was estimated to be 53 years, and the infant mortality rate was 93

per thousand live births(down from 140-150 in 1957). The percentage of children surviving to age 5 was estimated to be .849 compared with .739 for the country as a whole. These estimates give Arusha Region the lowest mortality levels of any region in the country.

Likewise, the 1973 NDS estimates the mortality level of Arusha Region to be the lowest of any region in the country, followed by Kilimanjaro, Tanga, and Mbeya. For Arusha Region the CDR was 12.4 while the expectation of life was 55 years. For Tanzania as a whole the CDR was 16.8 and the life expectancy 47 years.

Given the relatively low mortality levels of Arusha Region compared to the rest of the nation what are the prospects for future change? Even as the healthiest region in Tanzania Arusha Region is well below even the worst-off European country in terms of life expectancy. According to the 1974 UN Demographic Yearbook, no European national population had a life expectancy of below 60 years. Mexico achieved an expectation of life of 56 years nearly 25 years ago.

Yet recent studies have indicated that in many developing areas the swift mortality declines of the recent past are slowing, particularly among infants and children, and that further infant and child health gains are going to prove increasingly difficult. During the past two decades the natural effects of social and economic development in lowering mortality have been powerfully supplemented by the rapid introduction of new medical technology: vaccines, antibiotics, and pesticides. What is left is the core complex of factors that produces diarrhoea and respiratory problems, especially among infants and children, against which modern medicine has been able to accomplish relatively little.

Certainly there is potential for significant improvements in health in Arusha Region, especially in the areas which currently have the highest mortality levels. Experience in Sri Lanka and elsewhere has shown that equity-oriented development strategies such as Tanzania's are most successful in meeting the needs of infant and child health. Thus, while there are still possibilities for significantly improving health in Arusha Region, and the provision of health services and clean water must remain as high priority items, further reductions in death rates are not likely to have a substantial impact on population growth in the near future in Arusha Region.

Rate of Natural Increase

The rate of natural increase is determined by the excess of births over deaths. From the 1967 census a CBR of 47 and a CDR of 14 yield a rate of natural increase (RNI) of 3.3 for Arusha Region. The 1973 NDS estimated a CBR of 48 and a CDR of 12.4 yielding a rate of natural increase of 3.56 per cent per year. This is quite consistent with the estimate of 3.5 to 3.8 from the inter-censal population increase. If, as we have discussed, the fertility rates for the near term are increasing, while mortality rates

may decrease somewhat, then the rate of natural increase for the region may well approach 3.7 to 3.8 per cent per year, which places Arusha Region among the fastest growing populations in the world.

As we have also discussed, satisfactory information on the components of population change at the district level is simply not available at present. Analysis of the detailed questionnaire from the 1978 census should provide a reasonable basis for inter-district comparisons and should provide the necessary information for making more accurate district population projections.

The actual rate of population growth is determined by the rate of natural increase and by gains or losses due to migration, the third component of population change.

Migration

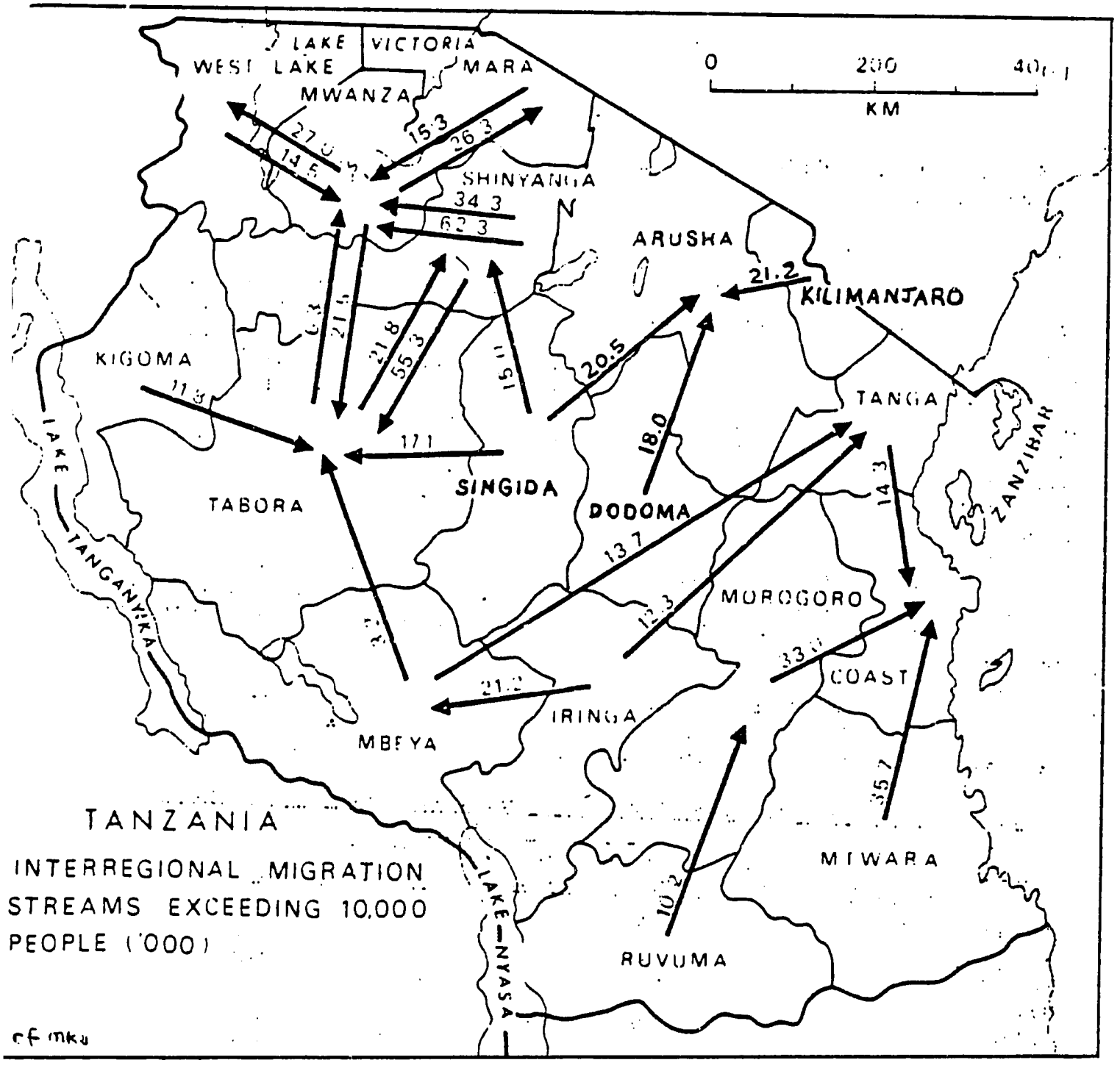
Knowledge about the movement of population is essential to development planning. Information is needed not only on international migration but also on the extent of inter-regional and inter and intra-district migration, on the various types of internal migration (seasonal and permanent; rural-rural, rural-urban, urban-rural, and urban-urban movements), and on the characteristics of the migrants.

The primary source of information on immigration and emigration are the statistics collected at points of entry by sea and air. On a national level Tanzania does not have significant inflows or outflows of migrants, apart from refugees who come mainly from southern Africa and who remain in the southern part of Tanzania. For Arusha Region the volume of these international movements is very limited, amounting to a net increase of less than a thousand people per year. These statistics of course do not include substantial flows of rural, pastoral people who cross the international border with Kenya. Although this flow is not carefully monitored, any permanent migrants will have been recorded in the 1978 census.

Information on internal migration is gained from the decennial census statistics. The most recent statistics currently available are based on the place of birth data from the 1967 census, and thus involves lifetime migration up to that date. The 1978 census will provide much more recent and detailed information on both lifetime migration and recent migration trends, and can be analyzed at regional, district, and sub-district levels (the data on migration from the 1978 census will be provided by questions on current residence, place of birth, residence in 1967, and residence in 1977. Thus, a detailed description of migration flows and trends for the long-term development plan should await analysis of this 1978 data).

Analysis of the 1967 census migration data showed that Arusha Region had the greatest gain from net-migration of any region in Tanzania other than the coast, which included Dar es Salaam(Claeson, 1971; Egero, 1973; Sabot, 1979). Figure 1 shows the inter-regional migration streams, with Arusha Region receiving substantial flows of migrants from Kilimanjaro, Dodoma, and Singida Districts. The census revealed large variations in the impact of migration among regions, ranging from a gain of 12 % to a loss of 7%. As of 1967 net-migration had contributed 9.5% of the population of Arusha Region.

During the decade prior to 1967 migration is believed to have undergone a significant change from previous high rates of seasonal labor migration to a more permanent family-wise migration. Still, however, migration to towns is dominated by males and by migrants moving without families. Previos rural-urban migration to urban areas in Tanzania prior to about 1948 had contributed little more than about 1% per year to the rates of urban growth.



Source: Claeson, Claes-Fredrik and Bertil Egero. "Inter-regional Migration in Tanzania," African Population Conference, Accra, Ghana, 9-18 December, 1971. p. 4.

However, between 1948 and 1967 rural-urban migration played a significant role in urbanization accounting for about 2/3 of the urban growth in Tanzania.

That migration, dominated by males, to Arusha Region played a significant role in the population growth of the region can be seen by looking at the sex ratios for the region, compared with those for Mainland Tanzania as a whole. The decreases in the sex ratios over time indicates that migration has tended to become more family-oriented, and may indicate a slow-down in the rate of inter-regional migration and migration to urban places during the last decade. In every case there is a surplus of males in Arusha Region.

	SEX RATIO (MALES PER 100 FEMALES)			
	1948	1957	1967	1978
Arusha Region	110	106	104	103.6
Arusha Town	207	160	132	122.2
Tanzania Mainland	93	93	95	96.2

Arusha Town. During the period 1957-1967 Arusha grew at a rate of 11.8% per year, the highest growth rate of any town in Tanzania during that period. By 1967 57% of its inhabitants were found to come from outside Arusha Region. Overall Arusha Region contributed only 1.9% of the national total migration to urban areas, despite having 5.0% of the total national population. Between 1967 and 1978 the pattern changed considerably as Arusha Town grew at a rate of 5.0% per year compared to anaverage growth rate of 8.9% for all urban areas in Tanzania.

Although we have no data on migration flows for the period since 1967 (until the 1978 census data are analyzed) there have been some major changes that are apparent, both for Tanzania as a whole and for Arusha Region. Although there are no rigid laws governing the four types of internal migration (namely rural-rural, rural-urban, urban-rural, and urban-urban), one of the indirect results of the Arusha Declaration relating to villigization, or the so-called Ujamaa policy, has been to stem the rural-urban migration flow (UNFPA, 1979: 24-25). These same policies have also tended to reduce the flow of migrants between rural areas. One important factor has been the issuing of work permits in urban areas and the promulgation of village by-laws in rural areas. This is not to say that migration has been completely stopped, or even regulated, but more reliable estimates of the size and direction of these migration flows will have to await the results of the 1978 census.

It is clear that the control of internal movements of population is heavily implied in the government's rural development policy, the cornerstone of which is the grouping of the residents of scattered settlements in nucleated villages. A broad range of policy components to improve the quality of life and the economic opportunities in the rural areas have a great potential, and apparently have had a great deal of success in stemming the flow of migrants to urban areas.

At the time of the Arusha Declaration the government committed itself to a conscious effort of redistributing the population into sizable villages. A series of declarations culminated in the Villages and Ujamaa Villages (Registration, Designation and Administration)Act of 1975. Particularly during "Operation Tanzania" from 1973 to 1976 a concerted effort was made to move more rural dwellers into registered villages. Thus on a national scale there has been a massive population redistribution since 1967. Tables 04 and 05 show the present status of the 445 villages found in Arusha Region.

To summarize, a clear picture of the migration flows during the past decade will have to await the analysis of the 1978 census data. Clearly, however, the process of villigization during the past decade has resulted in massive local relocation from dispersed homesteads and hamlets to nucleated villages. This impact may have been felt more in the sparsely populated areas of Arusha Region than in the densely settled highland areas of Arusha and Arumeru districts where less actual relocation was necessary. Also the process of villigization and government regulation may have slowed the rural migration flows which have added significantly to Arusha Region's population in the past. The coffee growing areas of Arusha and Arumeru District which in the past have attracted both temporary and permanent migrants have also become very densely populated, and a reversal of past flows has started with a horizontal population shift from the densely populated areas to settle in nearby lower and less fertile areas.

Certainly the emphasis on rural development activities and the and the lack of a major expansion of urban-based industries in Arusha Town has slowed the rural to urban migration flows and reduced the population growth of Arusha Town from 11.8% per year from 1957 to 1967 to 5.0% a year in the period 1967-1978.

Future migration flows depend on a combination of climatic conditions and economic and political decisions which are impossible to predict. A careful monitoring of population movements should be included in the information system for development planning in the region. This system should be based on a regular reporting of movements in and out of villages (the village log or village reporting system could also record origins and destinations), aggregated to district levels, and on reports of migration trends from government officials in each area. Migration to towns may prove more difficult to monitor, and discussions with the Arusha Town Council and other urban councils should be held to determine the most feasible system of monitoring.

V. Population Projections

Estimates of the future size of the population, and of the future age and sex distribution of the population, are essential to development planning. In Tanzania, the decentralized nature of planning requires that population projections be made at each level of geographic and administrative unit. Yet much of the information required for making accurate projections of the population for specific geographic units is not available for Arusha Region. In particular,accurate estimates of fertility and mortality levels for each of the geographic units within the region are not available. In addition, it is extremely difficult to predict the likely future trends of fertility and mortality levels. Future migration patterns are highly dependent on political and economic decisions yet to be made and on natural climatic conditions which cannot be predicted. What effect these decisions and conditions will have on migration is also difficult to predict. For these reasons, the projections that are being made are hypothetical in nature and should only be used as guides in planning. Their usefulness for planning depends on an awareness of the assumptions on which the projections are based and an ability to interpret the projections as planning tools to be continuously revised as new information becomes available. It should be remembered that the projections are not estimates of future populations but are mathematical extrapolations of population totals made on the basis of a series of assumptions. They are to be used as guides which must be adjusted on the basis of all additional information available to the planner. (A detailed description of the methodology used in preparing these projections is available in Appendix A. A simplified 'working paper' on Population Projections and Planning is included as Appendix B.)

The population of Arusha Region increased between the 1967 Census and the 1978 Census from 610,474 to 924,672, yielding an annual rate of growth of 3.8%. This rate may be somewhat high since it is known that many of the pastoral people in Arusha Region were not counted in 1967, while the 1978 Census was much

more complete in its coverage. The 1978 Census therefore provides a good base population from which to make the projections. In addition, the total population of each of the geographic and administrative units in Arusha Region is available from the 1978 Census. The populations of each of the villages, wards, and divisions in each of the Districts of Arusha Region are included as Appendices C and D.

The natural dynamics of population are determined by the birth rates and the death rates. The former are exceptionally high in Arusha Region and later are quite low which explains why Arusha Region has a population growth rate among the highest in the world. The best estimates of birth rates and death rates for Arusha Region are those provided from an analysis of the 1973 National Demographic Survey. The survey estimated that the Crude Birth Rate for Arusha during the period 1975-1980 was 47.2, which is among the highest rates for the regions of Tanzania. The Crude Death Rate for the same period was estimated at 12.2 , which was the lowest of any of the regions in Tanzania. The Crude Birth Rate minus the Crude Death Rate yielded a rate of Natural Increase of 3.5% per year. The rates used for making the projections for Arusha Region are given in Table 12. Since there are no accurate estimates of the fertility and mortality rates for each district, one of the basic assumptions of these projections is that each district has the same rates as the region. This is not an unreasonable assumption, as the rates do not vary substantially. However, mortality rates may vary somewhat in certain areas, being higher in those areas with adverse environmental conditions and which are lacking in health services. However, fertility rates have a much larger impact than mortality rates on population projections, and fertility rates probably do not vary substantially between districts.

In addition to the rate of natural increase predictions of population growth must take into account the social dynamics of population which are determined by the rates of in-migration and out-migration. For Arusha Region as a whole it is likely that the rate of in-migration has exceeded the rate of out-migration

leading to a positive rate of net-migration. However, there are no statistics available to help us estimate the magnitude of these flows. Analysis of place of birth data from the 1967 Census showed that Arusha Region had the highest increase from net migration of any region in the country, with the exception of the Coast, which included Dar es Salaam. At the time of the 1967 Census there were 83,000 in migrants in Arusha Region and 25,000 out-migrants from the region, yielding an increase of 58,000, which was 9.5% of the population at that time. No data are as yet available from the 1978 Census and we will have to wait for analysis of the detailed questionnaire from the 1978 Census before any estimates of migration can be made. Aside from inter-regional migration, population projections of the districts must also take into account migration between districts. Again the magnitude of these migrations is not known, nor are the current trends. While there are indications that the flow of migration may have been stabilized somewhat due to the villagization program of the mid-seventies, there are also indications that the high population densities in the highland areas of Arusha Region may lead to increasing out-migration from these regions. Because accurate estimates of any of these migration flows or trends are not available, the projections made here will not include migration. In using the projections the planner must adjust the totals based on his knowledge of the population movements and trends for the area with which he is concerned.

Table 13 presents projections of the population of the region and of each district by five year intervals from 1980 to 2000. These projections are made on the basis of the rates shown in Table 12. From Table 13 we can see that the population of Arusha Region will more than double in the next twenty years at the current rate of growth, increasing from 924 thousand in 1978 to 1,923 thousand by the year 2000. Each of the Districts will also experience a doubling of their population during this time period. These increases point out the need to plan for both employment opportunities and social services for these greatly expanded populations. The increase for the region is displayed graphically in Figure 2.

Along with the projected total populations a planner needs to know the breakdown of the future population by age groups

and by sex. These breakdowns provide estimates of the numbers of infants, of school-age children, of the potential labour force, and of the number of women of child-bearing age. These breakdowns are necessary in order to plan for the number of employment opportunities that will be needed, the labour force that will be available for development projects, and the populations that will require the various social services. To arrive at the age and sex distributions we will use the proportions found in the population projections from the analysis of the 1973 National Demographic Survey for Arusha Region. From these projections the proportion that each age group makes of the total population for each of the time periods is calculated. These are presented in Table 27.

Similarly the sex distribution is calculated as the proportion female from each of the age groups for each of the time periods from the 1973 National Demographic Survey projections. The proportion female by age group and time period is found in Table 28. Basically what we have done is to update the 1973 NDS projections on the basis of the 1978 Census figures.

The projected populations by age and sex for Arusha Region for the periods 1980-1995 are found in Tables 14-17. These projections are displayed graphically in population pyramids for the same dates found in Figures 3-6. These pyramids illustrate dramatically the concept of the age dependency burden, as the proportion of the population in the younger ages, those who have to be fed, clothed, and educated, increases over time. Only when the fertility rate begins to fall will this proportion of young people also begin to decrease.

The projected populations by age groups for 1980-1995 for each of the districts in Arusha Region are found in Tables 18-23. Again, it should be noted that the planner should use these projections as a guide, adjusting them upwards or downwards on the basis of any additional information he has on the area he is dealing with. It is particularly important to estimate the levels and trends of migration into and out of the area and adjust the projections for this net migration.

The populations of Arusha Town and Arusha District will obviously be growing at a faster rate than the region as a whole. Projections based on a range of possible growth rates are presented in Tables 24 and 26.

Population projection for Arusha town and Arusha District.

The population of Arusha Town at the 1978 Census was 55,281. This represented a growth rate of 5.0% per year since the 1967 census. This was the second lowest growth rate of any of the major towns in Tanzania, with only Tanga's growth rate of 4.8% being lower (Table 25). The average rate of growth of the major towns in Tanzania was 8.9%.

For planning purposes population projections of Arusha Town to the year 2000 have been presented based on a range of possible rates of growth. The actual rate of growth will obviously depend on a variety of local, regional, and national social and economic factors. The projections are presented in Table 24. If we assume that the observed rate of growth of 5.0% during the 1967-1978 period will continue up to the year 2000 Arusha's population will grow from 60,629 in 1980 to 164,806 in the year 2000. As the regional center for one of the most productive and developed regions in Tanzania Arusha has a potential for a much faster rate of growth, however. The estimated rate of natural increase for Arusha Region (3.5% per year) is one of the highest in Tanzania . In addition, impact of net migration (in-migration minus out-migration) is likely to be an increase in Arusha Region's population beyond that due to natural increase alone. Thus it is quite likely that the rate of growth of Arusha Town may increase substantially over the next decade. If we assume that the rate of growth will equal the average rate of growth of Tanzania's major towns over the last decade (8.9%) then Arusha will grow from 65,547 in 1980 to 388,684 in the year 2000. As an illustration of the tremendous impact that rapid urbanization can have on the growth of a town's population we have also presented the population of Arusha Town if it grows at the rate of growth of Tanzania's most rapidly growing town, Mbeya (17.9%). At this rate of growth Arusha's population would be over 1 million by 1995 and almost 3 million by 2000.

The most reasonable estimate of Arusha's future growth is probably that the rate of growth will increase beyond the present relatively slow growth to approach the average rate of growth of Tanzania's towns. In Table 24 we have presented the mean of the present rate of growth and the national average rate of growth as a plausible pattern for Arusha's future growth and as a possible planning terget. According to this estimate Arusha will grow from a population of 63,088 in 1980 to 90,067 in 1985, 129,788 in 1990, 188,715 in 1995, and will reach a population of 276,745 by the year 2000.

Arusha District was composed of Arusha Town and 11 villages at the time of the 1978 Census. A population projection of Arusha District from 1980 to 1995 is presented in Table 26. As with Arusha Town, Arusha District has the potential of a much higher growth rate in the future when compared with the rate during the last decade. The projections for Arusha District are presented using growth rates of 5.0% per year and 8.9% per year, which is closer to the national average for urban areas during the last decade. Again, a plausible future pattern would be for Arusha District to have an increased rate of growth beyond the present level of 5.0% and approaching the national level for urban areas. Howver, it should be kept in mind that under certain conditions the rate of growth might increase considerably as it has in many of Tanzania's urban areas. Even assuming the moderate level of urban growth, Arusha District will increase from a population of 100,603 in 1980 to a population of 300,934 in 1995.

These estimates of future growth rates for Arusha Town and Arusha District may serve as guides for planning. However, it is essential that these estimates be continually revised as more data on population trends becomes available.

Finally, in Table 29 we present the 1978 United Nations population projection for the whole country of Tanzania. The projection is presented for the period 1980-2000. The assumptions used for making this projection are outlined in Table 30. The country's population as estimated will attain a size of 18 million by 1980, 25 million by 1990 and 32 million by the year 2000. From the observed population at the 1978 Census, 17,048,329 (Tanzania Mainland) it appears that the projected figures are on the low side and should serve as a minimum estimate. The actual population in the indicated years may well exceed the projections in absolute size but probably not in the proportions in the various age groups.

The Commission of Statistics has estimated on the basis of the 1978 Census that the growth rate for the nation as a whole is in the range of 3.0 to 3.3% per year (although the results of the census indicate a rate of 3.8% this is probably exaggerated because of undercounts in the 1967 Census). Assuming a constant growth rate of 3.2% during the five years 1980-1984, the 1978 census suggests that there will be an excess of births over deaths of about 2,300,000 during that time, or almost 500,000 new persons each year. This estimate yields a 1980 population of 18.7 million and a population in 1985 of 21.3 million. It should be noted that because its death rates are lower than the national average Arusha Regions population growth rate probably exceeds the national average and may be in the range of 3.5-3.8%.

Table 12.

Parameters used for the Population Projections for Arusha Region from 1980 to 1995.
(These parameters were derived from analysis of the 1973 National Demographic Survey)

Time Period	R	TFR	CBR	CDR	Male EO	Female EO
1970 - 1975	35.89	6.50	48.24	12.35	53.89	57.50
1975 - 1980	35.02	6.50	47.22	12.20	53.89	57.70
1980 - 1985	33.70	6.50	45.70	11.97	53.89	57.70
1985 - 1990	33.27	6.50	45.18	11.92	53.89	57.50
1990 - 1995	33.60	6.50	45.55	11.95	53.89	57.50

R = Rate of Natural Increase (per 1000)

TFR = Total Fertility Rate

CBR = Crude Birth Rate (per 1000)

CDR = Crude Death Rate (per 1000)

Male EO = Male Life Expectancy at Birth (in years)

Female EO = Female Life Expectancy at Birth (in years)

Note: The above parameters assume no changes in fertility or mortality (i.e., TFR, Male EO, and Female EO are constant) R, CBR, and CDR change because of changes in age structure. See report for implications.

Table 13. Population Projections for Districts and Arusha Region, 1978-2000.

Time	Arusha Region	Monduli District	Arumeru District	Arusha District	Kiteto District	Hanang District	Mbulu District	Ngorongoro District
August 26, 1978	924,672	68,906	235,723	88,155	59,790	231,292	193,775	47,031
June 30, 1978	919,715	68,537	234,459	87,682	59,469	230,052	192,736	46,779
June 30, 1980	986,486	73,513	251,481	94,048	63,786	246,754	206,729	50,175
June 30, 1985	1,167,703	87,017	297,678	111,325	75,503	292,083	244,705	59,392
June 30, 1990	1,379,057	102,767	351,558	131,475	89,169	344,950	288,997	70,142
June 30, 1995	1,631,287	121,563	415,858	155,522	105,478	408,041	341,855	82,971
June 30, 2000	1,923,940	143,371	490,463	183,423	124,401	481,244	403,184	97,856

Figure 2. TOTAL POPULATION GROWTH ARUSHA REGION

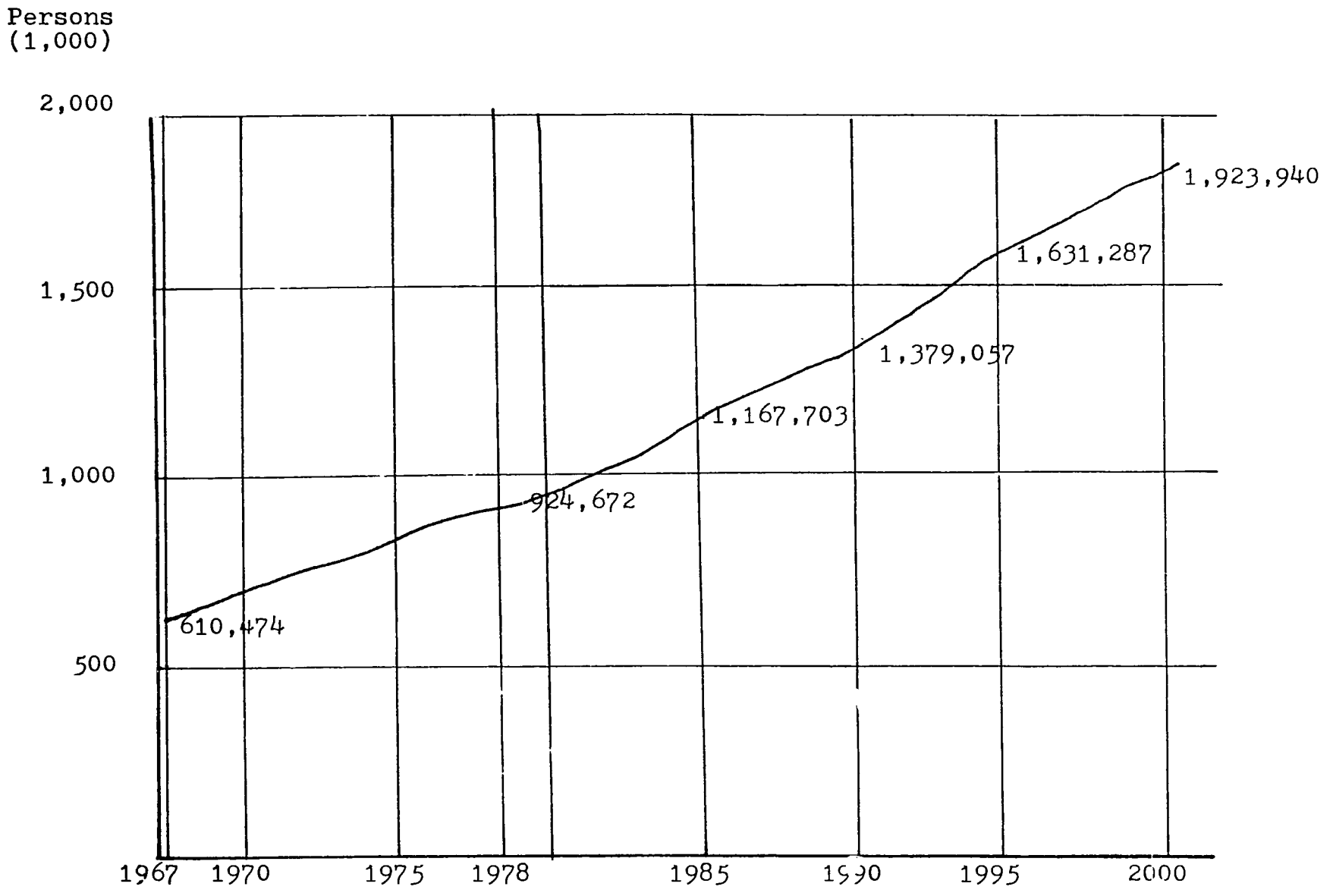


Table 14.

Population Projection for Arusha Region, 1980

Age Group	Males	Females	Total
0 - 4	96,760	95,605	192,365
5 - 9	78,739	78,112	156,851
10 - 14	57,940	57,479	115,419
15 - 19	47,608	46,108	93,716
20 - 24	35,849	42,083	77,932
25 - 29	40,192	39,713	79,905
30 - 34	36,484	31,584	68,068
35 - 39	27,444	23,853	51,297
40 - 44	20,775	17,698	38,473
45 - 49	16,514	14,067	30,581
50 - 54	11,437	10,265	21,702
55 - 59	9,550	11,166	20,716
60 - 64	6,881	7,916	14,797
65 - 69	4,745	5,120	9,865
70 - 74	3,190	3,715	6,905
75 - 98	2,598	3,320	5,919
Total	498,175	488,310	986,486

Table 15.

Population Projection for Arusha Region, 1985

Age Group	Males	Females	Total
0 - 4	111,010	109,686	220,696
5 - 9	92,031	91,298	183,329
10 - 14	77,377	76,760	154,137
15 - 19	56,860	56,407	113,267
20 - 24	46,678	45,571	92,249
25 - 29	34,839	41,062	75,901
30 - 34	39,274	38,962	78,236
35 - 39	34,919	30,472	65,391
40 - 44	26,813	23,398	50,211
45 - 49	20,103	17,263	37,366
50 - 54	15,677	13,517	29,193
55 - 59	10,382	9,469	19,851
60 - 64	8,519	10,164	18,683
65 - 69	5,883	6,962	12,845
70 - 74	3,858	4,316	8,174
75 - 98	3,613	4,561	8,174
Total	587,355	580,348	1,167,703

Table 16.

Population Projection for Arusha Region, 1990

Age Group	Males	Females	Total
0 - 4	129,716	128,168	257,884
5 - 9	105,920	105,076	210,996
10 - 14	90,689	89,967	180,656
15 - 19	76,000	75,696	151,696
20 - 24	55,964	55,740	111,704
25 - 29	45,178	44,461	89,639
30 - 34	34,032	40,437	74,469
35 - 39	38,000	37,848	75,848
40 - 44	33,812	29,625	63,437
45 - 49	25,678	22,589	48,267
50 - 54	18,445	16,031	34,476
55 - 59	14,673	12,908	27,581
60 - 64	9,269	8,659	17,928
65 - 69	7,414	9,135	16,549
70 - 74	4,334	5,319	9,653
75 - 98	3,707	4,567	8,274
Total	692,287	686,770	1,379,057

Table 17.

Population Projection for Arusha Region, 1995

Age Group	Males	Females	Total
0 - 4	155,081	153,232	308,313
5 - 9	123,655	122,669	246,324
10 - 14	104,001	103,172	207,173
15 - 19	89,083	88,727	177,810
20 - 24	74,223	74,224	148,447
25 - 29	54,539	54,757	109,296
30 - 34	44,309	43,780	88,089
35 - 39	32,730	39,047	71,777
40 - 44	36,631	36,777	73,408
45 - 49	32,050	28,308	60,358
50 - 54	24,117	21,559	45,676
55 - 59	17,292	15,334	32,626
60 - 64	12,871	11,598	24,469
65 - 69	8,320	7,993	16,313
70 - 74	5,742	7,308	13,050
75 - 98	4,979	6,440	11,419
Total	817,275	814,012	1,631,287

Figure 3. POPULATION PYRAMID ARUSHA REGION 1980

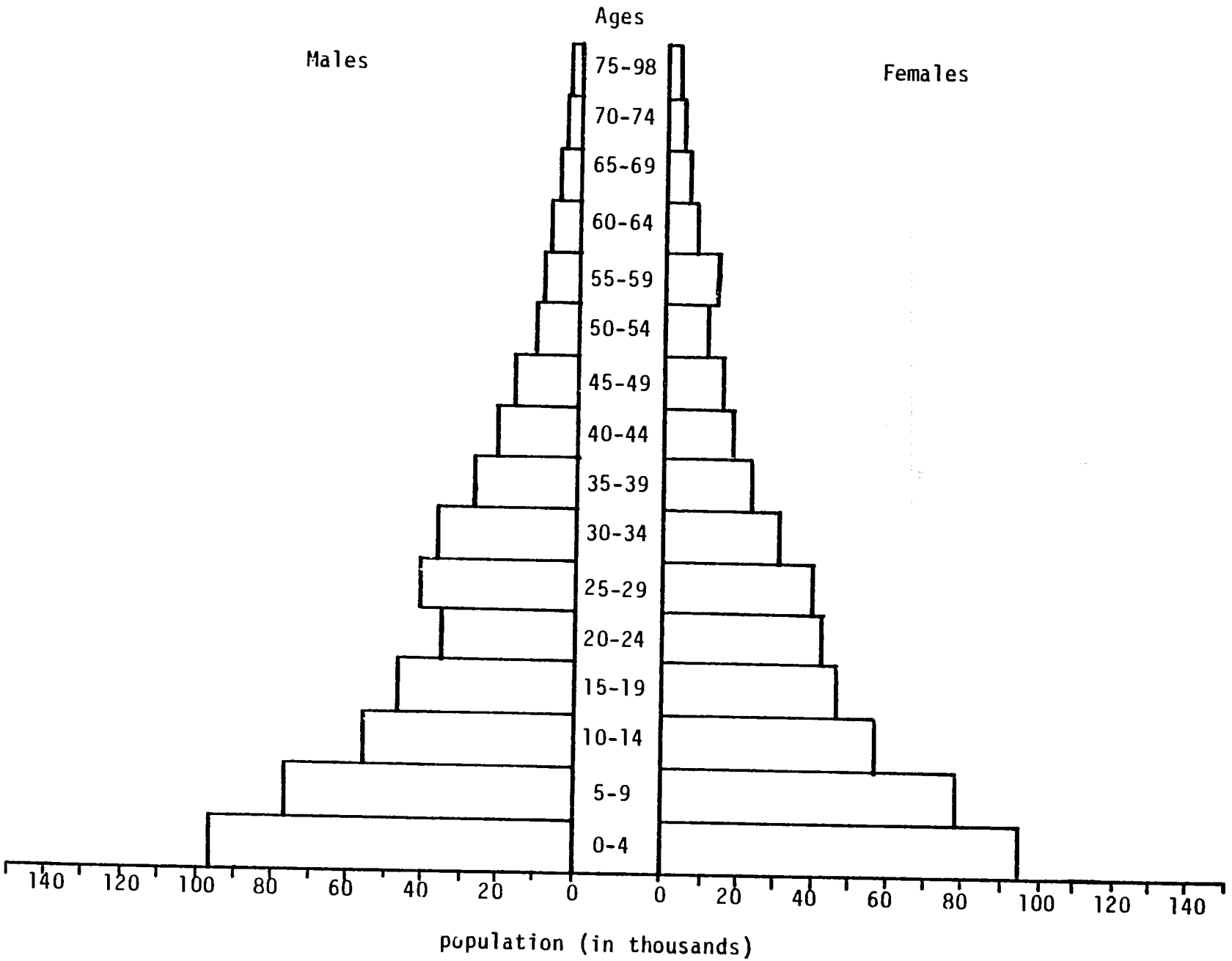


Figure 4. POPULATION PYRAMID ARUSHA REGION 1985

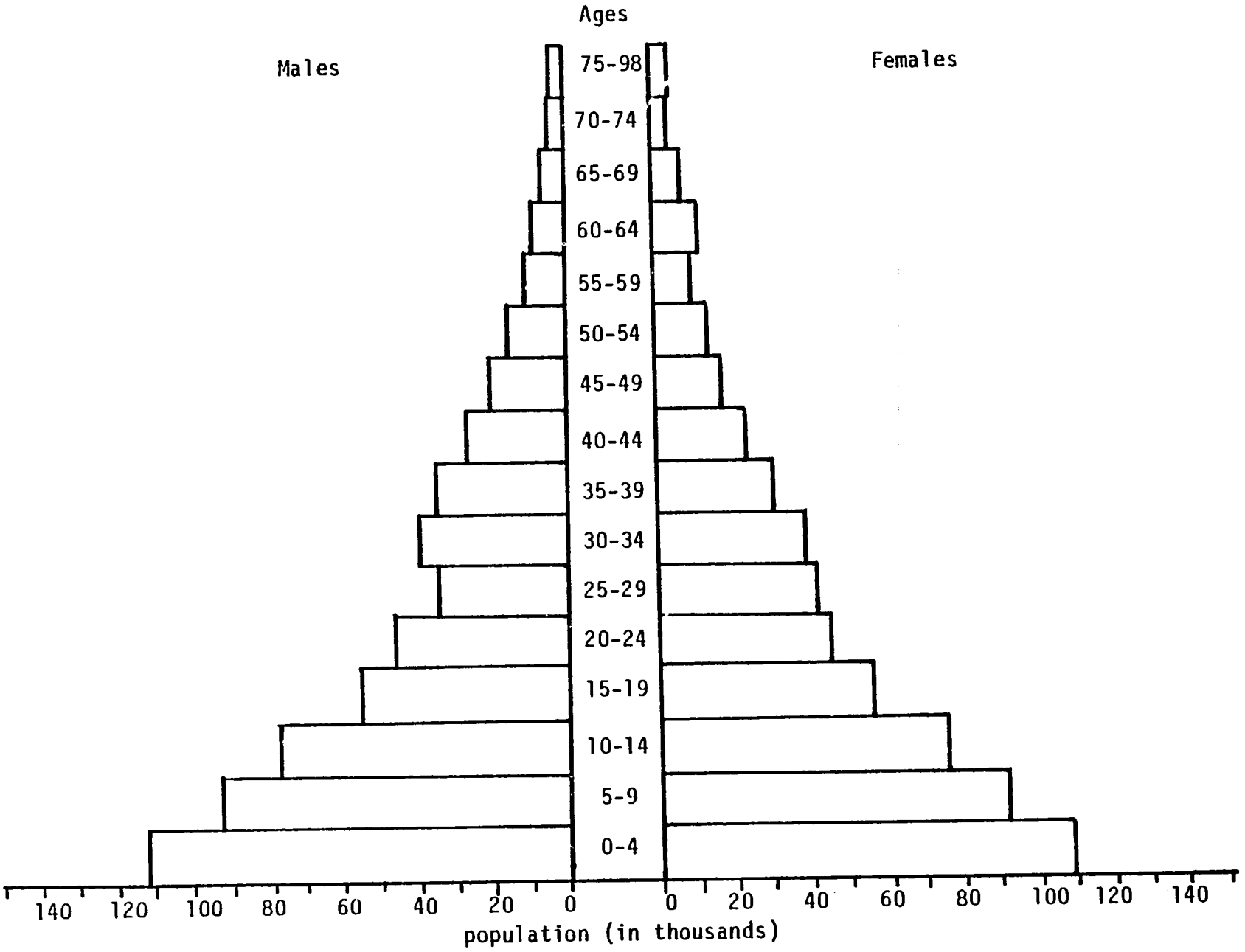


Figure 5. POPULATION PYRAMID ARUSHA REGION 1990

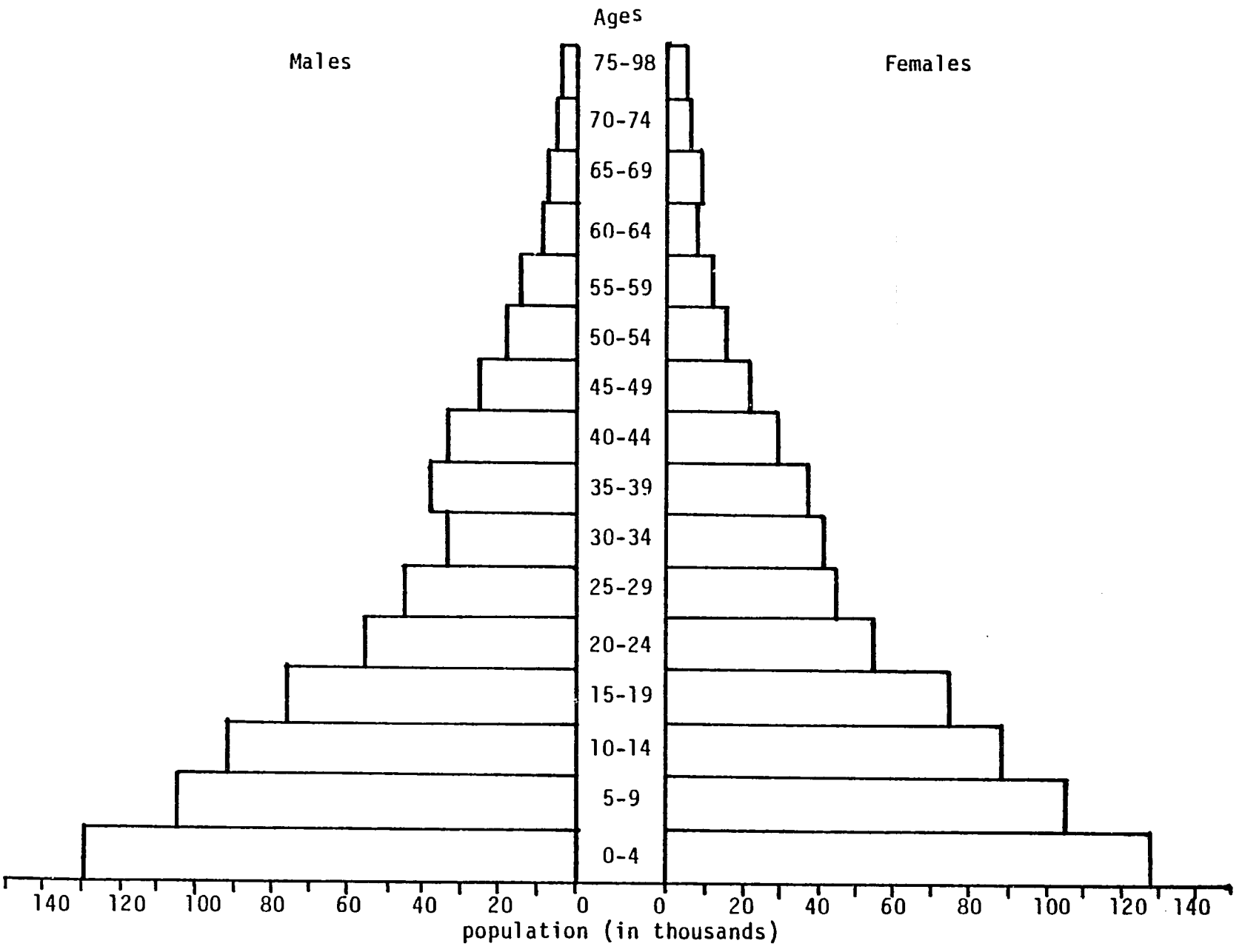


Figure 6. POPULATION PYRAMID ARUSHA REGION 1995

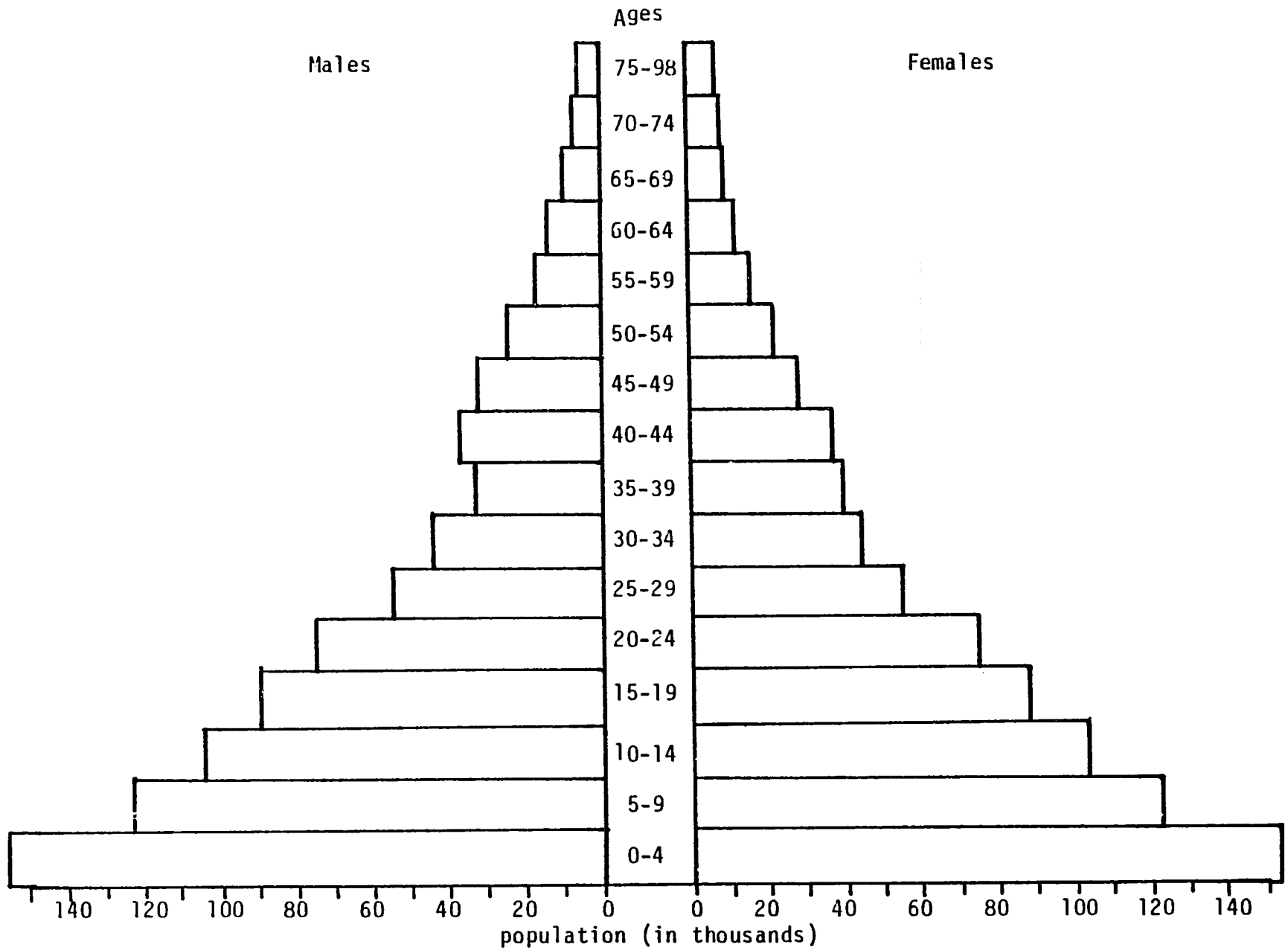


Table 18.

Population Projection for Monduli District, 1980 - 1995

Age Group	1980	1985	1990	1995
0 - 4	14,335	16,446	19,217	22,975
5 - 9	11,689	13,661	15,723	18,356
10 - 14	8,601	11,486	13,462	15,439
15 - 19	6,984	8,441	11,304	13,250
20 - 24	5,808	6,874	8,324	11,062
25 - 29	5,955	5,656	6,680	8,145
30 - 34	5,072	5,830	5,549	6,564
35 - 39	3,823	4,873	5,652	5,349
40 - 44	2,867	3,742	4,727	5,470
45 - 49	2,279	2,785	3,597	4,498
50 - 54	1,617	2,175	2,569	3,404
55 - 59	1,544	1,479	2,055	2,431
60 - 64	1,103	1,392	1,336	1,823
65 - 69	735	957	1,233	1,216
70 - 74	515	609	719	973
75 - 89	441	609	617	851
Total	73,513	87,017	102,767	121,563

Table 19.

Population Projection for Arumeru District, 1980 - 1995

Age Group	1980	1985	1990	1995
0 - 4	49,039	56,261	65,741	76,707
5 - 9	39,985	46,735	53,788	61,285
10 - 14	27,663	39,293	46,054	51,544
15 - 19	23,891	28,875	38,671	44,239
20 - 24	19,867	23,517	28,476	36,933
25 - 29	20,370	19,349	22,851	27,192
30 - 34	17,352	19,944	18,984	21,916
35 - 39	13,077	16,670	19,336	17,858
40 - 44	9,808	12,800	16,172	18,264
45 - 49	7,796	9,526	12,305	15,017
50 - 54	5,533	7,442	8,789	11,364
55 - 59	5,281	5,061	7,031	8,117
60 - 64	3,772	4,763	4,570	6,088
65 - 69	2,515	3,274	4,219	4,059
70 - 74	1,760	2,084	2,461	3,247
75 - 98	1,509	2,084	2,109	2,841
Total	251,481	297,678	351,558	415,858

Table 20.

Population Projection for Kiteto District, 1980 - 1995

Age Group	1980	1985	1990	1995
0 - 4	12,438	14,270	16,675	19,935
5 - 9	10,142	11,854	13,643	15,927
10 - 14	7,463	9,966	11,681	13,396
15 - 19	6,060	7,324	9,809	11,497
20 - 24	5,039	5,965	7,223	9,598
25 - 29	5,167	4,908	5,796	7,067
30 - 34	4,401	5,059	4,815	5,696
35 - 39	3,317	4,228	4,904	4,641
40 - 44	2,488	3,247	4,102	4,747
45 - 49	1,977	2,416	3,121	3,903
50 - 54	1,403	1,888	2,229	2,953
55 - 59	1,340	1,284	1,783	2,110
60 - 64	957	1,208	1,159	1,582
65 - 69	638	831	1,070	1,055
70 - 74	447	529	624	844
75 - 98	383	529	535	738
Total	63,786	75,503	89,169	105,478

Table 21.

Population Projection for Hanang District, 1980 - 1995

Age Group	1980	1985	1990	1995
0 - 4	48,117	55,204	64,506	77,120
5 - 9	39,234	45,857	52,777	61,614
10 - 14	28,870	38,555	45,188	51,821
15 - 19	23,442	28,332	37,945	44,476
20 - 24	19,494	23,075	27,941	37,132
25 - 29	19,987	18,985	22,422	27,339
30 - 34	17,026	19,570	18,627	22,034
35 - 39	12,831	16,357	18,972	17,954
40 - 44	9,623	12,560	15,868	18,362
45 - 49	7,649	9,347	12,073	15,098
50 - 54	5,429	7,302	8,624	11,425
55 - 59	5,182	4,965	6,899	8,161
60 - 64	3,701	4,673	4,484	6,121
65 - 69	2,468	3,213	4,139	4,080
70 - 74	1,727	2,045	2,415	3,264
75 - 98	1,481	2,045	2,070	2,856
Total	246,754	292,083	344,950	408,041

Table 22.

Population Projection for Mbulu District, 1980 - 1995

Age Group	1980	1985	1990	1995
0 - 4	40,312	46,249	54,042	64,611
5 - 9	32,870	38,419	44,217	51,620
10 - 14	24,187	32,301	37,859	43,416
15 - 19	19,639	23,736	31,790	37,262
20 - 24	16,332	19,332	23,409	31,109
25 - 29	16,745	15,906	18,785	22,904
30 - 34	14,264	16,395	15,606	18,460
35 - 39	10,750	13,703	15,895	15,042
40 - 44	8,062	10,522	13,294	15,383
45 - 49	6,409	7,831	10,115	12,649
50 - 54	4,548	6,118	7,225	9,572
55 - 59	4,341	4,160	5,780	6,837
60 - 64	3,101	3,915	3,757	5,128
65 - 69	2,067	2,692	3,468	3,419
70 - 74	1,447	1,713	2,023	2,735
75 - 98	1,240	1,713	1,734	2,393
Total	206,729	244,705	288,997	341,855

Table 23.

Population Projection for Ngorongoro District, 1980 - 1995

Age Group	1980	1985	1990	1995
0 - 4	9,784	11,225	13,117	15,682
5 - 9	7,978	9,325	10,732	12,529
10 - 14	5,870	7,840	9,189	10,537
15 - 19	4,767	5,761	7,716	9,044
20 - 24	3,964	4,692	5,682	7,550
25 - 29	4,064	3,860	4,559	5,559
30 - 34	3,462	3,979	3,788	4,480
35 - 39	2,609	3,326	3,858	3,651
40 - 44	1,957	2,554	3,227	3,734
45 - 49	1,555	1,901	2,455	3,070
50 - 54	1,104	1,485	1,754	2,323
55 - 59	1,054	1,010	1,403	1,659
60 - 64	753	950	912	1,245
65 - 69	502	653	842	830
70 - 74	351	416	491	664
75 - 98	301	416	421	581
Total	50,175	59,392	70,142	82,971

Table 24.

Population Projection for Arusha Town, 1980 - 2000

Year (Base = 1978)	Assumed Rates of Growth		
	R = 5.0%	R = 8.9%	R = 17.9%
1980	60,629	65,547	78,474
1985	77,849	102,285	192,052
1990	99,960	159,615	470,015
1995	128,351	249,078	1,150,286
2000	164,806	388,684	2,815,137

Mean of the First Two Rates (5.0% + 8.9%)

1980	63,088
1985	90,067
1990	129,788
1995	188,715
2000	276,745

1978 Census Population = 55,281

Table 25.
Observed Rates of Growth for Towns in Tanzania, 1967 - 1978

Town	Annual Rate of Growth (Per Cent), 1967-1978	1978 Population
Dar es Salaam	9.8	757,346
Mwanza	10.9	100,611
Tanga	4.8	103,409
Mbeya	17.9	76,606
Tabora	11.5	67,392
Morogoro	6.5	61,890
Iringa	9.0	57,182
Arusha	5.0	55,281
Moshi	6.2	52,223
Kigoma	8.0	50,044
Mtwara	8.1	48,510
Dodoma	5.3	45,703
Musoma	6.5	32,658
Lindi	6.6	27,308
Bukoba	7.2	20,431
Mean	8.9% *	

*Mean based on above towns plus the following:
Singida (10.8%)
Sumbawanga (8.6%)
Shinyanga (14.2%)
Songea (11.5%)

Table 26.

Population Projection for Arusha District, 1980 - 1995

Year (Base = 1978)	Assumed Rate of Growth R = 5.0%	R = 8.9%	Mean of 5.0% & 8.9%
1980	96,681	104,525	100,603
1985	124,141	163,109	143,625
1990	159,401	254,531	206,966
1995	204,675	397,193	300,934

1978 Census Population of Arusha District = 88,155

Table 27.

Proportion (Per Cent) In Age Groups in Arusha Region

1975 - 2000

Age Group	1975	1980	1985	1990	1995	2000
0 - 4	19.9	19.5	18.9	18.7	18.9	18.8
5 - 9	14.2	15.9	15.7	15.3	15.1	15.0
10 - 14	11.6	11.7	13.2	13.1	12.7	12.5
15 - 19	9.6	9.5	9.7	11.0	10.9	10.5
20 - 24	9.9	7.9	7.9	8.1	9.1	9.0
25 - 29	8.4	8.1	6.5	6.5	6.7	7.4
30 - 34	6.4	6.9	6.7	5.4	5.4	5.6
35 - 39	4.8	5.2	5.6	5.5	4.4	4.4
40 - 44	3.9	3.9	4.3	4.6	4.5	3.8
45 - 49	2.7	3.1	3.2	3.5	3.7	3.5
50 - 54	2.7	2.2	2.5	2.5	2.8	3.1
55 - 59	2.0	2.1	1.7	2.0	2.0	2.2
60 - 64	1.4	1.5	1.6	1.3	1.5	1.5
65 - 69	1.1	1.0	1.1	1.2	1.0	1.2
70 - 74	0.6	0.7	0.7	0.7	0.8	0.7
75 - 98	0.8	0.6	0.7	0.6	0.7	0.8
Total	100	100	100	100	100	100
School Age Pop (7-14)	17.7	18.6	18.8	19.9	19.6	19.4
Labour Force (15-59)	43.5	49.0	48.1	49.0	49.4	49.5

Table 28.

Proportion (Per Cent) Female by Age Group for Arusha Region

1975 - 2000

Age Group	1975	1980	1985	1990	1995	2000
0 - 4	49.7	49.7	49.7	49.7	49.7	49.7
5 - 9	49.7	49.8	49.8	49.8	49.8	49.8
10 - 14	49.2	49.8	49.8	49.8	49.8	49.8
15 - 19	53.8	49.2	49.8	49.9	49.9	49.9
20 - 24	49.5	54.0	49.4	49.9	50.0	50.0
25 - 29	46.3	49.7	54.1	49.6	50.1	50.3
30 - 34	46.4	46.4	49.8	54.3	49.7	50.3
35 - 39	45.8	46.5	46.6	49.9	54.4	49.9
40 - 44	45.8	46.0	46.6	46.7	50.1	54.5
45 - 49	46.9	46.0	46.2	46.8	46.9	50.2
50 - 54	53.4	47.3	46.3	46.5	47.2	47.2
55 - 59	52.9	53.9	47.7	46.8	47.0	47.4
60 - 64	51.2	53.5	54.4	48.3	47.4	47.5
65 - 69	52.9	51.9	54.2	55.2	49.0	47.7
70 - 74	52.8	53.8	52.8	55.1	56.0	49.9
75 - 98	57.3	56.1	55.8	55.2	56.4	56.2
Total	49.4	49.5	49.7	49.8	49.9	49.9
Labour Force	49.0	49.0	49.2	49.5	49.9	49.9

Table 29.

Projected Total Population (Both Sexes) and Age Proportions for Tanzania, 1980 - 2000

Year	Total Population (000s)	Proportion (Per Cent) in Ages					CBR	Natural Increase	Life Expectancy at Birth
		0 - 14	15 - 64	65+	6 - 11	12 - 17	Per 1000	Per 100	Years
1980	17,934	45.9	51.0	3.1	16.1	13.4			
1985	21,057	46.4	50.5	3.1	17.0	13.6	46[a]	3.2[a]	53[a]
1990	24,757	46.5	50.4	3.1	17.3	13.7	45[b]	3.2[b]	56[b]
1995	29,020	46.1	50.8	3.1	17.4	14.0	43[c]	3.2[c]	58[c]
2000	33,794	45.0	51.8	3.1	17.2	14.3	40[d]	3.0[d]	60[d]

[a] 1980/85

[b] 1985/90

[c] 1990/95

[d] 1995/2000

NOTE: United Nations, World Population Trends and Prospects by Country, 1950-2000: Summary Report of the 1978 Assessment, Department of International Economic and Social Affairs, New York, 1979. These extimates, published in October, 1979, were extrapolated (approximately) from the 1973 Tanzanian National Demographic Survey. They were based on an assumption of a growth rate of 3.06 per year during 1975-1980 and 3.21 during 1980-2000.

Table 30.

Parameters used for United Nations Projections

Estimated Total Population (1/7/70) = M - 6,568,000
F - 6,732,000

Total - 13,300,000

Tanzania: Base Year - 1970

Sex Ratio at Birth - 103

Period	GRR Values	Life Expectancy at Birth			Migration
		M	F	Both Sexes	
1970/75	3.2	46.4	49.7	48	
1975/80	3.2	48.8	52.2	50.5	
1980/85	3.2	51.3	54.8	53.0	NIL
1985/90	3.1	53.7	57.3	55.5	
1990/95	2.9	56.0	59.7	57.8	
1995/2000	2.7	58.2	61.9	60	

VI. Age-Sex Composition

The planner's interest in age-sex composition of the population stems from two principle causes. First, virtually every aspect of human behavior, from subjective attitudes and physiological capabilities to objective characteristics such as income, labor force participation, occupation or group membership may be expected to vary with age. Secondly, many of the special needs and problems of a particular society, both now and in the future, will be determined in large measure by the age structure of its population. Besides these two main considerations, age data are vital for a currect evaluation of current patterns of fertility and mortality and for making any sort of reliable population estimates. Thus a major prerequisite for an adequate determination of the present needs of a given society as well as for sound planning regarding probable future needs is a thorough familiarity with the age composition of its population.

The reported age and sex distribution data for Tanzania and for Arusha Region and its districts from the 1978 census are given in Table 8. The distribution of sex ratios by age are given in Table 9. For all of Tanzania and for Arusha Region and its districts the characteristic traits of a developing country are seen in the age distribution observed in each area. A large proportion of the population is composed of children less than 15 years old, ranging up to 50% in Mbulu District; the potential labor force (population 15-64) constitutes approximately half the population (with very little variation among the rural districts); and a very small proportion, 4% or less, of the population is over 65 years of age.

The first of these traits implies heavy expenditures on education and an unfavourable dependency burden (see Table 8); the second places the burden of maintaining the children and the old proportions of the population on just one-half of the total population. Together these points help to accentuate the population problems facing Tanzania and Arusha Region. The census statistics, while clearly indicating the magnitude of the problems, must be carefully evaluated for their accuracy. Here it is noted that the low sex ratios at age 0-1 may indicate under enumeration of male births in the region.

Despite these negative aspects of the reported age-sex composition of Arusha Region, the data equally reveals that the region has a flexible and youthful labor force potential. Given the appropriate resources, the region should be able to draw upon this young and flexible labor force for successfully exploiting the resources of the region.

Population Characteristics

Development planners require information not only on the size, spatial distribution, and age and sex composition of the population but also on the social and economic characteristics of the population. A breakdown of the population by a wide range of social and economic characterisitics is available for Arusha Region from the 1967 census (Egero and Henin, 1973) and for a sample of the population from the 1973 National Demographic Survey (Henin et al., 1976). With the rapid pace of change since the Arusha Declaration of 1967, and particularly with the priority placed on the provision of education by the Tanzanian Government, it is important that the Arusha Planning/Village Development Project utilize the most recent information available. The most comprehensive and timely data for the region is that included in the detailed questionnaire of the 1978 census. Relevant tables are available from the 1967 census and the 1973 National Demographic Survey, but a detailed description of the current population characteristics of Arusha Region should await the results of the 1978 census.

VIII. Ethnic Characteristics

Data on ethnic origin have come under increasing criticism for both political and social science reasons. As a national policy the Tanzanian government has placed a priority on fostering identification with district, regional and national units as part of its program for achieving national integration. In its program of social development it has put priority on development of Tanznian consciousness and of national culture as opposed to a continuation of local cultures and their corresponding tribal consciousness. From a social science point of view their is growing criticism of the concept of "tribe" both in terms of the vagueness of its definition and in terms of its questionable usefulness in analysis.

Although data on tribal affiliation have traditionally been collected as an item on the census form,data on ethnic group, "tribe", were added to the census form at a rather late stage of preparation, and after a great deal of debate, for the 1967 census. The question was then asked only for the head of household. Analysis of the ethnic origin data, and a thorough discussion of the problems with the data are included in the analysis volume for the 1967 census (Egero and Henin, 1973, chapter 10). Their conclusions of the usefulness and significance of the data are as follows (page 174):

"Description of Tanzania's population in terms of its ethnic and tribal characteristics should not be misconstrued to mean that the minority groups defined thereby somehow achieve status detrimental to national unity. It is in the abuse of this knowledge that the mystification of tribalism occurs.

For the plain fact of the matter is that for the present when Tanzanians are asked by their government for these group affiliations as part of a national census, they respond with identifiable tribal labels. And these are not simply figments of the imagination.

We have already indicated that in part the continued use of these tribal labels is due to their heavy utilization by colonial administrators, missionaries, and anthropologists who were attempting to come to termswith (i.e. understand, but also control) small-scale social units which were relatively autonomous in relation to one another and which had their material bases in subsistence agriculture or pastoralism. But we must also admit that census officials in 1967 have likewise contributed in part to the continuation of that traditional mode of classification. Let us emphasize the "in part", because were those tribal labels not rooted as well somewhere in the cultural and socio-economic institution of Tanzanians, then there would not have been such ready and specific answers to the question of "Jina la kabila" (name of tribe)."

For the 1978 Census the National Census Committee made the decision not to collect information on tribal affiliation for a number of reasons. Not only is this mode of classification less and less relevant in the modern setting, not only in urban areas but even in village communities, but the problem of the vagueness of the meaning of the term has resulted in greater and greater difficulty in its interpretation. Finally, the emphasis on national integration led to the decision not to emphasize

ethnic differences. In line with this decision not to include a question on ethnic origin in the 1978 census the Arusha Regional Integrated Development Plan should also not emphasize ethnic differences.

The 1978 Census did ask a question on nationality, however, and this topic of immigration should be covered by the plan.

The most recent sources of information on tribal affiliation then are the 1967 census and, for the four clusters included in the sample for the Arusha Region, the 1973 National Demographic Survey. As a working definition the 1967 census took the tribe to mean a group of persons who share the same cultural system, including language, who claim a common origin and live on the same territory, very often with a common political system. Obviously, none of these criteria are totally unambiguous. In addition, the difficulty of applying these criteria in a useful manner for development planning is apparent. A brief review of the data for Arusha Region and Districts and for Arusha Town is given below. The complete statistics are given in Table 217 of 1967 Census Volume III.

Arusha Region	%
Iraqw	33.3
Arusha	14.7
Masai	10.3
Meru	8.5
Barabaig	5.7
other	27.5

Arusha Town	%
Chaga	22.9
Arusha	18.7
Pare	7.1
Rangi	6.4
Shambaa	2.9
other	42.0

Arusha District	%
Arusha	42.9
Meru	28.1
other	29.0

Mbulu District	%
Iraqw	68.2
Barabaig	11.8
Gorowa	6.1
other	13.9

Masai District	%
Masai	57.2
Sonjo	10.5
other	32.3

The 1967 data for the three main minority groups: Arabs, Asians, and Europeans are presented below:

Arusha Region:	Population			Average Annual Growth %	
	1948	1957	1967	1948-1957	1957-1967
Arabs	48	110	212	9.7	6.5
Asians	2388	4116	4204	6.0	0.2
Europeans	1352	2346	1579	6.1	-2.8

The 1978 data on the number of Tanzanian and non-Tanzanian households are included in Table 6 (Population Distribution). Further breakdowns of the non-Tanzanian households by nationality will be published with the household data by the census. For Arusha Region the breakdown by district was as follows:

Region/District	Tanzanian Households	Non-Tanzanian Households	Percentage Non-Tanzanian Households
Arusha Region	173,070	1770	1.0
Arumeru District	45,244	543	1.2
Arusha District	20,811	541	2.6
Monduli District	18,781	234	1.2
Kiteto District	10,840	227	2.1
Mbulu District	32,907	36	0.1
Hanang District	44,487	189	0.4

IX. Population Policy

[Note: The United Nations Fund for Population Activities (UNFPA) has recently produced two excellent reports on Tanzania's population policy:
UNFPA. National Experience in the Formulation and Implementation of Population Policy, 1960-1976. United Republic of Tanzania. New York: U.N., 1978.

UNFPA. Tanzania: Report of Mission on Needs Assessment for Population Assistance, Report Number 11, May 1979.

These two documents are available in the Arusha Regional Documentation and Research Center.]

Although the Government of Tanzania has not expressed any concern about current crude birth rates or about the high rate of population growth, it is incorrect to conclude that the Government has no population policy. In fact the Government has formulated a comprehensive and sophisticated position with regard to the spatial distribution of the population in urban as well as rural areas. Its Ujamaa and villigization policies have been closely followed in Africa and elsewhere, as has its carefully planned management of the expansion of the urban system. In addition, the Government has expanded its views of the most desirable system of health services, including MCH and family planning services, within the over-all development strategy it has adopted. Finally, the Government has developed explicit views on the desirable relationship between mortality, fertility and natural increase at both the family and national levels, and has gradually brought into existance appropriate programs designed to ensure harmony between these relationships and its over-all social and economic strategy. This paper will briefly review the Government's position on each of these aspects of population policy and will discuss the implications for development planning in Arusha Region.

Government perception of population size and growth in relation to development objectives.

Given the over-all low population density of Tanzania the general perception has been that the main constraints to exploitation of the vast resources of the country lie in deficiencies in the economic and social organization of society, and that with the proper organization an increased population would lead to significant advantages. In his introduction of the Second Five-Year National Development Plan to the TANU conference in May, 1969 President Nyerere noted that the 1967 census had revealed a larger population and a faster growth rate than had been expected and discussed some of the short-term implications of this rate of growth:

"The thing I want to say is this. It is very good to increase our population, because our country is large and there is plenty of unused land. But it is necessary to remember that these 350,000 extra people every year will be babies in arms, not workers. They will have to be fed, clothed, given medical attention, schooling, and many other services for very many years before they will be able to contribute

to the economy of the country through their work. This is right and proper and is in accordance with the teachings of the Arusha Declaration. But it is obvious that just as the number of our children is increasing, so the burden on the adults--the workers--is also increasing."

During the course of the second five-year plan further analyses were made of the 1967 census results and of the relationships between the distribution of population, productivity and environmental constraints upon the utilization of land and water resources. From these studies the Government came to recognize that the mere availability of resources, whether natural or human, without the means for their effective utilization was not sufficient, and that it was essential to ensure that the rate of development exceeded that of population growth.

In May 1976 the Government made an explicit statement of its views with regard to population growth. It noted that the contemporary rate of population growth (2.7 to 3.0 per cent per year) simultaneously contributed to and constrained the achievment of various development objectives. In a detailed listing of the specific relationships between population growth and economic, social and other conditions, the Government stated that population growth contributed in a positive manner to all of them, with the exception of encouraging a desired income distribution, an appropriate generation of savings and an effective investment of capital. Thus it considered that contemporary rates of population growth contributed by providing a sufficient population to allow economic exploitation of natural resources, including food production, the maintenance of the environment and its conservation for future use and the supply of labor for economic expansion. It stimulated economic growth through key economic sectors and provided an adequately sized domestic market. It provided sufficient demographic dynamism to maintain national innovative capacity, and it supported national and cultural identity. It permitted the achievment of desired levels or replacement of the population. It was capable of ensuring effective socio-administrative structures to provide social infrastructure and services for all age groups.

Later in 1977 the Government stated that:

"In keeping with its decentralization policy, the Government also recognizes the responsibility of families and communities to take into account in their decision-making the relevance of demographic factors (including family size, intervals between births, infant and maternal mortality and morbidity, geographical distribution, rural/urban migration, population density and dependency ratios) within the overall consideration of responsibility in parenthood and family and community well-being."

Although the Government noted that the most appropriate response to constraints imposed by population growth upon economic and social development was to attempt to adjust both economic and social factors and demographic factors simultaneously it has not spelled out any explicit policies for making these demographic adjustments.

Fertility.

In May 1976 the Government stated that in its view the present level of fertility contributed positively to family well-being by making

possible achievment of the desired number of children, providing support for aging parents, ensuring continuity (descendancy) of the family, and providing sufficient family labor. On the other hand, the Government considered that the present levels of fertility had constraints due to the fact that the incidence of infertility was too high, miscarriages and stillbirths too frequent, birth intervals too short, induced abortion too frequent, and maternal health, child and family well-being inadequate. At the same time the Government stated that it considered the contribution made by fertility to the rates of natural increase was satisfactory.

While it has indicated no formal policy in the area of fertility the Government has made a firm committment to a child-spacing program and to maternal and child health care as part of its concern for family well-being. In his well-known speech presenting the Second Five-Year Development Plan in 1969 President Nyerere stated:

"Giving birth is something in which mankind and animals are equal, but rearing the young, and specially educating them for many years, is something which is a unique gift and responsibility of men. It is for this reason that it is important for human beings to put emphasis on caring for children and the ability to look after them properly, rather than thinking only about the numbers of children and the ability to give birth. For it often happens that men's ability to give birth is greater than their ability to bring up the children in a proper manner."

Thus while the Tanzanian Government may not have an official policy on fertility control, the President's statement seems to be an endorsement of two basic principles of the World Population Plan of Action, namely, the rights of couples to "decide freely and responsibly the number and spacing of their children" and the need to make available to couples the "information, education and means to do so."

In furtherance of the Government's policy outline above, contraceptive practices, one of the "means" of exercising the right of "responsible parenthood", are encouraged, albeit quietly. Under a directive issued by the Ministry of Health, all regional medical officers have been advised to provide family planning services in their regions, if the need for such services is expressed. UMATI, the family planning association of Tanzania (an affiliate of the International Planned Parenthood Federation (IPPF)), co-operates with the Ministry of Health by providing the contraceptive supplies and by undertaking training in family planning of the medical and paramedical personnel within the MCH program. It may also be mentioned that UMATI has close links with CCM through the National Women's Organization (UWT).

Contrary to the recommendations made at the Symposium on Law and Population that "a woman having an abortion in the early stages of pregnancy be not dealt with under the penal codes, but accorded humane treatment and effective contraceptive advice", abortion is still illegal in Tanzania. Thus, it appears that while the Government is prepared to allow contraceptives to be distributed and used, it has not yet been persuaded that in the case of contraceptives failing the woman should be allowed the means to terminate the unwanted pregnancy.

Although the stated objective of the Ministry of Health that by 1980 it was planned that every dispensary would have on its staff a midwife

trained in family planning has not been met, there has been considerable progress, and an active training program for MCH Aides is underway, both nationally and in Arusha Region.

In addition to the primary emphasis upon the integration of family planning services in maternal and child health for the purposes of child-spacing there are also some indications that the Government is implicitely encouraging smaller families. In a 1978 speech by the Minister for Finance and Planning the provision was made that "for a person with children there will also be a refund of tax calculated at the rate of Tsh 10 per child per month, up to a maximum of four children." Changes are also being adopted in the regulations concerning paid maternity leave. Although this will still be available for employed women for a period of three months, it would not be granted more frequently than once in three years. This is intended as an inducement to more appropriate child-spacing. There is further as yet informal evidence of an implicit population policy in the Government's subsidized housing regulations. Informants report that Tanzanian Government employees are entitled to increased living space and subsidy for each additional child up to the fourth.

It seems safe to say that there is an increasing government awareness of population issues in development, and that the Tanzanian Government actually has an implicit family size and spacing policy. The Tanzanian Government through various policies favors, and reinforces, a reproductive pattern of four or fewer living children spaced over a period of 12 years or longer. Within the framework of the Arusha Regional Development Plan this seems an appropriate family size goal. Discussions of population issues at all levels should include not only the interrelations between population growth and development but also the means of establishing this four-child family size as a social norm, giving due consideration to local health, social, cultural, and economic conditions.

It is clear that while the Government of Tanzania may not have a population policy as such, it has embarked on ambitious and far-reaching implementation of population programs, particularly in the field of population redistribution through the villigization policy (see sections on Migration and Population Distribution) and in the area of mortality through the emphasis laid on maternal and child health within the health sector(see section on Mortality). The major need at present is to establish a greater recognition of the complex set of elements that constitute population policy. Such an appreciation would contribute to the increased integration of population factors into the planning process.

X. Demographic Implications of the Development Approach Adopted by the Arusha Planning/Village Development Project

Both the rate of natural increase and in-migration have contributed to the rapid rate of population increase being experienced by Arusha Region. Although the overall population density is quite low several of the highland districts are now very densely populated and even where densities are lower there are signs of environmental stress due to imbalances between the resources of an area and its population under present technologies. Furthermore, the rapid rate of population growth can present severe economic constraints for the government both in providing services and in the generation of adequate employment opportunities for an expanding workforce. Although this project does not include a specific health and family planning component it is important to consider the impact that the proposed project activities will have on population increase and on the population dynamics of Arusha Region.

It is difficult to isolate the effects of specific development projects from all the other factors which influence the population dynamics of an area. Yet policy decisions concerning alternative projects must continually be made during the course of this Regional Integrated Development Project. There is also a mandate from the U.S. Government, and certainly support from the Tanzanian Government, that the population implications of each project undertaken be studied and considered in the selection of alternative projects. But how do you assess the population implications of specific projects?

The factors which influence fertility, mortality, and migration are very complex. Many development decisions do not influence these demographic parameters directly but rather through a series of intermediate variables: health and nutritional status, educational levels, labor force participation, employment opportunities. These variables may in turn affect fertility, for instance, through another series of intermediate variables, such as age at marriage, marital stability(both related to exposure to intercourse), lactation practices, contraceptive prevalence, and the use of induced abortion. The complexity of the interactions linking development activities and population dynamics makes the task of considering population implications of policy decisions very difficult. Another difficulty is that certain development projects are important in their own right even though they may adversely affect the population situation. Health projects leading to improved infant and maternal health are a case in point. MCH projects both reduce infertility and lower infant mortality thus leading to increased population growth. Yet in the long run lowered infant mortality is seen as a prerequisite for declines in fertility. Yet decisions have to be made. The high rate of population growth in Arusha Region (3.5%) certainly presents an enormous constraint on the goals of providing clean water, educational opportunities, and health services for the

people of Arusha Region. In addition, rapid population growth leads to a rapidly expanding labor force, and unless economic growth keeps up with and surpasses the population growth in terms of expanding both agricultural and non-agricultural job opportunities unemployment and the consequent poverty may actually increase despite the development efforts.

This paper will present a very brief review of the factors which have been identified as being particularly important in affecting population parameters, and will discuss the implications for development planning in Arusha Region.

In 1975 the Agency for International Development proposed an ammendment to the U.S. Foreign Assistance Act regarding the population impact of development programs. As enacted by congress Section 104 (d) states:
"Integration of assistance programs. (1) Assistance under this chapter shall be administered so as to give particular attention to the interrelationship between (A) population growth, and (B) development and overall improvement in living standards in developing countries, and to the impact of all programs, projects, and activities on population growth. All appropriate activities proposed for financing under this chapter shall be designed to build motivation for smaller families through modification of economic and social conditions supportive of the desire for large families, in programs such as education in and out of school, nutrition, disease control, maternal and child health services, improvements in the status and employment of women, agricultural production, rural development and assistance to the urban poor. Population planning programs shall be coordinated with other programs aimed at reducing the infant mortality rate, providing better nutrition for pregnant women and infants, and raising the standard of living of the poor." Although AID has elected not to make a population impact assessment mandatory for every project they have suggested that this be done wherever feasible. The emphasis of these discussions has been on fertility and has been directed mostly to those projects which are most likely to encourage smaller family-size preferences and to enhance the couple's ability to achieve its preferred family size. Along these lines AID has called for discussions with host-country counterparts on the interconnections between development programs and fertility norms and behavior as a way of heightening awareness of and concern for population issues. Beyond those factors which have been found to have a direct impact on fertility it is also important to consider the impact of development projects on other population parameters such as migration and mortality which may have a more immiediate impact on the population situation in Arusha Region.

Fertility. Although there has been substantial debate on the factors that influence fertility behavior, there is general agreement on the role played by those factors most closely associated with fertility- exposure(nuptiality, marital stability), lactation, contraceptive prevalence, and abortion. Fertility decines with later age at marriage, prolonged lactation, higher contraceptive prevalence, and the incidence of induced abortion. There is less certainty about the effects of a wide array or socioeconomic determinants of fertility, including family income, mother's

education, child health, and a variety of social and cultural factors influencing fertility norms. However, reduced fertility is generally associated over time with decreases in infant mortality, improvements in income distribution, improvement's in women's education, and expansion of female labor force participation. AIDs strategy has been to key on four conditions related to high fertility: early marriage of girls, prevailing large family norms, uncertainty concerning child survival, and unintended births. An integrated population strategy to focus on these conditions includes the following sectors:

--education and employment creation programs to change the opportunity structure for women and to provide them with meaningful alternatives to early marriage;

--improved family income and the development of appropriate household technologies and basic services to reduce dependence on children as unpaid family workers;

--the development of savings and other social security schemes to provide parents with alternatives to total reliance on their children during their old age;

--improved health care for young children and pregnant and lactating women to enhance the chances that each child born will survive to a healthy adulthood;

--programs to ensure ready access to safe, effective, affordable and reliable contraceptives for interested men and women (in Tanzania this is an important function of the MCH clinics found in hospitals, rural health centers, and village dispensaries); and

--information programs aimed at a wide variety of audiences - from potential contraceptive users to government officials charged with the responsibility of coordinating development programs - to build and reinforce understanding of the interdependence of population and economic development.

Arusha Region. The above outline gives a general strategy for a long term program to reduce fertility. The AP/VDP must chose alternative projects giving consideration to the prospects for population growth in the region within the following general framework:

-at present levels of fertility and mortality the rate of natural increase of the population in the region is most likely in the range of 3.5 to 3.8 per cent per year;

-as one of the more developed regions in Tanzania, Arusha Region has always been a focus of in-migration. It is likely that this trend will continue, although the volume of migration will obviously vary with natural, economic, and political conditions. Thus a net migration gain can be expected to add to the already high rate of population growth;

-programs aimed at improving health conditions (health services, provision of clean water supplies) can be expected to lead to reductions in the rate of infant, child, and adult mortality.

Although Arusha Region already has the lowest mortality rate of any of the regions in Tanzania (according to the 1973 National Demographic Survey) expanded health services and clean water supplies can be expected to lower mortality rates, although probably there will be a slower decline in the rates than has been experienced during the past 15 years;

-although fertility is already at a high level, there is a likelihood that fertility may increase, for a number of reasons, including (1) improved MCH services and genral improvements in health can lead to reductions in the level of infertility, (2) there is a trend toward shorter birth intervals, due to both an increase in the use of bottle-feeding which leads to a reduction in the period of lactation and to a decrease in the practice of separation of the wife and husband after the birth of a child. Although increases in women's educational levels have been associated with reduction of fertility in some countries, in Kenya recent evidence indicates that the highest levels of fertility are found among women with 1 to 4 years of primary education. It is therefore not clear what the impact of increased female enrollment in primary schools will be. The level of female enrollment in secondary and higher education, which has been associated with reduced fertility, is not high enouph to substantially affect district fertility levels;

-decreasing levels of mortality, increasing, or at least constant levels of fertility, and continued in-migration lead to a prospect of even more rapid population growth in Arusha Region in the near future.

Development strategy. Given the above conditions the concentration on a strategy of supporting and assisting directly productive, income-generating activities from a population prospective seems preferable to a strategy of providing "basic needs" services. Although there is no question that the provision of "basic needs" services: nutrition, health, housing, and education programs, leads to improvements in the standards of living, the provision of these services, besides being expensive, could also contribute to increased rates of population growth. Efforts to increase production and income, while their impact on fertility and population growth is more complex and unclear, at least will assist in the provision of expanded employment opportunities for the expanded labor force, and can provide an economic base to support later expansion of basic needs services.

Another demographic factor which must be considered is the momentum of population growth. Where improved living conditions, the control of communicable diseases, and the expansion of medical services have resulted in significantly reduced mortality levels and where fertility levels have not yet declined the youthfulness of the population provides a built-in momentum to population growth. Even if fertility does decline, the large proportion of the population either in, or yet to enter, the child-bearing ages, assures a continued rapid growth of the population. Where proponents of the "basic needs" strategies have considered the population growth effects, they have called for counter-measures such as the building of family planning components into the development strategy. Yet, as recent experience in Kenya has shown, the provision of family planning services does not assure their utilization. The low levels

of contraceptive usage in Arusha Region in areas served by MCH clinics, where family planning services are provided as part of a child-spacing program, suggest that in the social, cultural, and economic conditions prevailing in Arusha Region family planning services will not provide a solution to the problem of rapid population growth.

From the above comments it is evident that the principle strategy of the Arusha Planning and Village Development Project, which is to concentrate on those activities which lead to increased output and income, in line with Tanzania's emphasis in those areas, is also the preferred strategy from the point of view of population concerns. The chief negative feature of this strategy is that increased differentials in the level of development between regions may serve as an inducement to increased in-migration into Arusha Region, thus adding to the already high levels of population growth. Studies have indicated that migration increases in response to economic incentives: employement opportunities and wage differentials. Employment generating activities in Arusha Region have the potential for increasing the levels of in-migration as well as inter-district migration. This is not necessarily a negative feature, however, when it leads to an efficient relocation of the workforce. When a seed farm is developed in a sparcely populated area in Kiteto, for instance, there is a need for recruitment of labor. If labor is not available from Kiteto, Arusha, or Arumeru Districts then there may be some migration of workers from Singida and Dodoma Regions. The problems would result from a level of in-migration greater than that needed to fulfill the demands for labor in the region. With the rapid growth of the labor force projected for the region (see the projected populations in the age groups of working age) it seems likely that substantial in-migration may place a burden on the government in provision of services. Thus the levels of migration would be an important factor to monitor during the course of this long-term development project.

One factor that does deserve greatly increased consideration in development planning in Arusha Region is the role of women in the development priorities. There is strong agreement that the position of women in society is significantly related to the level of fertility, although there are some differences about the specific relationships. The World Population Plan of Action(para. 32) states that one important way to moderate fertility is through "the full integration of women into the development process, particularly by means of their greater participation in educational, social, economic and political opportunities, and especially by means of the removal of obstacles to their employment in the nonagricultural setting wherever possible."

In Arusha Region women have the primary responsibility for feeding the rural population and almost exclusive responsibility for raising the children. A significant proportion of the households are independently supported by women. Nonetheless, studies and experience indicate that women's access to credit, training, services, technology and income is severely limited

compared to men. This has been attributed both to cultural trends and to superimposed western stereotypes in the design and implementation of development projects.

The result with respect to fertility is clear: women's secondary role in household decision-making (based on the unrecognized productive activities in which she engages) is reflected in her decision-making role with respect to family size. Although the onus of supporting the children falls back on the women, much of the decision-making with regard to the size of the family and the distribution of income and household activities is the husbands. As long as women's work is invisible (in terms of support and remuneration) to local men and development planners, this secondary position of women will continue. Women will continue to derive status from childbearing and all other activities will continue to be viewed (by both men and women) as an extension of maternity. It is useless to think, therefore, that teaching women about child nutrition, family planning or home management will change the basic familial dynamic which contributes to large family size.

It is critical, therefore, that the Arusha Planning/Village Development project pay careful attention to 1) what women do, and 2) how the development projects and activities can and do support these activities. Specifically, when the rural development projects focus on smallholders, the role that women play in the productive activities should be assessed and addressed. Particular attention should be paid to women's acess to land, credit, extension services, their role in cash crops versus subsistence crops, their participation in cooperative ventures, their role in local food processing and handicraft activities (market outlets, credit requirements, etc.), and appropriate technology for women. Projects leading to the strengthening of pre-existing women's grass-roots organizations through credit extension, training, and information dissemination, and the training of more female extension workers should be considered. These women-oriented projects are not inconsistent with the overall development goals of the AP/VDP, and are likely to have an important impact on population through reducing those cultural and economic mechanisms which are supportive of high fertility.

References

Atlas of Tanzania. Government of the United Republic of Tanzania, 1967. Compiled, published and printed by Surveys Mapping Division, Ministry of Lands, Settlement, and Water Development, Dar es Salaam, 1967.

Berry, L. (ed.) Tanzania in Maps: Graphic Perspectives of a Developing Country. New York: Africana Publishing Corp., 1971.

Claeson, Claes-Fredrik and Bertil Egero. "Inter-regional Migration in Tanzania," African Population Conference, Accra, Ghana, 9-18 December, 1971. 11 pp.

Egero, Bertil and Roushdi Henin, December 1973. The Population of Tanzania: An Analysis of the 1967 Population Census. Bureau of Statistics; Dar es Salaam.

Gulliver, P.H. "The Population of Arusha Chiefdom: A High Density Area in East Africa," Rhodes-Livingston Journal 28 (Dec. 1960): 1-21. Interesting for its historical perspective.

Henin, R., et al. The Demography of Tanzania, Vol. VI: An Analysis of the 1973 National Demographic Survey of Tanzania. Bureau of Statistics: Dar es Salaam.

Kamuzora, C.L. 1978. The Dynamics of Labor in African Smallholder Agriculture: The Sources of Labor for a New Cash Crop, Tea, in Bukoba District, Tanzania. Ph.D. dissertation, 1978, U. Penn. 290 p.

Kocher, James E. 1976. A Micro-economic Analysis of the Determinants of Human Fertility in Rural North-eastern Tanzania. Ph.D. dissertation, 1976. Michigan State University.

Kocher, James E. Rural Development and Fertility Change in Northeastern Tanzania, Harvard Institute for International Development, mimeo, 1977. Data from the 1973 National Demographic Survey for four clusters in Kilimanjaro Region is analyzed.

Kocher, James E. 1976. Tanzania: Population Projections and Primary Education, Rural Health and Water Supply Goals. Harvard Institute for International Development Discussion Paper No. 17.

Maro, Paul Stephen. 1974. Population and Land Resources in Northern Tanzania: The Dynamics of Change, 1920-1970. Ph.D. dissertation, 1974. U. Minn. 315 pp.

Moore, J.E. Rural Population Carrying Capacities for the Districts of Tanzania. BRALUP Research Paper No. 18. Dar es Salaam, 1971.

Sabot, R.H. 1979. Economic Development and Urban Migration: Tanzania, 1900-1971. New York/London: Oxford University Press, 1979. 279 pp.
The author analyzes urban migration in Tanzania during the years

1900-1971. Particular attention is given to the interrelations between urban migration and labor supply, wages, and changes in the agricultural sector. Selected demographic, social, economic, and regional characteristics of migrants are examined and policy implications are discussed.

Thomas, Ian. Population Policy in Tanzania. Development Studies Discussion Paper No. 51. Norwich, England: University of East Anglia, School of Development Studies, March, 1979. 28 pp.
The author describes the context of population policy in Tanzania and discusses some of its interrelations with sectoral planning.

United Nations Fund for Population Activities, Tanzania. Report of Mission on Needs Assessment for Population Assistance, Report No. 11, May, 1979.

United Nations Fund for Population Activities. National Experience in the Formulation and Implementation of Population Policy, 1960-1976. United Republic of Tanzania. U.N. (ST/ESA/SER.R/28) 1978.

APPENDICES

APPENDIX A

POPULATION PROJECTIONS - METHODOLOGY

1. Estimates of the future size of the population and the age and sex distribution of the population are essential to development planning. In Tanzania, the decentralized nature of planning requires that population projections be made at the lowest possible level of geographic and administrative unit. Yet much of the information required for making accurate projections of the population of specific geographic units is not available for Arusha Region. Accurate estimates of fertility and mortality levels for each of the geographic units within the region are not available. In addition it is extremely difficult to predict the likely future trends in fertility and mortality levels. Future migration patterns are highly dependent on political and economic decisions yet to be made and on natural climatic conditions. What these will be and what their effects may be on migration are nearly impossible to predict. Projections always have a hypothetical quality. Their usefulness for planning depends on an awareness of the assumptions on which the projections are made and an ability to interpret the projections as planning tools to be continuously revised as new information comes to light. Each projection should also be interpreted in the light of all additional information available for the area under consideration. In summary, it must be remembered that population projections are not estimates of future population growth, but mechanical extrapolations of population totals made on the basis of a series of assumptions. They are to be used as guides which must be adjusted on the basis of all additional information available to the planner. This review describes the assumptions and the methodology for making the population projections for Arusha Region.

2. The first step in making the population projections is to locate a Base population. The 1978 census provides a very accurate and recent population base. The 1978 Population of Arusha Region was 924,672. The census date was August 26, 1978. The population totals from the census for each of the districts are recorded in line 1 of Table 13 (p. 37).

3. The second step is to locate the best estimate of fertility and mortality. The most plausible and carefully evaluated estimates of fertility and mortality for each of the Regions in Tanzania are from the 1973 National Demographic Survey. The estimates and their derivation are described in Roushdi A. Henin, ed. The Demography of Tanzania, Vol. VI, An Analysis of the 1973 National Demographic Survey of Tanzania. The estimates for Arusha Region were derived from a sample of four clusters of 900 households each in Arusha Region. The following vital rates were found for the clusters in Arusha Region:

Vital Rates from the 1973 National Demographic Survey for Clusters in Arusha Region

1973 District	Division	CBR	TFR	IMR	e_o^o
Arusha	Arusha West	52	7.6	93	53
Masai	Longido	46	6.5	93	53
Mbulu	Gorowa	51	6.9	93	53
Mbulu	Iraqw South	53	8.2	93	53

CBR = Crude Birth Rate (per 1000)

TFR = Total Fertility Rate (completed fertility per woman)

IMR = Infant Mortality Rate (per 1000 live births)

e_o^o = Life Expectancy at Birth (in years)

The location of these clusters is indicated in the map included as Attachment I.

From an analysis of these rates the 1973 National Demographic Survey selected the best estimates of the demographic parameters for Arusha Region. Attachment II lists the Regional Total Fertility Rates. Arusha Region was estimated to have a TFR of 6.5 which is very high, but in the middle of the rates for the Regions of Tanzania. Attachment III lists the Crude Birth Rates and Crude Death Rates estimated for the various time periods from 1970 to 1995. Whereas Arusha has one of the highest CBRs, 48.2, it is estimated to have the lowest Crude Death Rate in the country, 12.2 per thousand populatio These estimates lead to estimates of the rate of natural increase listed in Attachment IV, with Arusha again having one of the highest growth rates.

The final parameters used in making the population projections for Arusha region are listed in Table 12. It should be noted that these projected parameters assume no changes in fertility or mortality. Since the mortality rate is already very low for Tanzania it may be assumed that the most easily accomplished improvements in mortality have already taken place in much of Arusha Region, and the future reductions may take place at a slower rate. In addition it may actually take some of the more rural areas of the region some time to reach this low rate. The estimated fertility rate is actually rather a modest estimate, and fertility in many parts of the region may actually be higher, if recently announced rates from Kenya are any guide. It is reasonable to assume that there will be no significant changes in fertility in the near future. These assumptions and their implications are evaluated further in the main report.

4. Since no vital statistics are available for the various districts in Arusha Region, it is not possible to estimate fertility and mortality levels for each district. This would require a demographic survey with a sample from each district. For purposes of these projections the demographic parameters for the region will be assumed to apply to each district. Additional analysis of the detailed questionnaire from the 1978 census by district may allow us to estimate fertility and mortality levels by district which would allow improved projections.

5. The population projections are projections of the natural growth of the districts. They assume no inter-regional or inter-district migration. In other words, any migration is ignored. As stated earlier future migration patterns will be dependent on a number of complex factors which are impossible to predict. Each of the projections will have to be adjusted based on the observed trends in migration in the geographic area under consideration.

6. The methodology for making the population projections is as follows. The population of each district as at Aug. 26, 1978 is taken from the census. The formula for exponential population change (since compounding of the population takes place continuously) is used to estimate the mid-year (June 30) population for 1978. This is done as follows:

$$P_n = P_0 \, e^{r \cdot n}$$ where

P_n = population at time n.
P_0 = population at time 0.
e = natural log
r = rate of natural increase
n = time period (in years)

Thus $P_{\text{August 26, 1979}} = P_{\text{June 30, 1979}} \, e^{(.03502)(56/365)}$

For Arusha Region: $924{,}672 = P_{30/6/78} \, e^{(.03502)(.1534)}$

$924{,}672 = P_{30/6/78} \, e^{.00537}$

$924{,}672 = P_{30/6/78} \cdot 1.00539$

$P_{30/6/78} = 924{,}672/1.00539$

$P_{30/6/78} = 919{,}715$

Thus, for any geographical unit, to get the mid-year (June 30) 1978 population you simply divide the census figure by 1.00539.

The mid-year 1978 population totals for Arusha Region and each of the Districts are given in line 2 of Table 13.

To project the total population of each district forward at 5-year intervals we use the same formula for exponential increase of the population together with the rate of natural increase listed for that time period in Table 12.

Thus we project first from June 30, 1978 to June 30, 1980 using the June 30, 1978 population as a base, r = .03502, and n = 2. The projections then continue as follows:

June 30, 1980 to June 30, 1985 r = .03373, n = 5

June 30, 1985 to June 30, 1990 r = .03327, n = 5

June 30, 1990 to June 30, 1995 r = .03360, n = 5

For example, for Arusha Region

$$P_{1980} = P_{1978}\, e^{(.03502)\,(2)}$$

$$P_{1980} = P_{1978} \cdot 1.0726$$

$$P_{1980} = 919{,}715 \times 1.0726 = 986{,}486$$

The multiplication factors for the projections are as follows:

$P_{\text{June 30, 1978}} = P_{\text{August 26, 1978}} / 1.00539$

$P_{1980} = P_{1978} \times 1.0726$

$P_{1985} = P_{1980} \times 1.1837$

$P_{1990} = P_{1985} \times 1.1810$

$P_{1995} = P_{1990} \times 1.1829$

To get the population in the year 2000, I have assumed an r = 3.3 for the period 1995-2000. Thus $P_{2000} = P_{1995} \times 1.1794$.

The projected total populations for the region and each of the dist for five year intervals 1980-2000 are found in Table 13.

7. To arrive at the age and sex distributions we will use the proportions found in the population projections from the analysis of the 1973 National Demographic Survey for Arusha Region. The projections done for the 1973 National Demographic Su for Arusha Region for the time periods 1975-1995 are included as Attachment V. From these projections the proportion that each age group makes of the total population for each of the time periods is calculated. These are presented in Table 27.

Simarly the sex distribution is calculated as the proportion female from each of the age groups for each of the time periods from the 1973 NDS projections. (We could as easily have used the proportion male. The proportion female was chosen since much of the analysis of fertility will involve the number of females in each age group. In any case the proportion male is just 100 - the proportion female). The proportion female by age group and time period is found in Table 28.

Thus, to get the projected population by age and sex for any area you take the projected total population for the time period concerned, multiply the total by each of the percentages for that time period in Table 27 to get the population distribution by age group. Within each age group you then multiply the population total for the age group by the percent female for that age group and time period (from Table 28) to get the female population for that age group. The male population for the age group is simply the total population minus the female population.

The projected populations by age and sex for Arusha Region for the periods 1980-1995 are found in Tables 14 - 17.

The projected populations by age groups for 1980-1995 for each of the districts in Arusha Region are found in Tables 18 - 23.

8. The populations of Arusha Town and Arusha District will obviously be growing at a faster rate than the Region as a whole. Projections based on a range of possible growth rates, using the formula for exponential growth, are presented in Tables 24 -26

9. Using these procedures a population projection can be made for any population, down to the village level. In each case it must be remembered that this is a projection, and <u>not</u> a prediction. All projections should be adjusted for the probable in-migration or out-migration from that area. In addition, the planner must make a judgement as to whether the assumption that the fertility and mortality levels for

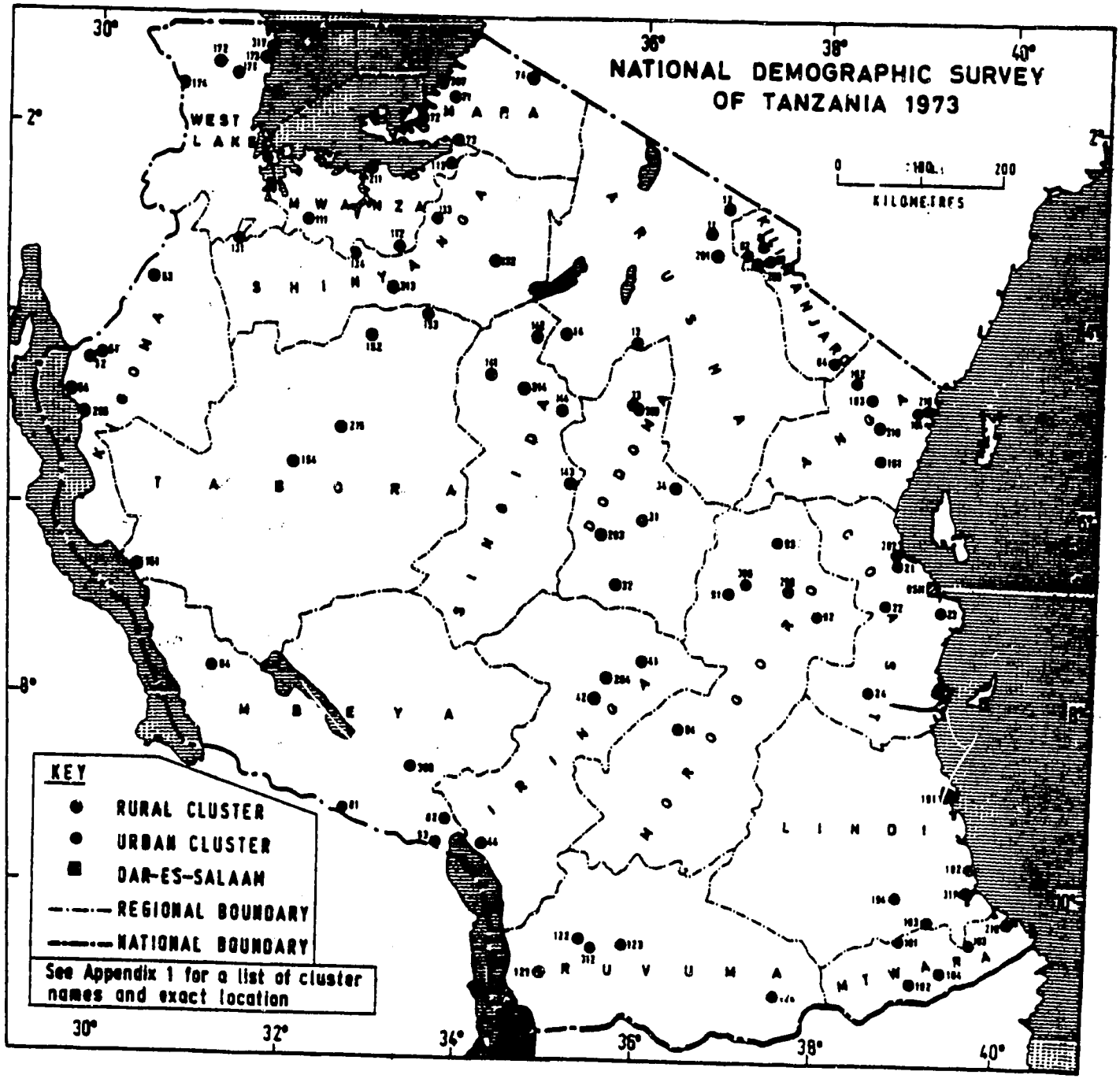
that unit may reasonably be equated with the regional total levels.

10. In summary, what we have done is to project the populations for each of the districts in Arusha region forward by five-year intervals to the year 1995. This is the 15 year period to which the RIDEP is addressed. We have used the fertility and mortality estimates from the 1973 NDS and the age and sex distributions from the 1973 NDS projections, but have used the 1978 census figures as the base population.

11. A summary of this prodedure will be presented to allow any interested planner or functional officer to project the population of any geographical unit based on the population total in 1978 and his own assumptions of migration for that unit.

Attachment I

RURAL AND URBAN CLUSTERS



Source: Henin, R.A. and D.C. Ewbank. 1973 National Demographic Survey of Tanzania. Vol. III Summary Data for Survey Clusters. Bureau of Statistics and Bureau of Resource Assessment and Land Use Planning, Dar es Salaam, p. x.

Attachment II

Final Regional Estimates of the Total Fertility Rate

Region	TFR
Arusha	6.5
Coast	5.1
Dodoma	6.7
Iringa	6.9
Kigoma	5.9
Kilimanjaro	7.0
Lindi	5.1
Mara	6.9
Mbeya	7.1
Morogoro	6.0
Mtwara	5.2
Mwanza	6.6
Ruvuma	6.4
Shinyanga	6.4
Singida	5.5
Tabora	5.4
Tanga	7.0
West Lake	6.8
Dar es Salaam	4.7
Mainland	6.3

Source: Henin, R., et al. The Demography of Tanzania, Vol. VI: An Analysis of the 1973 National Demographic Survey of Tanzania. Bureau of Statistics: Dar es Salaam, p. 91.

Attachment III

Crude Birth Rates and Crude Death Rates 1970 - 1995

Region	1970 - 75		1975 - 80		1980 - 85		1985 - 90		1990 - 95	
	CBR	CDR	CBR	CDR	CBR	CDR	CBR	CDR	CBR	CDR
Arusha	48.2	12.4	47.2	12.2	45.7	12.0	45.2	11.9	45.5	12.0
Coast	34.1	18.2	35.5	17.0	36.7	16.0	39.2	14.7	40.7	14.6
Dodoma	48.5	17.7	48.0	16.1	47.2	14.3	46.8	12.6	47.9	12.5
Iringa	55.4	17.4	53.5	15.8	51.3	13.9	49.9	12.2	49.9	12.2
Kigoma	48.2	20.2	47.5	18.5	46.7	16.8	46.4	15.2	46.1	13.8
Kilimanjaro	48.0	13.8	50.1	13.7	[illegible]	13.1	47.8	12.7	46.6	12.5
Lindi	38.5	14.6	38.5	18.1	38.7	16.6	39.1	14.9	39.5	13.3
Mara	47.7	16.7	48.5	15.2	49.1	13.8	49.0	12.3	48.1	12.2
Mbeya (new)	53.9	15.2	51.3	13.8	48.1	12.1	46.4	12.1	47.2	12.1
Morogoro	42.4	17.4	41.9	16.1	41.4	14.8	42.1	13.4	43.5	13.5
Mtwara	40.0	17.7	39.1	16.4	40.0	15.0	39.3	13.4	40.3	13.4
Mwanza	45.7	16.6	45.1	15.1	45.6	13.7	45.7	12.4	45.7	12.4
Ruvuma	51.7	17.1	49.1	15.4	46.3	13.5	45.4	11.9	45.7	12.1
Shinyanga	48.6	16.7	47.4	15.2	46.2	13.7	45.6	12.2	45.7	12.3
Singida	44.4	23.8	43.7	21.5	43.6	19.5	44.3	17.7	44.8	16.1
Tabora (New)	40.9	17.0	40.4	15.6	40.0	14.3	40.1	12.9	40.8	13.0
Tanga	47.1	14.1	47.3	12.8	46.8	12.8	47.0	12.8	48.0	12.8
West Lake	42.9	23.5	45.5	21.3	46.9	18.9	47.3	16.9	47.1	14.7
Rukwa	47.4	17.0	45.9	15.5	44.3	14.0	43.6	12.4	44.0	12.5
Total	43.7	16.8	43.4	15.6	42.6	14.3	42.4	13.2	42.7	12.8

Source: Henin, R., et al. The demography of Tanzania, Vol. VI: An analysis of the 1967 Demographic Survey of Tanzania. Bureau of Statistics: Dar es Salaam, p. 229.

Attachment IV

Rate of Natural Growth (Percent)

Regional	1970-75	1975-80	1980-85	1985-90	1990-95
Arusha	3.6	3.5	3.4	3.3	3.4
Coast	1.6	1.7	2.1	2.5	2.6
Dodoma	3.1	3.2	3.3	3.4	3.5
Iringa	3.8	3.8	3.7	3.8	3.8
Kigoma	2.8	2.1	3.0	3.1	3.2
Kilimanjaro	3.4	3.6	3.6	3.5	3.5
Lindi	1.9	2.0	2.2	2.4	2.6
Mara	3.1	3.3	3.5	3.7	3.6
Mbeya (New)	3.9	3.7	3.6	3.5	3.5
Morogoro	2.5	2.6	2.7	2.9	3.0
Mtwara	2.2	2.3	2.4	2.6	2.7
Mwanza	2.9	3.0	3.2	3.3	3.3
Ruvuma	3.5	3.4	3.3	3.4	3.4
Shinyanga	3.2	3.2	3.2	3.3	3.3
Singida	2.1	2.2	2.4	2.6	2.9
Tabora (New)	2.4	2.5	2.6	2.7	2.8
Tanga	3.3	3.5	3.1	3.4	3.5
West Lake	1.9	2.4	2.8	3.0	3.2
Rukwa	2.0	3.0	3.0	3.1	3.1
Total	2.7	2.8	2.8	2.9	3.0

Source: Henin R., et al. The Demography of Tanzania, Vol. VI: An Analysis of the 1973 National Demographic Survey of Tanzania. Bureau of Statistics: Dar es Salaam, p. 230.

POPULATION PROJECTION 1970-1975 FOR ARUSHA REGION

TFR: 6.50 MALE E0: 53.89 FEMALE E0: 57.50

MEAN AGE OF FERTILITY SCHEDULE: 28.17

R: 35.89 CBR: 48.24 CDR: 12.35

AGE	MALES	FEMALES	TOTAL
0- 4	80404	79379	159783
5- 9	57359	56712	114071
10-14	47150	45657	92807
15-19	35775	41686	77461
20-24	40085	39285	79370
25-29	36268	31281	67549
30-34	27637	23880	51517
35-39	20982	17740	38722
40-44	16873	14233	31106
45-49	11693	10329	22022
50-54	10049	11528	21577
55-59	7510	8440	15950
60-64	5444	5709	11153
65-69	4258	4782	9040
70-74	2330	2607	4937
75-98	2634	3541	6175
TOTAL	406451	396789	803240

SCHOOL-AGE POP. (7-14): 142202

LABOUR FORCE (15-59) MALES: 206872

FEMALES: 198402

DEPENDENCY RATIO: 0.98

BIRTHS IN 1973 36194

POPULATION PROJECTION 1975-1980 FOR ARUSHA REGION

TFR: 6.50 MALE E0: 53.89 FEMALE E0: 57.50

MEAN AGE OF FERTILITY SCHEDULE: 28.48

R: 35.02 CBR: 47.22 CDR: 12.20

AGE	MALES	FEMALES	TOTAL
0- 4	93995	92797	186792
5- 9	76576	75950	152526
10-14	56232	55695	111927
15-19	46380	45002	91382
20-24	34968	40972	75940
25-29	38996	38486	77482
30-34	35227	30549	65776
35-39	26765	23240	50005
40-44	20207	17185	37392
45-49	16114	13716	29830
50-54	11014	9866	20880
55-59	9278	10842	20120
60-64	6718	7726	14444
65-69	4615	4980	9595
70-74	3311	3851	7162
75-98	2694	3441	6135
TOTAL	483090	474298	957388

SCHOOL-AGE POP. (7-14): 177839

LABOUR FORCE (15-59) MALES: 238949

FEMALES: 229858

DEPENDENCY RATIO: 1.04

BIRTHS IN 1978 42294

Source: Henin, R., et al. The Demography of Tanzania, Vol. VI: An Analysis of the 1973 National Demographic Survey of Tanzania. Bureau of Statistics: Dar es Salaam, pp. 349-351.

POPULATION PROJECTION 1980-1985 FOR ARUSHA REGION

TFR: 6.50 MALE E0: 53.89 FEMALE E0: 57.50

MEAN AGE OF FERTILITY SCHEDULE: 28.49

R: 33.73 CBR: 45.70 CDR: 11.97

AGE	MALES	FEMALES	TOTAL
0- 4	108059	106681	214740
5- 9	89520	88788	178308
10-14	75071	74588	149659
15-19	55314	54896	110210
20-24	45333	44231	89564
25-29	34018	40138	74156
30-34	37876	37586	75462
35-39	34115	29730	63845
40-44	25777	22512	48289
45-49	19298	16561	35859
50-54	15178	13101	28279
55-59	10169	9278	19447
60-64	8300	9925	18225
65-69	5696	6739	12435
70-74	3589	4011	7600
75-98	3385	4281	7666
TOTAL	570698	563046	1133744

SCHOOL-AGE POP. (7-14): 213675
LABOUR FORCE (15-59) MALES: 277078
FEMALES: 268033
DEPENDENCY RATIO: 1.08
BIRTHS IN 1983 48592

POPULATION PROJECTION 1985-1990 FOR ARUSHA REGION

TFR: 6.50 MALE E0: 53.89 FEMALE E0: 57.50

MEAN AGE OF FERTILITY SCHEDULE: 28.49

R: 33.27 CBR: 45.18 CDR: 11.92

AGE	MALES	FEMALES	TOTAL
0- 4	126348	124737	251085
5- 9	102914	102073	204987
10-14	87761	87195	174956
15-19	73845	73518	147363
20-24	54066	53955	108021
25-29	44101	43331	87432
30-34	33041	39199	72240
35-39	36681	36579	73260
40-44	32856	28799	61655
45-49	24617	21695	46312
50-54	18177	15819	33996
55-59	14014	12321	26335
60-64	9097	8494	17591
65-69	7037	8657	15694
70-74	4430	5428	9858
75-98	3866	4772	8638
TOTAL	672851	666572	1339423

SCHOOL-AGE POP. (7-14): 266028
LABOUR FORCE (15-59) MALES: 331398
FEMALES: 325216
DEPENDENCY RATIO: 1.04
BIRTHS IN 1988 56803

POPULATION PROJECTION 1990-1995 FOR ARUSHA REGION

TFR: 6.50 MALE E0: 53.89 FEMALE E0: 57.50

MEAN AGE OF FERTILITY SCHEDULE: 28.49

R: 33.60 CBR: 45.55 CDR: 11.95

AGE	MALES	FEMALES	TOTAL
0- 4	150623	148703	299326
5- 9	120333	119349	239682
10-14	100892	100242	201134
15-19	86328	85944	172272
20-24	72179	72258	144437
25-29	52597	52857	105454
30-34	42835	42318	85153
35-39	31998	38148	70146
40-44	35327	35434	70761
45-49	31378	27754	59132
50-54	23187	20723	43910
55-59	16783	14877	31660
60-64	12537	11279	23816
65-69	7713	7409	15122
70-74	5473	6973	12446
75-98	4640	5999	10639
TOTAL	794823	790267	1585090

SCHOOL-AGE POP. (7-14):		310360
LABOUR FORCE (15-59)	MALES:	392612
	FEMALES:	390313
DEPENDENCY RATIO:		1.02
BIRTHS IN 1993		67728

Attachment V continued

Attachment VI

Method of Calculating Population Projections On a Hand Calculator

Information needed:

1. Base Population
2. Annual Rate of Growth (percent)
3. Number of Years for Projection

Formula Used: Exponential Growth

$$P_n = P_o e^{rn}$$

where P_n = Population at end of period

P_o = Population at beginning of period

e = constant

r = annual rate of growth

n = number of years

Steps in Calculation:

1. Multiply rate of growth times number of years press [=]

   (for 3% and 10 years, multiply .03 x 10 = 0.3)

2. Press [e^x]

   (0.3 [e^x] = 1.3498588)

3. Multiply result of step 2 by base population

   (for 30,000,000 base population
   1.3498588 x 30,000,000 = 40,495,764)

A population of 30,000,000 projected for 10 years at a growth rate of 3% per year becomes 40,495,764.

APPENDIX B

December 14, 1979

Population Projections and Planning

1. One of the most essential pieces of information required for planning for development is an estimate of the future size and age and sex distribution of the population of the geographical area or administrative unit for which planning is being done. Not only is the human population the major resource of the area, and thus the major input into any development plan, but the population is also the consumer of social services which must be provided by the plan.

Although the major focus of any development plan is the social and economic development of the area it is important that the economic growth and social development of an area be examined in relationship to the growth of the population. If the population is growing faster than the economy it is possible for living standards to decline. This relationship was aptly pointed out by Mwalimu Nyerere: "Whatever we produce has to be divided between an increasing number of people every year..It is no use saying that these extra 380,000 (now it is 550,000!) people have hands as well as mouths. For the first ten years of their life, at the very least, children eat without producing".

The population of Arusha Region is growing very rapidly indeed. Researchers at the University of Dar es Salaam estimate that the population of Arusha Region is growing by 3.5 per cent every year. This means that the labour force available to develop the resources of the region is growing rapidly, but so is the number of people who require a clean water supply, the number of children to be educated, and the number of mothers who will require maternal and child health services. Because of the young age structure of the population of Arusha Region it is estimated that the number of school

age children will increase by 50% during the next ten years alone. This means that the total number of classrooms and teachers in Arusha Region will have to be increased by 50% during the next ten years, just to maintain the current level of educational services. If they do not increase by at least 50% then the region will actually be losing ground.

For all of these reasons it is important to measure our plans for development against the rate of growth of the population. The remainder of this paper will describe the procedure for estimating the size and the age and sex distribution of the population of an area at some time, 2 years, 5 years, 10 years, or 15 years in the future.

2. A population projection is <u>not</u> an estimate of the future population of an area. It is merely a calculation of what the size of the population of an area would be at some future time if it continued to grow at some specified rate of growth. Since we do not know the levels of fertility, mortality, and natural increase of each of the units within Arusha Region we must first assume a uniform rate of growth. For most areas this would be a reasonable assumption, as the estimates for Arusha Region are based on a sample from each of the districts, and the differences between the districts are relatively minor. However, the population projection also does <u>not</u> take into account migration. In order to change the population projection into an estimate the planner must first make the population projection according to the procedure described below, and then adjust the figures for in- and out-migration from the area based on the planner's knowledge of the present and likely future trends in migration for the area with which he is concerned.

3. Population projections can be made for any of the administrative or geographical units covered by the 1978 census. A projection can thus be done for a district, a division, a ward, an individual village, or any group of villages. The first step is to determine what the population of the unit was at the time of the 1978 census (which was conducted in August). In a separate paper there is a listing of the male, female, and total population of each of the villages and towns in Arusha Region. This will serve as the Base for making the population projection.

4. The next step is to determine the total population of the unit at a certain date or year in the future. The usual procedure is to estimate the mid-year population, or the population of the unit or area as of June 30 of a specific year. The following formulas can be used to estimate the population at five year intervals from 1980 until 1995.

5. In the following formulas P stands for the total population and the subscript, or the number below the P, stands for the year for which the estimate is being made. First we must estimate the population as of June 30, 1978 by using the following formula:

$$P_{\text{June 30, 1978}} = P_{\text{August 26, 1978}} \div 1.00539$$

(The population at June 30, 1978 is equal to the population at August 26, 1978 (the census) divided by 1.00539).

Then to estimate the total population (the mid-year population) in 1980, 1985, 1990, 1995 we use the following formulas:

$$P_{1980} = P_{1978} \times 1.0726$$

$P_{1985} = P_{1980} \times 1.1837$

$P_{1990} = P_{1985} \times 1.1810$

$P_{1995} = P_{1990} \times 1.1829$

To get the population projection for the year 2000 you could multiply the population for 1995 by 1.1794, but this is too far in the future to make any kind of reasonable estimate.

The above formulas have been used to project the populations of Arusha Region and each of the Districts from 1980 to 2000. The results are in Table A. The same formulas and procedure can be used to project the populations of any of the other units, as well. (Note: these projections were made on the basis of an estimated rate of natural increase of 3.5% per year from 1975-1980 decreasing to 3.3% by 1985-1990 and increasing to 3.4% from 1990-1985. These changes are the result of changes in the age structure of the population and do not assume any changes in fertility.)

6. Once the total population of an area is found for a certain date the next step is to estimate the population in each of the age groups. The proportions of the total population in each of the age groups at the various time periods for Arusha Region are found in Table B. Simply multiply the total projected population for your area by each of the percentages for the age groups from the appropriate year to get the number of people in that age group. If the total population in 1980 is 7580 then the number of persons 0-4 years old would be 7580 X .195 = 1478. Adding the numbers from all the age groups should give you the total population. The age distribution is important for estimating the number of school-age children, the size of the

working-age population, etc.

7. Once you have the age distribution of the population you can then calculate the number of males and the number of females in each age group using the figures in Table 6. This table gives the proportion (per cent) female in each age group at each time period for Arusha Region. Simply multiply the number in each age group by the per cent female for that age group at that year to get the number of females in that age group. Subtract the number of females in that age group from the total population in that age group to get the number of males in that age group. The sex distribution is important for estimating the number of women of child-bearing age in the population at some future dat

8. Table 9 gives the age and sex distribution of Arusha Region in 1985. Before projecting the population from some other area you should follow the procedures used to calculate this table to see if you get the same numbers.

9. Summary

It is important to remember that the projected populations are not estimates of the future population size and structure, but are merely estimates of what the population would be if the population continued to grow at a specified rate and if there were no migration. In order to interpret the projection you should adjust the population totals for what you consider to be the most likely number of migrants coming into the area and the most likely number to leave the area, based on your knowledge of the social and economic conditions and trends affecting the area.

Table A. Population Projections of Arusha Region and Districts, 1978 - 2000

Time	Arusha Region	Monduli District	Arumeru District	Arusha District	Kiteto District	Hanang District	Mbulu District	Ngorongoro District
ugust 26, 1978	924,672	68,906	235,723	88,155	59,790	231,292	193,775	47,031
une 30, 1978	919,715	68,537	234,459	87,682	59,469	230,052	192,736	46,779
une 30, 1980	986,486	73,513	251,481	94,048	63,786	246,754	206,729	50,175
une 30, 1985	1,167,703	87,017	297,678	111,325	75,503	292,083	244,705	59,392
une 30, 1990	1,379,057	102,767	351,558	131,475	89,169	344,950	288,997	70,142
une 30, 1995	1,631,287	121,563	415,858	155,522	105,478	408,041	341,855	82,971
une 30, 2000	1,923,940	143,371	490,462	183,423	124,401	481,244	403,184	97,856

Table B. Proportion (Per Cent) In Age Groups in Arusha Region

1975 - 2000

Age Group	1975	1980	1985	1990	1995	2000
0 - 4	19.9	19.5	18.9	18.7	18.9	18.8
5 - 9	14.2	15.9	15.7	15.3	15.1	15.0
10 - 14	11.6	11.7	13.2	13.1	12.7	12.5
15 - 19	9.6	9.5	9.7	11.0	10.9	10.5
20 - 24	9.9	7.9	7.9	8.1	9.1	9.0
25 - 29	8.4	8.1	6.5	6.5	6.7	7.4
30 - 34	6.4	6.9	6.7	5.4	5.4	5.6
35 - 39	4.8	5.2	5.6	5.5	4.4	4.4
40 - 44	3.9	3.9	4.3	4.6	4.5	3.8
45 - 49	2.7	3.1	3.2	3.5	3.7	3.5
50 - 54	2.7	2.2	2.5	2.5	2.8	3.1
55 - 59	2.0	2.1	1.7	2.0	2.0	2.2
60 - 64	1.4	1.5	1.6	1.3	1.5	1.5
65 - 69	1.1	1.0	1.1	1.2	1.0	1.2
70 - 74	0.6	0.7	0.7	0.7	0.8	0.7
75 - 98	0.8	0.6	0.7	0.6	0.7	0.8
Total	100	100	100	100	100	100
School Age Pop (7-14)	17.7	18.6	18.8	19.9	19.6	19.4
Labour Force (15-59)	43.5	49.0	48.1	49.0	49.4	49.5

Table C. Proportion (Per Cent) Female by Age Group for Arusha Region

1975 - 2000

Age Group	1975	1980	1985	1990	1995	2000
0 - 4	49.7	49.7	49.7	49.7	49.7	49.7
5 - 9	49.7	49.8	49.8	49.8	49.8	49.8
10 - 14	49.2	49.8	49.8	49.8	49.8	49.8
15 - 19	53.8	49.2	49.8	49.9	49.9	49.9
20 - 24	49.5	54.0	49.4	49.9	50.0	50.0
25 - 29	46.3	49.7	54.1	49.6	50.1	50.3
30 - 34	46.4	46.4	49.8	54.3	49.7	50.3
35 - 39	45.8	46.5	46.6	49.9	54.4	49.9
40 - 44	45.8	46.0	46.6	46.7	50.1	54.5
45 - 49	46.9	46.0	46.2	46.8	46.9	50.2
50 - 54	53.4	47.3	46.3	46.5	47.2	47.2
55 - 59	52.9	53.9	47.7	46.8	47.0	47.4
60 - 64	51.2	53.5	54.4	48.3	47.4	47.5
65 - 69	52.9	51.9	54.2	55.2	49.0	47.7
70 - 74	52.8	53.8	52.8	55.1	56.0	49.9
75 - 98	57.3	56.1	55.8	55.2	56.4	56.2
Total	49.4	49.5	49.7	49.8	49.9	49.9
Labour Force	49.0	49.0	49.2	49.5	49.9	49.9

Table D.

Population Projection for Arusha Region, 1985

Age Group	Males	Females	Total
0 - 4	111,010	109,686	220,696
5 - 9	92,031	91,298	183,329
10 - 14	77,377	76,760	154,137
15 - 19	56,860	56,407	113,267
20 - 24	46,678	45,571	92,249
25 - 29	34,839	41,062	75,901
30 - 34	39,274	38,962	78,236
35 - 39	34,919	30,472	65,391
40 - 44	26,813	23,398	50,211
45 - 49	20,103	17,263	37,366
50 - 54	15,677	13,517	29,193
55 - 59	10,382	9,469	19,851
60 - 64	8,519	10,164	18,683
65 - 69	5,883	6,962	12,845
70 - 74	3,858	4,316	8,174
75 - 98	3,613	4,561	8,174
Total	587,355	580,348	1,167,703

APPENDIX C

1978 POPULATION OF VILLAGES

1978 POPULATION OF VI. AGES IN ARUMERU DISTRICT OF ARU. REGION

ARUMERU P.1

Ward	Village	Male	Female	Total	No. of Households
011	Sokei	1642	1726	3368	578
SOKON	N'giresi	829	847	1676	335
	Sasi	920	978	1898	327
	Oldadai	1056	1095	2161	354
	Midawe	704	750	1454	276
	Bongata	768	861	1629	348
	Sokon	890	896	1786	305
999	TOTAL	6819	7153	13972	2523
021	Nduruma	787	871	1658	307
NDURUMA	Mungushi	306	281	587	130
	Bwawani	841	770	1611	476
	Mararani	1038	995	2033	520
	Themi ya Simba	955	788	1743	575
	Mzimuni	506	460	966	227
	Kigongoni	323	331	654	166
	Maji ya Moto	405	454	859	202
	Luci na Umoja	421	238	659	271
999	TOTAL	5582	5188	10770	2880
031	Mlangarini	1235	1221	2456	614
MLANGARINI	Mayire	828	785	1613	411
	Kisarian	1069	1198	2267	459
999	TOTAL	3132	3204	6336	1484
041	Ambubeni/Moi varo	1382	1477	2859	550
NKOANRUA	Loita/Nkoamala	399	452	851	165
	Kipande/Nkoavele	731	831	1562	302
	Nkoanrua	1071	1156	2227	367
999	TOTAL	3583	3916	7499	1384
051	Kimundo	806	810	1616	291
AKHERI	Ndoombo-Nkoasambu	771	830	1601	312
	Patandi	1024	903	1927	512
	Akheri Kati	729	722	1451	235
	Ndoombo-Mfulani	666	634	1300	340
	Nguruma	1001	991	1992	411
	Patandi T.T.C.	21	230	251	9
	Mati & Police Tengeru	865	594	1459	352
	TOTAL	5883	5714	11597	2362
061	Seela	1067	1134	2201	437
SEELA/SING'ISI	Sing'isi	1683	1767	3450	566
999	TOTAL	2750	2901	5651	1003
071	Songoro	425	450	875	155
SONGORO	Sura	856	903	1759	342
	Mulala	701	763	1464	284
	Kilinga	394	349	743	139
	Urisho	685	767	1452	316
999	TOTAL	3061	3232	6293	1236

ARUSHERU P.2

Ward	Village	Male	Female	Total	No. of Households
081 NKOARANGA	Nkoaranga	930	1026	1956	330
	Ngaresero)Now	534	530	1064	312
	Usa)Usa	1829	1540	3369	957
	Nshupu	931	865	1796	211
	Ngyani	715	775	1490	235
	Nkoanekoli	1386	1321	2707	507
999	TOTAL	6325	6057	12382	2552
091 POLI	Manyara/Lekitatu	892	827	1719	416
	Ndatu	1191	1162	2353	501
	Njoro)Now	725	747	1472	299
	Lorouwa)Poli	845	860	1705	306
	Makumira Sec.Sch.	178	157	335	15
999	TOTAL	3831	3753	7584	1537
101 MBUGUNI	Mbuguni	1072	1124	2196	495
	Shambarai	631	684	1315	283
	Mikungeni	754	792	1346	338
	Kikuletwa	586	482	1068	261
	Msitu wa Mbogo	567	533	1100	304
999	TOTAL	3610	3615	7225	1681
111 KIKWE	Karangai	571	562	1133	266
	Maweni	394	344	738	154
	Kikwe	642	612	1254	233
	Nambala	537	516	1053	213
	Valesha	792	708	1500	409
999	TOTAL	2936	2742	5678	1275
121 MLIINGO	Makiba	501	473	974	258
	Majengo	712	644	1356	349
	Patanumbe	700	692	1392	388
999	TOTAL	1913	1809	3722	945
131 KIKATITI	Samaria	1178	917	2095	317
	Sekila	2015	2152	4167	831
	Maroroni	941	922	1863	280
	Kikatiti	1234	1247	2481	459
999	TOTAL	5368	5238	10606	1887
141 MAJI YA CHAI	Kitefu	850	826	1686	334
	Ilkiding'a Ugoro	1020	975	1995	382
	Ngurdoto	1368	1259	2627	611
	Maji ya Chai	1702	1745	3447	675
	Doli Sisal Est.	284	235	519	166
999	TOTAL	5234	5040	10274	2168
151 KINGORI	Ngejusosia	1275	1261	2536	523
	Malula	647	529	1176	234
	King'ori	2168	2066	4234	749
	Mareu	986	1018	2004	386
999	TOTAL	5076	4874	9950	1892

ARUMERU P.3

Ward	Village	Male	Female	Total	No. of Households
161 LEGURUKI	Leguruki	2573	2734	5307	989
	Nkoasenga	1452	1424	2876	528
999	TOTAL	4025	4158	8183	1517
171 NGARENANYUKI	Olkungwado	1480	1384	2864	496
	Uviro	793	715	1508	237
	Ngarbobo	585	491	1076	213
	Kisimiri	776	706	1482	325
999	TOTAL	3634	3296	6930	1271
181 LORUVANI	Moivo	1708	1612	3320	796
	Ilkirorit	384	369	753	140
	Oltulelei	532	492	1024	228
	Olgilai	884	979	1863	420
	Kivulul	729	727	1456	290
	Oldonyosapuk	413	490	903	168
	Ilkirevi	948	1036	1984	362
	Ilboru Sec.Sch.	666	100	766	038
999	TOTAL	6264	5805	12069	2442
191 ILKIDINGA	Ilkidinga	526	620	1146	247
	Timbolo	662	776	1438	247
	Sambasha	647	804	1451	203
	Oloigeruno	1054	1133	2187	405
	Ilkidongo	476	536	1062	160
	Shiboro	590	661	1251	229
999	TOTAL	3955	4580	8535	1632
201 KIRANYI	Ilkiurei	993	930	1923	432
	Olorien	1366	1166	2532	534
	Siwandeti	1126	1212	2338	361
	Kiranyi	738	699	1437	304
	Olosiva	1021	980	2001	301
	Saitabau	551	598	1149	250
999	TOTAL	5795	5585	11380	2365
211 KIMUNYAK	Ngarantoni	1036	859	1895	441
	Olevolos	1061	1204	2265	377
	Olmotonyi	732	871	1603	264
	Kimunyak	565	665	1230	163
	Olomajugaringa	573	696	1269	284
	Olmotonyi Forest & Prison	450	120	570	78
999	TOTAL	4417	4415	8832	1607
221 OLJORO	Terrat	830	878	1708	259
	Nadosoito	678	750	1430	169
	Olasiti	1239	1287	2526	350
	Oljoro	937	806	1743	343
	Nkoroo	815	898	1713	245
	Burka & St.Const.	603	456	1059	286
	Regn. Prison	1011	294	1305	146
999	TOTAL	6113	5359	11472	1778

ARUMERU P.4

Ward	Village	Male	Female	Total	No. of Households
231 MUSA	Oljorovus	782	919	1701	240
	Likamba	888	1041	1929	243
	Nengungu	439	504	943	112
	Oloitashula	544	649	1193	162
	Monduli Coffee	187	134	321	91
999	TOTAL	2840	3247	6087	848
241 OLDONYO SAMBU	Oldonyo Sambu	425	445	870	119
	Lenongo	1351	1423	2774	448
	Lesinon	832	866	1698	270
999	Oldonyowas	575	492	1067	208
	TOTAL	3183	3226	6409	1045
251 OLKOKOLA	Olkokola Chini	996	1250	2246	280
	Ilkurot	739	881	1620	130
	Lengijave	839	1064	1903	228
	Olkokola Juu	1254	1511	2765	416
	TOTAL	3828	4706	8534	1104
261 KISONGO	Lesira	450	505	955	162
	Lovilukuny	426	483	909	112
	Ilkerin	481	555	1036	127
	Engorora	479	497	976	165
999	TOTAL	1836	2040	3876	566
271 MATEVES	Mateves	951	941	1892	335
	Lemugur	525	607	1132	184
	Engorbob	580	557	1137	173
	TOTAL	2056	2105	4161	692
281 OLTURUMET	Ekenywa	742	725	1467	354
	Ilkiushin	634	671	1305	250
999	TOTAL	1376	1396	2772	604
291 MAKUNDET	Imbibia	617	737	1354	338
	Engalaoni	752	996	1748	416
	Losikito	1022	1265	2287	554
	Engutoto	682	873	1555	354
999	TOTAL	3073	3871	6944	1642
999 ARUMERU	GRAND TOTAL	117498	118225	235723	45932

1978 POPULATION OF ARUSHA TOWN AND VILLAGES IN ARUSHA DISTRICT OF ARUSHA REGION

Ward	Village	Population Male	Female	Total	No. of Households
ARUSHA URBAN					
Kati		2982	2100	5082	850
Kaloleni		2832	2353	5185	1481
Sekei		2553	2396	4949	1091
Themi		2106	1901	4007	856
Daraja Mbili		4566	3366	7932	2790
Unga Limited		5558	4461	10019	2941
Ngare Naro		3777	3404	7181	1688
Levolosi		3480	3141	6621	1580
TOTAL		27854	23122	50976	13477
Contiguous Urban parts of Rural Wards				4305	
Arusha Urban Total				55281	
Sombetin	Ilkerai	2810	2343	5153	1179
	Sombetin	1491	1442	2933	533
	TOTAL	4301	3785	8086	1712
Lemara	Lemara	1352	1279	2631	587
	Special Population	63	43	106	1
	TOTAL	1415	1322	2737	588
Sokon	Sinon	2445	1985	4430	1027
	Sokon	1397	1305	2702	505
	TOTAL	3842	3290	7132	1532
Olorien	Olorien	1271	1189	2460	581
	TOTAL	1271	1189	2460	581
Kimandolu	Kimandolu	1831	1693	3524	854
	Special Population	2512	1752	4264	1424
	TOTAL	4343	3445	7788	2278
Moshono	Moshono	653	643	1296	213
	Kiserian Olkereyan	709	647	1356	196
	TOTAL	1362	1290	2652	409
Baraa	Baraa	1009	999	2008	430
	Moivaro	882	914	1796	360
	TOTAL	1891	1913	3804	790
Other Rural	-	1902	618	2520	-
Arusha District Total		49181	39974	88155	21967

POPULATION OF VILLAGES IN
MANANG DISTRICT OF ARUSHA REGION (1978)

Ward Name	Village Name	Population			Number of Households
		Male	Female	Total	
011 KIRU	Kiru Six	560	471	1031	240
	Erri	1303	1172	2475	492
	Kiru Ndogo	766	656	1422	344
	Kiru Dick	1041	976	2017	416
	Imbilili	685	643	1328	295
	Daghayloy	1236	1183	2419	545
	Malangi	446	438	884	218
	Kiongozi	724	524	1248	265
	Kuru Roma	509	414	923	224
	TOTAL	7270	6477	13,747	3040
021 GALLAPO	Ayamango	674	593	1267	275
	Giedamar	703	591	1294	223
	Qash	1099	1088	2187	418
	Majengo	438	429	867	213
	Halla	459	421	880	190
	Tsamasi	1365	1357	2722	560
	Gallapo	1654	1633	3287	706
	Ormagadida	895	911	1806	359
	TOTAL	7287	7023	14,310	2944
031 MAMIRE	Mamire	1412	1420	2832	522
	Kwikatsi	656	533	1189	210
	Chemchem	363	346	709	119
	Endamiso	1202	1028	2230	140
	Endagile	308	330	638	452
	TOTAL	3941	3657	7598	1443
041 BONGA	Ayasanda	1187	1151	2338	405
	Endanachan	885	943	1828	393
	Bonga	1201	1305	2506	498
	TOTAL	3273	3399	6672	1376
051 GIDAS	Bubu	622	600	1222	240
	Gidabagher	609	582	1191	226
	Bony	631	648	1279	239
	Gidas	1389	1399	2788	539
	Gijedaboshka	661	653	1314	272
	TOTAL	3912	3882	7794	1515

Hanang District

Ward Name	Village Name	Population Male	Female	Total	Number of Households
061 RIRODA	Singino	937	909	1846	376
	Duru	855	762	1617	304
	Endabek	1235	1091	2326	487
	Endagwe	1534	1536	3070	605
	Riroda	1700	1657	3357	741
	Nakwa	913	751	1664	703
	TOTAL	7174	6706	13,880	3216
071 SINGE	Singe	934	890	1824	372
	Maisaka	1266	1288	2554	542
	Naghara	1159	1041	2200	414
	Himiti	1058	1002	2060	413
	Managha	871	895	1766	362
	TOTAL	5288	5116	10,404	2103
081 MASAKTA	Masakta	1486	1405	2891	540
	Masabaroda	1462	1207	2369	829
	TOTAL	2948	2812	5760	1365
091 ENDASAK	Endasak	895	862	1757	336
	Endaswald	1069	1056	2125	357
	Mara	1248	1188	2436	452
	Endagau	1231	1287	2518	504
	Etaghul	943	916	1859	332
	Measkron	925	940	1865	344
	TOTAL	6311	6249	12,560	2325
101 GIDAHABABIEK	Hidet	842	803	1645	345
	Gidahabiek	814	780	1594	287
	TOTAL	1656	1583	3239	632
111 SIROP	Sirop	950	923	1873	368
	Matangalimo	863	825	1688	353
	Simbay	864	911	1775	300
	TOTAL	2677	2659	5336	1021
121 KATESH	Nangwa	1209	1218	2427	423
	Katesh	2238	2244	4482	689
	Jorodom	1629	1701	3330	564
	Wareta	2019	1982	4001	580
	Special Population	15	678	693	
	TOTAL	7110	7823	14,933	2256

Ward Name	Village Name	Population Male	Female	Total	Number of Households
131 BALANG DALALU	Balangdalalu	1689	1784	3473	549
	TOTAL	1689	1784	3473	549
141 GEHANDU	Gehandu	1375	1494	2869	458
	Murumba	742	814	1556	358
	TOTAL	2117	2308	4425	816
151 BASSOTU	Hirbadaw	1112	1155	2267	376
	Bassotu	888	798	1686	301
	Mulbadaw	1662	1578	3240	550
	Gawidu	1297	1408	2705	388
	Dargaida	1531	1544	3075	491
	TOTAL	6490	6483	12,973	2106
161 BASSODESH	Bassodesh	1265	1243	2508	404
	Garwja	1411	1313	2724	418
	TOTAL	2676	2556	5232	822
171 GENDABI	Gendabi	906	852	1758	289
	Dawar	784	837	1621	263
	TOTAL	1690	1689	3379	552
181 GITTING	Gitting	1881	1892	3773	590
	Bariomot	584	630	1214	236
	TOTAL	2465	2522	4987	826
191 UFANA	Ufana	1098	1132	2230	437
	Special Population	1098	1132	2230	.
	Lulumanda	564	553	1117	191
	Setchet	865	744	1069	301
	TOTAL	3625	3561	7186	929
	TOTAL	3625	3561	7186	929

Hanang District

Ward Name	Village Name	Population			Number of Households
		Male	Female	Total	
201 MADUNGA	Utwari	730	712	1442	249
	Madunga Kati	1131	1221	2352	410
	Qameyu	1698	1661	3359	590
	TOTAL	3559	3594	7153	1249
211 BASHANET	Endaranango	536	577	1113	186
	Guse	707	706	1413	211
	Nar	840	881	1721	272
	Bashanet KATI	1892	1901	3793	648
	TOTAL	3975	4065	8040	1317
221 DABIL	Seloto	1717	1793	3510	606
	Dabil	1365	1309	2674	431
	Mondi	1086	1064	2150	397
	Sabilo	713	656	1369	231
	Special population	222	420	642	1087
	TOTAL	5103	5242	10,345	2752
231 DAREDA	Bermi	645	670	1315	247
	Dareda	1654	1548	3202	564
	Dohomu	1062	985	2047	380
	Ghajal	865	767	1632	312
	Managha	1818	1745	3563	674
	Arri	529	500	1029	228
	Sharmo	406	402	808	162
	TOTAL	6979	6617	13,596	2567
241 NKAITI	Minjingu	1043	944	1987	400
	Vilima Vitatu	692	675	1367	367
	TOTAL	1735	1619	3354	767
251 MWADA	Mwada	871	874	1715	423
	Sangaiwe	750	741	1491	409
	Kisangaji	1087	967	2054	532
	TOTAL	2678	2582	5260	1364
261 MAGARA	Magara	1204	1055	2259	535
	Moya Mayoka	1254	1098	2352	546
	TOTAL	2458	2153	4611	1081

Hanang District

Ward Number	Village Name	Population			Number of Households
		Male	Female	Total	
271 MAGUGU	Magugu	1376	1421	2797	657
	Mapea	717	650	1367	337
	Gichameda	617	544	1161	275
	Masware	757	573	1330	280
	Sarame	545	519	1064	280
	Matufa	998	1060	2058	552
	Mawemairo	784	725	1509	351
	TOTAL	5794	5492	11,286	2732
BABATI	Babati Town	4982	4777	9759	2102
DISTRICT TOTAL		116,862	114,430	231,292	44,730

KITETO DISTRICT OF ARUSHA REGION

KITETO P.1

Ward	Village	Male	Female	Total	No.of Houscholds
013 KIBAYA	Msente/Kalderu	717	732	1449	244
	Porhimbo	1033	972	2005	354
	Nanelook	960	1031	1991	322
	Kibaya Town	1410	1211	2621	576
	Ngorkumah	406	448	854	162
	TOTAL	4526	4394	8920	1658
021 Dosi Dosi	Dosi dosi	1189	1163	2352	473
	Enguscro	1704	1650	3354	646
	Songambele	627	649	1276	260
	Matui	1232	1164	2396	506
	TOTAL	4752	4626	9378	1885
031 OLBOLOT	Olbolot	634	652	1286	252
	Kiperesa	360	373	733	159
	Machiga	453	451	904	192
	TOTAL	1447	1476	2923	603
041 MAKAME	Olung'abolo	634	667	1301	233
	Other population	545	525	1070	192
	TOTAL	1179	1192	2371	425
051 KIJUNGU	Kijungu	776	774	1550	250
	Lengatei	841	884	1725	234
	Olkitikiti	737	878	1615	204
	Loolera	430	451	881	197
	TOTAL	2784	2987	5771	885
061 SUNYA	Sunya	1154	1326	2480	402
	Samatwa	529	534	1063	184
	TOTAL	1683	1860	3543	586
071 KITETO	Dongo	510	551	1061	299
	Special Pop.	327	376	703	
	Lenori	709	754	1463	216
	TOTAL	1546	1681	3227	515
081 ENGASMET	Engasmet	635	565	1200	174
	Kitwai A	704	652	1356	140
	Kitwai B	303	300	603	68
	TOTAL	1642	1517	3159	382
091 NABERERA	Naberera	308	250	558	104
	Namalulu	163	135	298	60
	Lolbene	143	126	269	39
	Special Pop.	204	83	287	94
	TOTAL	818	594	1412	297
101 ENBORET	Loiboisoit	390	250	640	96
	Tinga	350	363	713	115
	TOTAL	740	613	1353	211

KITETO P.2

Ward	Village	Male	Female	Total	No.of Households
111 LOIBORSIRET	Loiborsiret	319	261	580	97
	Narakauo	386	394	780	83
	TOTAL	705	655	1360	180
121 TERRAT	Terrat	268	290	558	56
	Komolo	662	473	1135	342
	Loswaki	375	380	755	136
	Sukuro	482	475	957	146
	TOTAL	1787	1618	3405	680
131 SHAMBARAI	Shambarai	671	679	1350	287
	Mererani	364	323	687	205
	Kitombero	1010	945	1955	311
	Naisinyai	555	497	1052	252
	Special Pop.	360	320	680	96
	TOTAL	2960	2764	5724	1151
141 MSITU WA TEMBO	Msitu wa Tembo	928	731	1659	373
	Kiruani	505	380	885	271
	Lemkuna	709	623	1332	277
	Magadini	746	636	1382	322
	TOTAL	2888	2370	5258	1243
151 RUVU REMIT	Ngage	383	302	685	207
	Ruvu Remit	638	663	1301	198
	TOTAL	1021	965	1986	405
DISTRICT TOTAL		30478	29312	59790	11106

1978 POPULATION OF VILLAGES IN MBULU DISTRICT OF ARUSHA REGION

MBULU P.1.

Ward	Village	Male	Female	Total	No.of Households
011 GIHANDU	Guwang(Tango)	1355	1327	2682	460
	Tatiwi	1602	1450	3052	544
	Tsawa	707	635	1342	237
	TOTAL	3664	3412	7076	1241
021 BARGISH	Wanna	780	754	1534	255
	Gunyoda	2005	1935	3940	668
	Antsi	1016	1045	2061	368
	Bargish	485	507	992	164
	TOTAL	4286	4241	8527	1465
031 HAREABI	Hareabi	964	1006	1970	347
	TOTAL	964	1006	1970	347
041 DAUDI	Moringa	979	936	1915	344
	Gwandumehhi	886	893	1779	329
	Masieda	842	786	1628	254
	Aicho	451	432	883	151
	Gidemba	419	388	807	149
	TOTAL	3577	3435	7012	1227
051 KANSAY	Kansay	1897	1760	3657	563
	Buger	1069	994	2063	326
	Laja	718	643	1361	226
	Endanyawesh	597	581	1178	201
	TOTAL	4281	3978	8259	1316
061 DONGOBESH	Dongobesh	1254	1263	2517	383
	Maretadu	1408	1453	2861	427
	Qaloda	826	863	1689	299
	Gidilbir	707	707	1414	221
	Ng'orat	565	561	1126	194
	Endamasak	1501	1337	2838	485
	TOTAL	6261	6184	12445	2009
011 TUMATI	Tumati	1443	1440	2883	446
	Arri	1243	1227	2470	379
	Mangisa	787	809	1596	245
	Endoji	720	769	1489	265
	TOTAL	4193	4245	8438	1335
081 MAGHANG	Maghang	1577	1581	3158	518
	Labay	1545	1606	3151	550
	Endanachan	1080	1037	2117	365
	Endanlay	830	923	1753	305
	TOTAL	5032	5147	10179	1738
091 HAYDOM	Haydom	1671	1701	3372	457
	Hayderer	1036	1052	2088	396
	Gatanyomba	781	780	1561	269
	Endahangdadat	624	616	1240	218
	Mewandani	1040	1083	2123	359
	Harer	912	1036	1948	321
	TOTAL	6064	6268	12332	2020

MBULU P. 2

Ward	Village	Male	Female	Total	No. of Households
101 YAEDA CHINI	Marsha	1148	1235	2383	396
	Diyomat	1612	1745	3557	552
	Dirim	510	557	1067	188
	Yaeda Chini	1082	1204	2286	379
	TOTAL	4552	4741	9293	1525
111 SANU	Isale	1070	1121	2191	368
	Khaday	1002	1043	2045	360
	Ayamaani	1170	1222	2392	414
	Silaloda	793	807	1600	255
	TOTAL	4035	4193	8228	1397
121 TLAWI	Masaaroda	1189	1160	2349	353
	Tlawi	1238	1294	2532	385
	Harbaghet	548	501	1049	170
	TOTAL	2975	2955	5930	908
131 KAINAM	Nahassey	2063	1925	3988	659
	Kainam	1363	1297	2660	442
	TOTAL	3426	3222	6648	1101
141 MURRAY	Hayloto	914	897	1811	306
	Murray	1188	1167	2355	395
	Kwermusi	1260	1172	2432	393
	Kuta	856	821	1677	281
	Total	4218	4057	8275	1375
161 KARATU	Gongali	1293	1146	2439	401
	Qurus	717	652	1369	210
	Ayalabe	1140	1164	2304	365
	Giyekurum-Lumbo	1200	1186	2386	378
	Giyekurum-Mrusha	1368	1386	2754	503
	Bashay	1306	1291	2597	447
	Sumawe-Tloma	1190	1186	2376	415
	Other Pop.	2153	1833	3986	603
	TOTAL	10367	9844	20211	3402
171 RHOTIA	Rhotia	1397	1320	2717	512
	Kainam-Rhotia	672	653	1325	218
	Kilimamoja	1061	969	2030	324
	Tumatembo	903	753	1656	223
	Chemchem	928	853	1781	292
	Other Pop.	155	85	240	104
	TOTAL	5116	4633	9749	1663
181 MBULUMBULU	Upper-Kitete	1553	1586	3139	589
	Wheat Scheme (Shahhano)	1048	1734	3582	558
	Mambi Simba	1317	1108	2425	383
	TOTAL	4718	4428	9146	1530

MBULU P.3

Ward	Village	Male	Female	Total	No.of Households
191	Endabash	1603	1596	3199	575
ENDABASH	Getanok	1274	1186	2460	415
	Endallah	897	901	1798	274
	Endamararick	1157	1052	2209	361
	Bassodawish	1440	1402	2842	480
	Qaru	1411	1287	2698	445
	TOTAL	7782	7424	15206	2550
201	Mang'ola (Barazani)	508	452	960	219
MANG'OLA	Jobat (NT)	592	538	1130	215
	Endamaghang	516	511	1027	162
	Dumbechand	792	797	1589	222
	Waleckchand	621	635	1256	274
	Qangdet	435	401	836	210
	TOTAL	3514	3332	6846	1302
211	Changarawe	680	648	1328	238
OLDEANI	Oldeani	1326	1365	2691	513
	Mangola Juu	1054	831	1885	358
	Makhoromba	192	143	335	70
	Endashang'wet	1076	974	2050	370
	Other Pop.	3287	2645	5932	1156
	TOTAL	7615	6606	14221	2710
152					
MBULU URBAN	MBULU URBAN	1912	1872	3784	748
999					
MBULU DISTRICT	TOTAL	98552	95223	193775	32995

1978 POPULATION OF VILLAGES IN MONDULI DISTRICT OF ARUSHA REGION

Ward	Village	Population			No. of Households
		Males	Females	Total	
	* not registered				
Monduli Urban	Monduli Town	1303	945	2248	575
Engutoto	Ngarash/Sinoni	910	909	1819	341
	Mlimani	780	764	1544	319
	TOTAL	1690	1673	3363	660
Monduli Juu	Enguiki/Emairete	875	960	1835	260
	Mferegi	516	559	1075	172
	TOTAL	1391	1519	2910	432
Sepeko	Lepurko/Esiminguri	1499	1622	3121	223
	Lendikinya	689	714	1403	170
	Arkatani	513	577	1090	126
	Mesorani	721	834	1555	171
	Lolkisale	656	601	1257	123
	Moita	707	664	1371	140
	Orkeswa*	839	878	1717	157
	Lolkisale Farms*	1304	370	1674	311
	TOTAL	6928	6260	13188	1421
Oljoro # 5	Lesinyai *	724	645	1369	300
	Nerongoine	382	343	725	144
	Oloiborkishu*	641	664	1305	164
	TOTAL	1747	1652	3399	608
Kisongo Division TOTAL		13059	12049	25108	3696

Ward	Village	Population			No. of Households
		Males	Females	Total	
Longido	Longido*	998	1136	2134	392
	Namanga*	822	891	1713	387
	Engikareti*	352	384	736	114
	TOTAL	2172	2411	4583	893
Ketumbeine	Elangata Dapash*	1180	1166	2346	335
	Lorienito*	586	620	1208	188
	Ketumbeine/ Olkejuloongishu*	750	803	1553	197
	TOTAL	2518	2589	5107	720
Gelai	Gelai Lumbwa*	892	1028	1920	320
	Gelai Bomba*	1061	1148	2209	303
	TOTAL	1953	2176	4129	623
Engare-Naibor	Lesingita/Mundarara*	687	765	1452	130
	Matale*	364	380	744	108
	Sinonik/Mairowa*	364	375	739	164
	Meto	463	459	922	119
	TOTAL	1878	1979	3857	581
Tingatinga	Tingatinga*	495	521	1016	176
	Ngere Yani*	437	388	825	184
	TOTAL	932	909	1841	360
Olmolog	Olmolog/Lerang'wa*	833	777	1610	180
	Kamwanga/Kitendeni	685	679	1364	268
	TOTAL	1518	1456	2974	448
LONGIDO DIVISION TOTAL		10971	11520	22491	3625
Mto wa Mbu	Mto wa Mbu	1623	1505	3128	799
	Majengo	1192	1015	2207	527
	Migoubani	972	886	1858	330
	Esilalei/Esiriwa	1036	1230	2266	329
	Selela	677	856	1533	263
	TOTAL	5500	5492	10992	2298
Engaruka	Engaruka Juu	1148	1195	2343	363
	Engaruka Chini	770	877	1647	260
	TOTAL	1918	2072	3990	623
Makuyuni	Makuyuni	2587	1766	4353	971
	Mbuyuni	1075	897	1972	250
	TOTAL	3662	2663	6325	1221
MANYARA DIVISION TOTAL		11080	10227	21307	4142
MONDULI DISTRICT TOTAL		35110	33796	68906	11483

1978 POPULATION OF VILLAGES IN NGORONGORO DISTRICT OF ARUSHA REGION

Ward	Village	Population			No. of Households
		Male	Female	Total	
Digodigo	Samunge	992	1063	2055	351
	Digodigo Chini	618	756	1374	256
	Mughelo/Kisangiro	913	1008	1921	413
	TOTAL	2523	2827	5350	1020
Oldonyo Sambu	Oldonyo Sambu	677	745	1422	269
	TOTAL	677	745	1422	269
Sale	Sale	688	681	1369	250
	TOTAL	688	681	1369	250
Loliondo (Orgosorok)	Loliondo/Salala	1314	1277	2591	543
	Magaiduru/Lorieni	648	705	1353	204
	Engusero Sambu	463	610	1073	243
	TOTAL	2425	2592	5017	990
Malambo	Olmalambo	1650	1857	3507	349
	Piyaya *	792	798	1590	229
	TOTAL	2442	2655	5097	578
ARASH	Arash/Lemunyani	1106	1147	2253	375
	Losoito/Maloni	374	904	1778	259
	TOTAL	1980	2051	4031	634
Soitsambu	Soitsambu/Kirtalu	725	768	1493	223
	Ololosokwani/Sero/ Mairowa	627	686	1313	214
	Olpiri *	408	506	914	218
	TOTAL	1760	1960	3720	655
Pinyinyi	Pinyinyi *	452	477	929	154
	Monik/Masusu *	392	349	741	123
	TOTAL	844	326	1670	277
LOLIONDO DIVISION TOTAL		13,339	14,337	27,676	4,673

* = non-registered village

1978 POPULATION OF VILLAGES IN NGORONGORO DISTRICT OF ARUSHA REGION

Ward	Village	Population			No. of Households
		Male	Female	Total	
Ngorongoro	Oloirobi/Nikilali	1277	1392	2669	274
	Ngorongoro *	881	492	1373	371
	Oltalbal/Meshili	512	557	1069	200
	Njureta/Oldonyo*--Ogol	379	377	756	100
	TOTAL	3049	2818	5867	945
Nainokanoka	Nainokanoka	296	243	539	77
	Irkepus *	492	588	1080	175
	Olilelai	663	777	1440	232
	Kapenjiro	643	638	1281	190
	Nayobi	725	817	1542	218
	Ngamati/Bulati *	517	600	1117	148
	TOTAL	3336	3663	6999	1040
Endulen	Endulen/Ecirwa	1316	1382	2698	376
	Esere/Olpiro	813	868	1681	261
	TOTAL	2129	2250	4379	637
Kakesio	Osinoni	466	491	957	173
	Kakesio	552	601	1153	185
	TOTAL	1018	1092	2110	358
NGORONGORO DIVISION TOTAL		9532	9823	19355	2980
NGORONGORO DISTRICT TOTAL		22871	24160	47031	7653

APPENDIX D

1978 POPULATION DISTRIBUTION IN DISTRICTS IN ARUSHA REGION BY DIVISION, WARD, AND BILLAGES

POPULATION DISTRIBUTION IN ARUMERU DISTRICT OF ARUSHA REGION (1978)
BY DIVISION, WARD, AND VILLAGES

DIVISION	WARD	NO. OF VILLAGES (OTHER POPS.)	TOTAL POPULATION	RANGE OF POPULATION IN VILLAGES		TOTAL NO. OF HOUSEHOLDS	AVERAGE SIZE OF HOUSEHOLDS
				LOWEST	HIGHEST		
ENABOISHO	Loruvani	7 (1)	12069	753	3320	2442	4.9
	Ilkiding'a	6	8535	1062	2187	1632	5.2
	Kirangi	6	11380	1749	2552	2385	4.8
	Kimunyak	5 (1)	8832	1250	2365	1697	5.2
	Oljoro	5 (2)	11472	1438	2526	1739	6.4
POLI	Nkoanrua	4	7499	851	2859	1354	5.4
	Akheri	6 (2)	11527	1300	1992	2362	4.9
	Seela/Sing'isi	2	5651	2201	3450	1003	5.6
	Songoro	5	6293	743	1759	1236	5.1
	Nkoaranga	6 (Now 5) (Now 3)	12382	1064	3369	2552	4.9
	Poli	4 (1)	7584	1472	2353	1537	4.9
MOSHONO	Sokon	7	13972	1454	3368	2523	5.5
	Nduruma	8 (1)	10770	587	2033	2880	3.7
	Mlangarini	3	6336	1613	2456	1484	4.3
MBUGUNI	Mbuguni	5	7225	1068	2196	1681	4.3
	Kikwe	5	5678	738	1590	1275	4.5
	Majengo	3	3722	974	1392	945	3.9

-/2....

DIVISION	WARD	NO. OF VILLAGES (OTHER POPS.)	TOTAL POPULATION	RANGE OF POPULATION IN VILLAGES		TOTAL NO. OF HOUSEHOLDS	AVERAGE SIZE OF HOUSEHOLDS
				LOWEST	HIGHEST		
KIN'GORI	Kakatiti	4	10606	1863	4157	1987	5.6
	Maji ya Chai	4(1)(Now 5)	10274	1686	3447	2169	4.7
	King'ori	4 (Now 5)	9950	1175	4234	1892	5.3
	Leguruki	2 (Now 3)	8183	2876	5307	1517	5.4
	Ngare Nanyuki	4	6930	1076	2804	1271	5.5
MUKULAT	Musa	4 (1)	6087	943	1929	848	7.2
	Oldonyo Sambu	4	6409	870	2774	1045	6.1
	Olkokola	4	8534	1620	2765	1104	7.7
	Kisonco	4	3876	909	1036	566	6.8
	Mateves	3	4161	1132	1892	692	6.0
	Olturumet	2	2772	1305	1467	604	4.6
	Mwandet	4	6941	1354	2287	1642	4.2
TOTAL		130 (10)(Now 131)	235723	587	5307	45932	5.1

POPULATION DISTRIBUTION IN ARUSHA DISTRICT OF ARUSHA REGION (1978)

BY DIVISION, WARD, AND VILLAGES

DIVISION	WARD	NO. OF VILLAGES (OTHER POPS.)	TOTAL POPULATION	RANGE OF POPULATION IN VILLAGES		TOTAL NO. OF HOUSEHOLDS	AVERAGE SIZE OF HOUSEHOLDS
				LOWEST	HIGHEST		
ARUSHA URBAN	Kati	-	5082	-	-	850	6.0
	Kaloleni	-	5185	-	-	1481	3.5
	Sekei	-	4949	-	-	1091	4.5
	Themi	-	4007	-	-	856	4.7
	Daraja Mbili	-	7932	-	-	2790	2.8
	Unga Ltd.	-	10019	-	-	2911	3.4
	Ngarenaro	-	7181	-	-	1888	3.8
	Levolosi	-	6621	-	-	1580	4.2
Urban Parts of Rural Wards		-	4305	-	-	-	-
	TOTAL	-	55281	-	-	13477	4.1
ELERAI	Scabetin	2	8086	2933	5153	1712	4.7
	Lemara	1 (1)	2737	2631	2631	583	4.7
	Sokon	2	7132	2702	4430	1532	4.7
SUYE	Olorien	1	2460	2460	2460	581	4.2
	Kimandolu	1 (1)	7788	3524	3524	2278	3.4
	Moshono	2	2652	1296	1356	409	6.5
	Baraa	2	3804	1796	2008	790	4.8
OTHER RURAL		(2)	2520	-	-	-	-
ARUSHA DISTRICT TOTAL		11	88155	1296	5153	21367	4.1

POPULATION DISTRIBUTION IN MANANG DISTRICT OF ARUSHA REGION (1978)

BY DIVISION, WARD AND VILLAGES

DIVISION	WARD	NO. OF VILLAGES (OTHER POPS.)	TOTAL POPULATION	RANGE OF POPULATION IN VILLAGES		TOTAL NO. OF HOUSEHOLDS	AVERAGE SIZE OF HOUSEHOLDS
				LOWEST	HIGHEST		
GOROWA	Singe	5	10404	176[illegible]	2554	2103	4.9
	Kiru	9	15747	88[illegible]	2475	3040	4.5
	Gallapo	8	14310	86[illegible]	3287	2944	4.9
	Bonga	3	6672	182[illegible]	2506	1376	4.8
	Riroda	6	13880	161[illegible]	3357	3216	4.3
	Kamire	4	7598	63[illegible]	2852	1443	5.3
	Babati	3 E.A.S.	9759	975[illegible]	9759	2102	4.6
	Gidas	5	7794	119[illegible]	2788	1515	5.1
MBUGWE	Magara	2	4611	225[illegible]	2352	1081	4.3
	Magugu	7	11286	106[illegible]	2797	2732	4.1
	Mvada	3	5260	149[illegible]	2054	1364	3.9
	Mkaiti	2	3354	136[illegible]	1987	767	4.4
BASHNET	Dabil	2 (1)	10345	1369	2150	2752	3.8
	Dareda	7	13596	808	3563	2567	5.3
	Ufana	3 (1)	7186	1117	2230	929	7.7
	Bashnet	4	8040	1113	3793	1317	6.1
	Madunga	3	7153	1442	3359	1249	5.7

-/2....

DIVISION	WARD	NO. OF VILLAGES (OTHER POPS)	TOTAL POPULATION	RANGE OF POPULATION IN VILLAGES		TOTAL NO. OF HOUSEHOLDS	AVERAGE SIZE OF HOUSEHOLD
				LOWEST	HIGHEST		
BARBEIG	Katesh	4 (1)	14933	2427	4132	2256	6.6
	Endasak	6	12560	1757	2518	2325	5.4
	Masakta	2	5760	2869	2891	1365	4.2
	Gitting	2	4987	1214	3773	826	6.0
	Bassotu	5	12973	1685	3240	2106	6.2
	Gidahaba	2	3239	1594	1645	632	5.1
	Bassodesh	2	5232	2509	2724	822	6.4
	Sirop	3	5336	1688	1875	1021	5.2
	Gendabi	2	3379	1621	1758	552	6.1
	Balang Dalalu	1	3473	3473	3473	549	6.3
	Gehandu	2	4425	1556	2869	816	5.4
TOTAL		104	231292	638	4482	45767	5.2

POPULATION DISTRIBUTION IN KITETO DISTRICT OF RIFT VALLEY PROVINCE (1979)

BY DIVISION, WARD, AND VILLAGES

DIVISION	WARD	NO. OF VILLAGES (OTHER POPS.)	TOTAL POPULATION	RANGE OF POPULATION IN VILLAGES		TOTAL NO. OF HOUSEHOLDS	AVERAGE SIZE OF HOUSEHOLDS
				LOWEST	HIGHEST		
Kitaya	Losi Desi	4	9378	1276	3554	1905	5.0
	Cliololeti	3	2923	733	1266	605	4.8
	Kibaya	4 (1)	8920	654	2035	1658	5.4
	Makome	1 (3)	2371	1001	1021	425	5.6
Kijungu	Kijungu	4	5771	831	1725	895	6.5
	Suaya	2	3513	1027	2486	586	6.0
	Kiteto	2 (1)	3227	1061	1463	515	6.3
Naococera	Loganget	3	3159	607	1356	392	8.1
	Naberera	3 (1)	1412	269	558	217	6.8
	Terrat	4	3405	553	1336	660	5.0
Sinanjiro	Emborot	2	1353	649	725	211	6.4
	Loiborsiret	2	1360	580	780	180	7.6
Loipo	Shambarai	4 (1)	5724	687	2965	1151	5.0
	Ngatu Matombo	4	5258	1332	1659	1243	4.2
	Rosa Roses	2	1986	685	1401	405	4.9
TOTAL		44 (7)	59790	269	3554	11136	5.4

POPULATION DISTRIBUTION IN MBULU DISTRICT OF ARUSHA REGION (1978) BY DIVISION, WARD AND VILLAGES

DIVISION	WARD	NO. OF VILLAGES (OTHER POPS.)	TOTAL POPULATION	RANGE OF POPULATION IN VILLAGES		TOTAL NO. OF HOUSEHOLDS	AVERAGE SIZE OF HOUSEHOLDS
				LOWEST	HIGHEST		
MBULU URBAN	MBULU URBAN	3784	3784	-	-	743	5.1
DAUDI	Gehandu	3	7076	1342	3052	1241	5.7
	Bargish	4	8527	992	3940	1465	5.8
	Kansey	4	8259	1178	3657	1316	6.3
	Hareabi	1	1970	1970	1970	347	5.7
	Daudi	5	7012	807	1915	1227	5.7
KARATU	Karatu	7 (6)	20211	1369	2754	3418	5.9
	Endabash	6	15206	1798	3199	2550	6.0
	Rhotia	5 (1)	9749	1325	2717	1663	5.9
	Oldeani	5 (9)	14221	335	2691	2710	5.2
	Mangola	6	6846	886	1589	1302	5.3
	Mbulumbulu	3	9146	2425	3532	1530	6.0
DONGOBESH	Dongobesh	6	12445	1126	2861	2079	6.0
	Maghang	4	10179	1753	3158	1738	5.9
	Yaeda Chini	3 (1)	9293	1067	3557	1525	6.1
	Haydom	5 (1)	12332	1240	3372	2020	6.1
	Tumati	5	8438	1489	2883	1335	6.3
ENDAGIKOT	Tlawi	3	5930	1049	2532	903	6.5
	Murray	4	8275	1677	2432	1375	6.0
	Sanu	4	6228	1600	2392	1097	5.9
	Kainam	2	6648	2660	3988	1101	6.0
TOTAL		85	193775	335	3988	32995	5.9

POPULATION DISTRIBUTION IN KONDULI DISTRICT OF ARUSHA REGION (1978)

BY DIVISION, WARD, AND VILLAGES

DIVISION	WARD	NO. OF VILLAGES (OTHER POPS)	TOTAL POPULATION	RANGE OF POPULATION IN VILLAGES: LOWEST	HIGHEST	TOTAL NO. OF HOUSEHOLDS	AVERAGE SIZE OF HOUSEHOLDS
KONDULI TOWN	KONDULI	1	2248	2248	2248	57	3.9
KISONGO	Engutoto	2	3363	1554	1809	660	5.1
	Monduli Juu	2	2910	1075	1835	432	6.7
	Sepeko	7 (1)	13188	1080	3121	1421	9.3
	Oljoro #4 5	3	3399	725	1569	608	5.6
LONGIDO	Longido	3	4503	736	2138	895	5.1
	Ketumbeine	3	5107	1303	2345	720	7.1
	Gelai	2	4129	1020	2209	625	6.6
	Engare Nairbor	4	3857	739	1452	581	6.6
	Tingatinga	2	1841	825	1016	359	5.1
	Olmolog	2	2974	1534	1618	448	6.6
MONDULI	Mto wa Mbu	5	10992	1533	3138	2298	4.8
	Engaruka	2	3990	1647	2343	625	6.4
	Mahuguru	2	6325	1972	4225	1221	5.2
TOTAL		40	68906	725	4355	11463	6.0

POPULATION DISTRIBUTION IN NGORONGORO DISTRICT OF ARUSHA REGION (1978)
BY DIVISION, WARD AND VILLAGES

DIVISION	WARD	NO. OF VILLAGES	TOTAL POPULATION	RANGE OF POPULATION IN VILLAGES		TOTAL NO. OF HOUSEHOLDS	AVERAGE SIZE OF HOUSEHOLDS
				LOWEST	HIGHEST		
LOLIONDO	Digodigo	3	5359	1374	2095	1020	5.2
	Oldonyo Sambu	1	1422	1422	1422	269	5.3
	Sale	1	1369	1369	1369	250	5.5
	Loliondo (Orgosorok)	3	5017	1073	2591	990	5.1
	Malambo	2	5097	1590	3507	573	8.8
	Arash	2	4031	1778	2255	634	6.4
	Soit Sambu	3	3720	914	1435	655	5.7
	Pinyinyi	2	1570	741	829	277	6.0
NGORONGORO	Ngorongoro	4	5867	756	2669	945	6.2
	Nainokanoka	6	6992	539	1542	1040	6.7
	Enduleu	2	4379	1681	2698	637	6.9
	Kakesio	2	2110	957	1157	359	5.9
NGORONGORO DISTRICT	TOTAL	31	47031	539	3507	7653	6.1

MISSING PAGE
NO. 129 - 134

APPENDIX F

MEMO

FROM: Alan Johnston, Demographic Consultant to the AP/VDP

SUBJECT: 1978 Population Census Mapping Operation

1. The purpose of this memorandum is to briefly describe the 1978 Population Census Mapping Operation, give a progress report on the preparation of District Enumeration Area maps, and outline the coding procedure for numbering enumeration areas for use in reading the District EA maps.

2. An essential part of the census operation is the delineation of the entire country into enumeration areas and the preparation of maps of each of these enumeration areas. The EA map gives the enumerator an exact description of the area he is to cover to ensure complete enumeration of the population.

3. Because of changes in population size and distribution and changes in administration area boundaries the 1978 EAs were created from scratch for this census and bear no relationship to the 1967 EAs. The creation of Enumeration Areas was accomplished by the following procedures:
   - a rough goal of approximately 800-1600 (ave. 1200) people per enumeration area was set for rural EAs
   - at least two field reviewers were sent to each District to delineate the EAs
   - one Geographical Supervisor was assigned to each one or two Regions to oversee the operation
   - the Field Reviewers worked with 2 copies of 1:150,000 topographical maps
   - working with Ward Secretaries they first delineated the Ward boundaries
   - the Ujamaa and Cooperative Development office provided a list of villages within each ward
   - the Field Reviewer then worked with the village officials and the written description of the village boundary to delineate the enumeration areas
   - the EAs basically corresponded with the village boundaries, with some villages divided into more than one EA

4. From the 1:150,000 scale topographical map, individual EA maps were then drawn along with a verbal description of the boundary. One copy of these EA maps was kept at the district and one was sent to Dar es Salaam.

5. These EAs are now being compiled and checked in Dar es Salaam and transferred on to District EA maps at a scale of either 1:250,000 or 1:125,000.

6. These maps represent the only available maps with both Ward and Village boundaries. To date the only districts in Arusha Region which have been completed are Arumeru and Hanang. We have obtained a copy of each of these maps and additional copies are being made. We have also requested that the Census mapping operation give priority to the remaining districts in Arusha Region, starting with Mbulu, and that the maps be sent to us as soon as they are completed.

7. These EA maps will be particularly useful in conjunction with Vol 1 of the 1978 Census report, due to be published in a few months, which will include populations by age groups and sex for each enumeration area in the country.

8. <u>Coding of Enumeration Areas</u>
The District EA maps include District Boundaries, Ward Boundaries, Enumeration Area Boundaries, Enumeration Area Codes, and Ward Names and Codes.
The Coding system was as follows:
   1. Each enumeration area has a nine digit code
   2. The first 2 digits represent the Region
      The regions were numbered starting in the center, then north, then clockwise (i.e. Dodoma=01, Arusha=02, Kilimanjaro=03, etc.)
   3. Digit three is the District, again numbered center, north, then clockwise within the region.
   4. Digits 4-6 represent the Ward. The first two specify the Ward, again numbered center, north, then clockwise within the district. Digit 6 specifies the character of the ward:
      1= Full Rural Ward
      2= Full Urban Ward
      3= Mixed Urban/Rural Ward
   5. The final 3 digits specify the village. The first 2 specify the number of the village within the ward, the last digit is the number of the enumeration area within the village (021 and 022 specify the first and second enumeration areas within village number 2 in a ward). In a Mixed Urban/Rural Ward any village code beginning with a 3 is an urban village.
      The following coding system was used for the 2 digit village code:

Registered Villages	01-29
Non-Registered Villages	41-49
Scattered Populations	50-79
Nomadic Populations	80-89
Special Categories	90-99 (Schools, Hosp., Camps)

6. In Urban Areas there were two types of Wards
   a) Purely Urban Wards, numbered 001-199
   b) Mixed Urban/Rural Wards, these were numbered 301-399.

9. There were undoubtedly some intricacies of the coding system which I was not able to discover. These will be covered in a volume on the census methodology, which will unfortunately probably be delayed for some time. I have therefore included in the appendix several references which should be obtained for the Arusha Regional Documentation and Research Center.

Census Mapping Operation - References from the

University of East Anglia
School of Development Studies
University of East Anglia
Norwich NR4 7TJ

Telephone Norwich (0603) 57880
Telegraphic Address: ODG UEANOR NORWICH

1. 1978 Population Census of Tanzania
   Field Reviewers Training Manual and Workbook
   1977
   Geography Section
   Population Division
   Central Bureau of Statistics
   Dar es Salaam

2. Preparatory Geographical Work for the 1978
   Population Census of Tanzania
   Preliminary Proposals
   September 1976

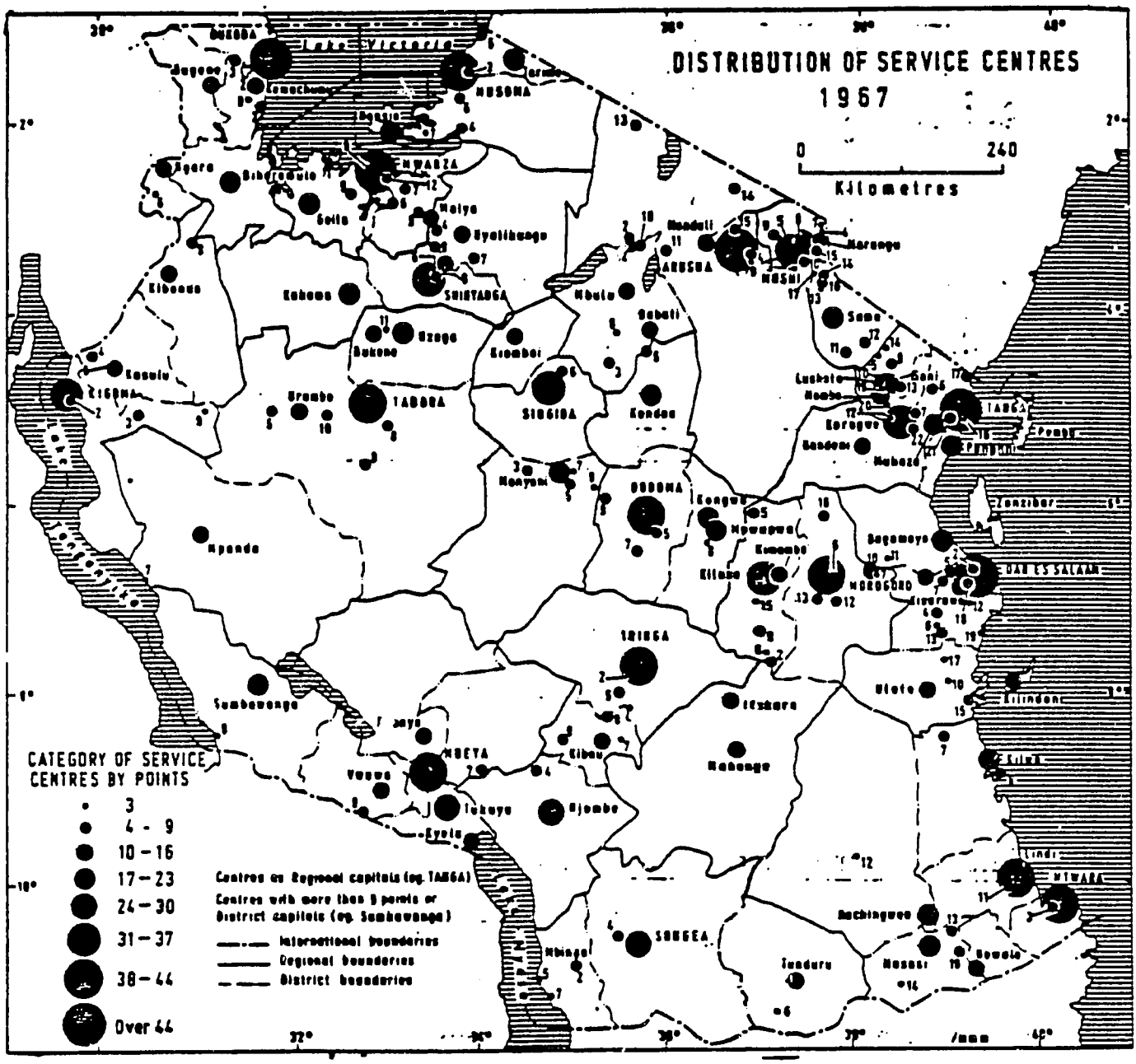
3. Preparatory Geographical Work for the 1978
   Population Census of Tanzania
   Second Report:
   Dodoma Seminar
   Villigisation and Census Planning
   January 1977

4. Third Report:
   Rural Field Review
   June 1977

APPENDIX G

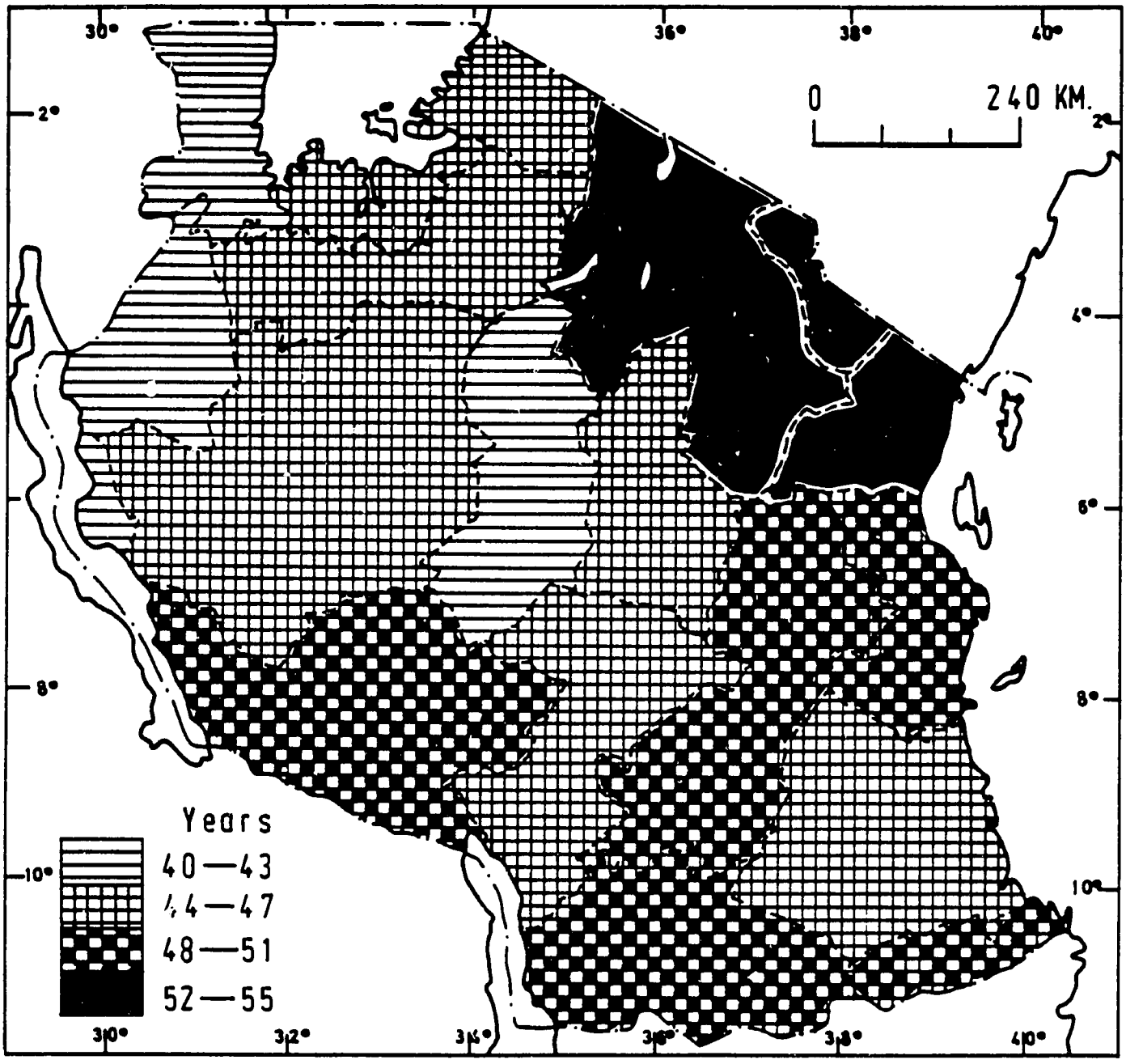
MAPS

Tanzania Mainland Distribution of Service Centres



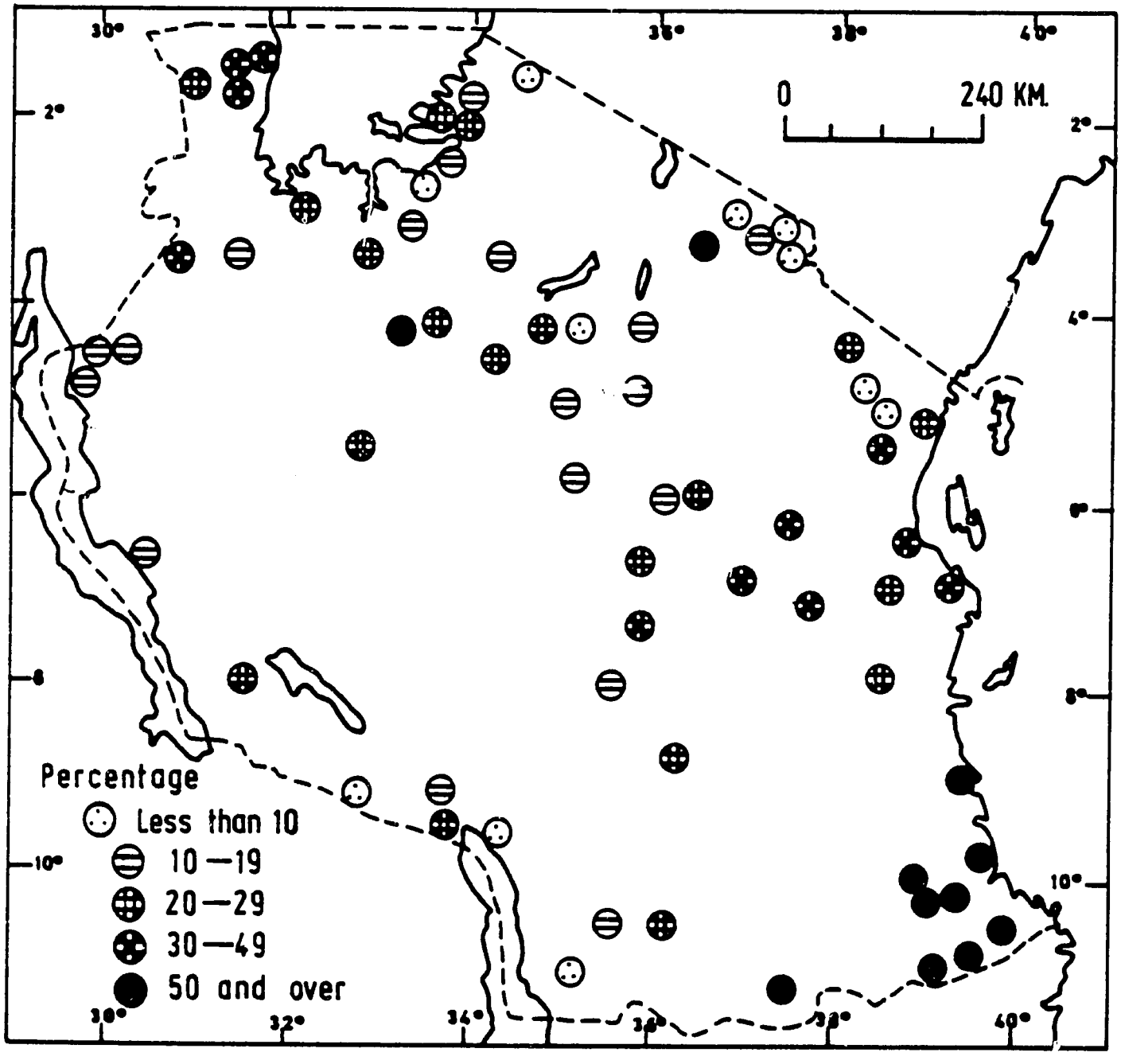
Source: Egero, Bertil and Roushdi Henin, December 1973. The Population of Tanzania: An Analysis of the 1967 Population Census. Bureau of Statistics: Dar es Salaam, p. 96.

Tanzania: LIFE EXPECTANCY BY REGIONS 1973

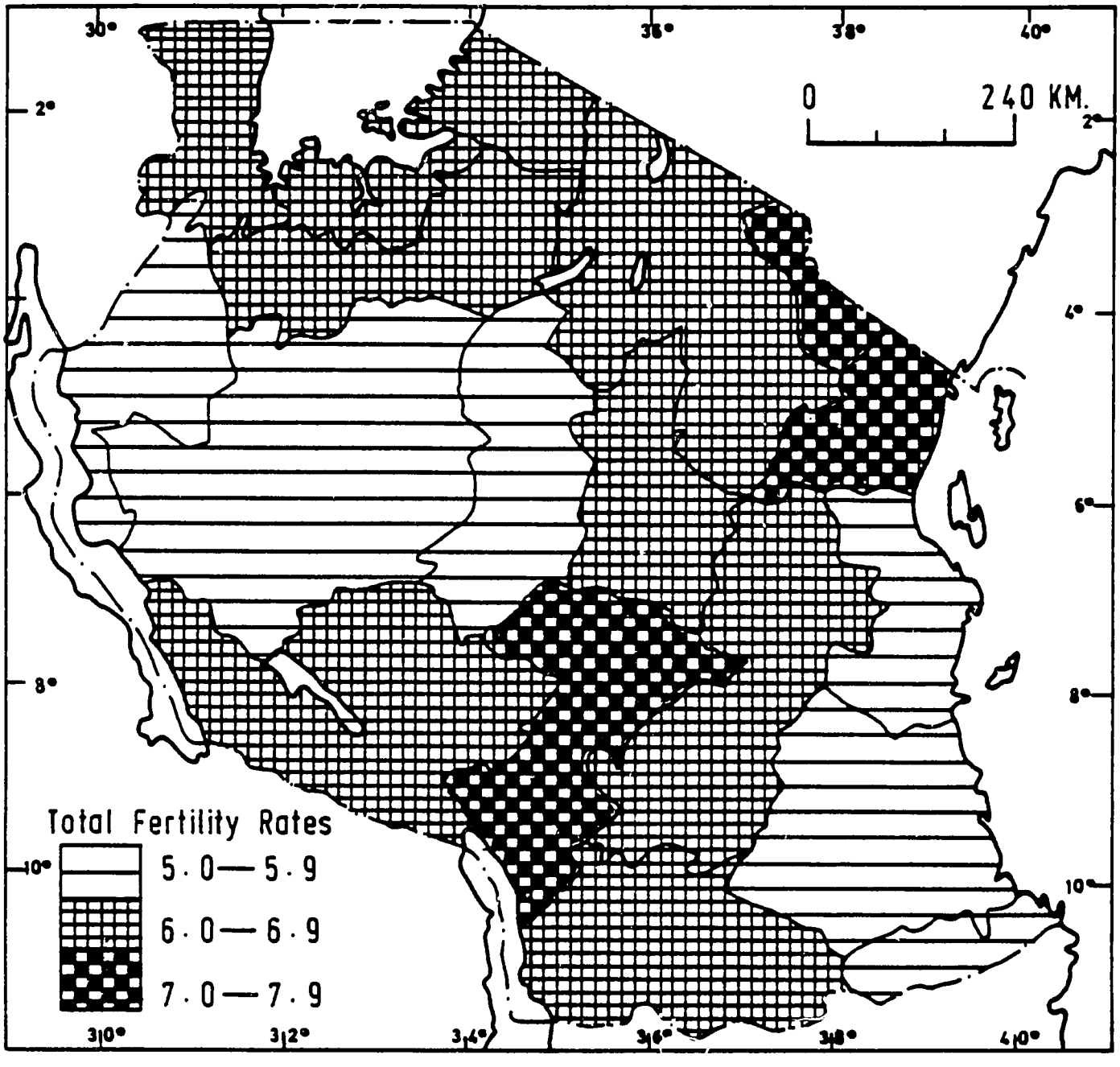


Source: Henin, R., et al. The Demography of Tanzania, Vol. VI: An Analysis of the 1973 National Demographic Survey of Tanzania. Bureau of Statistics: Dar es Salaam, p. 418.

PROPORTION OF CURRENTLY MARRIED WOMEN AGED 35—39 MARRIED MORE THEN ONCE.

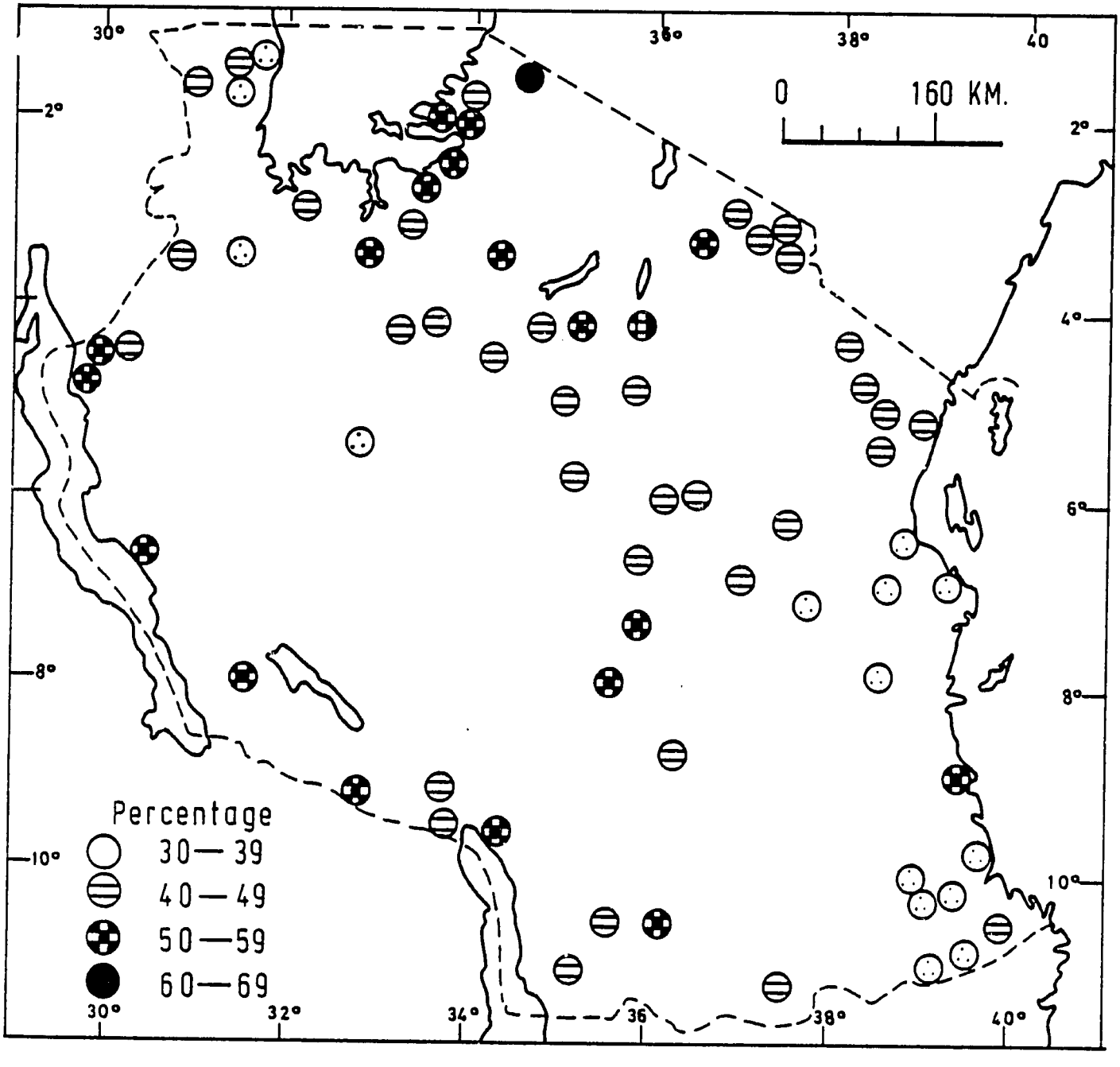


Tanzania: TOTAL FERTILITY RATES BY REGIONS 1973

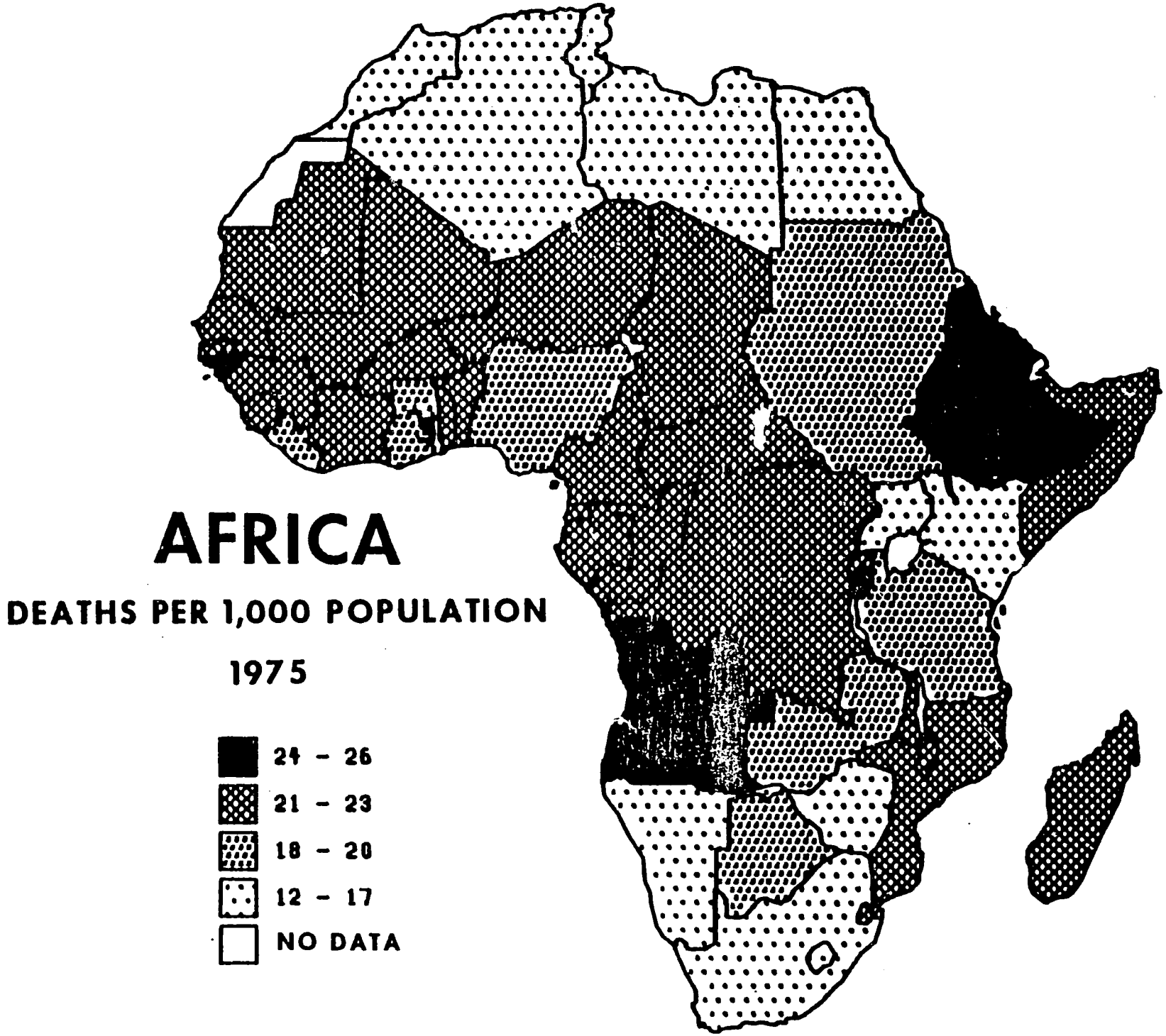


Source: Henin, R., et al. The Demography of Tanzania, Vol. VI: An Analysis of the 1973 National Demographic Survey of Tanzania. Bureau of Statistics: Dar es Salaam, p. 420.

CRUDE BIRTH RATES



AFRICAN CCUNTRIES


AFRICA
DEATHS PER 1,000 POPULATION
1975
24 - 26
21 - 23
18 - 20
12 - 17
NO DATA

AFRICA
BIRTHS PER 1,000 POPULATION
1975
50 - 52
47 - 49
44 - 46
39 - 43
NO DATA

APPENDIX E

1978 POPULATION OF VILLAGES IN AP/VDP PILOT WARDS

BY AGE GROUPS AND SEX

Arumeru District

1978 Population of Villages in the Pilot Wards of Arumeru District, by Age Groups and Sex

Age Groups:	0			1 - 4			5 - 9			10 - 14			15 - 24			25 - 34			35 - 44			45 - 54		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
KIKWE WARD																								
Karangai	23	28	51	68	86	154	102	76	178	81	87	168	85	99	184	53	66	119	48	44	92	42	39	81
Maweni	12	16	28	54	38	92	56	59	115	46	48	94	77	63	140	39	34	73	29	27	56	28	21	49
Nambala	25	33	58	61	73	134	92	88	180	70	60	130	97	100	197	62	54	116	46	31	77	32	25	51
Kikwe	22	18	40	90	90	180	110	113	223	80	86	166	107	108	215	50	66	116	55	41	96	38	41	79
Valeska	26	39	65	90	103	193	81	113	194	87	87	174	93	98	191	101	108	209	90	61	151	93	49	142
KIKATITI WARD																								
Samaria	44	27	73	177	155	332	188	104	352	123	89	212	282	183	415	115	102	217	102	87	189	80	54	134
Sakila	80	88	168	286	354	640	360	402	762	251	307	558	335	377	712	237	248	485	185	132	317	93	87	180
Maroroni	25	28	53	154	166	320	185	162	347	133	116	249	161	153	314	85	120	205	61	71	132	44	37	81
Kikatiti	46	67	113	199	161	360	246	229	475	154	161	315	229	250	479	127	162	289	81	95	176	62	62	124
OLKOKOLA WARD																								
Olkokola Chini	37	61	98	220	199	419	199	187	386	134	113	247	142	244	386	93	185	278	62	114	176	32	59	91
Ilkurot	38	45	83	129	126	253	136	157	293	125	98	223	117	195	312	86	114	200	42	80	122	34	46	80
Lengijave	39	47	86	162	159	321	194	204	398	118	104	222	93	206	299	107	120	233	44	90	134	35	83	118
Olkokola	58	74	132	286	264	550	236	271	507	184	166	350	152	280	432	131	193	324	92	75	167	41	80	121
NGAREHANYUKI WARD																								
Olkungwado	48	68	116	264	208	472	235	214	449	187	190	377	284	272	556	176	166	342	117	124	241	70	53	123
Uwiro	25	27	52	112	117	229	164	144	308	110	96	206	160	115	275	94	100	194	38	43	81	36	27	63
Ngarbobo	20	30	50	71	84	155	87	85	172	86	54	140	101	79	180	73	63	136	60	38	98	37	18	55
Kisimiri	41	42	83	109	112	221	144	110	254	111	90	201	110	110	220	82	99	181	52	61	113	45	43	88

1978 Population of Villages in the Pilot Wards of Arumeru District, by Age Groups and Sex

Age Groups:	55 - 64			65 + over			Total			
	M	F	T	M	F	T	M	F	T	No. of Families
KIKWE WARD										
Karangai	30	12	42	39	25	64	571	562	1133	266
Maweni	27	17	44	26	21	47	394	344	738	154
Nambala	30	26	56	22	26	48	537	516	1053	213
Kikwe	35	27	62	55	22	77	642	612	1254	233
Valeska	70	22	92	61	28	89	792	708	1500	409
					TOTAL		2936	2742	5678	1275
KIKATITI WARD										
Samaria	44	23	67	73	31	104	1178	917	2095	317
Sakila	85	63	148	103	94	197	2015	2152	4167	831
Maroroni	33	23	56	60	46	106	941	922	1863	280
Kikatiti	50	36	86	40	24	64	1234	1247	2481	458
					TOTAL		5368	5238	10606	1886
OKLOKOLA WARD										
Olkokola Chini	37	47	84	40	41	81	996	1250	2246	280
Ilkurot	25	13	38	7	7	14	739	881	1620	180
Lengijave	38	28	66	9	17	26	839	1064	1903	228
Olkokola	27	45	72	47	63	110	1254	1511	2765	416
					TOTAL		3828	4706	8534	1104
NGARENANYUKI WARD										
Olkungwado	45	44	89	54	45	99	1480	1384	2864	496
Uwiro	25	26	51	29	20	49	793	715	1508	237
Ngarbobo	22	31	53	28	9	37	585	491	1076	213
Kisimiri	42	17	59	40	22	66	776	706	1482	325
					TOTAL		3634	3296	6930	1271

Nanang District

1978 Population of Villages in the Pilot Wards of Nanang District, by Age Groups and Sex

Age Groups:	0			1 - 4			5 - 9			10 - 14			15 - 24			25 - 34			35 - 44			45 - 54		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
GALLAPO WARD																								
Ayamango	22	34	56	89	83	172	101	78	179	81	86	167	123	116	239	73	77	150	63	59	122	52	34	86
Gidamar	14	10	24	79	92	171	106	98	204	103	79	182	114	103	217	113	79	192	74	60	134	39	36	75
Qash	26	38	64	161	166	327	199	181	380	155	164	319	156	194	350	136	122	258	98	104	202	60	58	118
Majengo	23	21	44	49	58	107	74	74	148	64	47	111	69	80	149	42	46	88	36	47	83	32	22	54
Halla	18	14	32	58	59	117	65	66	131	71	69	140	75	60	135	59	51	110	38	36	74	41	28	69
Tsamasi	50	35	85	215	203	418	225	217	442	213	194	407	203	212	415	147	167	314	105	119	224	92	89	181
Gallapo	31	56	87	211	248	459	288	276	564	219	197	416	249	268	517	200	220	420	170	140	310	110	82	192
Orng'adida	32	31	63	129	134	263	166	154	320	115	123	238	129	169	298	120	125	245	81	63	144	50	46	96
KATESH WARD																								
Mogitu	24	27	51	186	184	370	204	197	401	142	126	268	160	185	345	111	183	294	95	67	162	62	47	109
Katesh	38	50	88	168	187	355	207	210	417	193	163	356	195	209	404	124	129	253	112	105	217	52	46	98
Jorodam	63	77	140	300	291	591	289	306	595	196	191	387	263	321	584	206	376	1082	137	127	264	95	81	176
Wareta	43	56	99	265	303	568	364	314	678	320	321	641	403	324	727	210	269	479	143	185	328	123	91	212
Nangwa	36	37	73	200	223	423	200	203	403	165	147	312	235	247	482	146	132	278	96	105	201	74	52	126
MADUNGA WARD																								
Utwari	21	19	40	135	133	268	143	125	268	105	91	196	99	99	198	79	96	175	48	43	91	41	45	86
Madunga Kati	46	27	73	207	196	403	227	205	432	152	178	330	171	202	373	110	150	260	71	81	152	52	57	109
Qameyu	49	70	119	305	313	618	335	312	647	237	223	460	251	260	511	181	195	376	98	108	206	102	82	184
MAGUGU WARD																								
Magugu	50	58	108	195	197	392	219	236	455	134	154	288	224	224	448	149	210	359	160	140	300	112	84	196
Mapea	28	22	50	87	88	175	108	109	217	68	73	141	119	97	216	91	88	179	58	71	129	61	39	100
Gichameda	23	34	57	78	64	142	81	82	163	81	64	145	80	94	174	74	76	150	54	54	108	60	44	104
Masware	33	28	61	87	75	162	97	89	186	73	68	141	101	111	212	147	90	237	87	55	142	63	30	93
Sarame	11	15	26	67	67	134	80	86	166	63	45	108	57	67	124	60	64	124	51	63	114	56	43	99
Matufa	31	38	69	141	135	276	157	182	339	110	106	216	140	133	273	97	123	220	94	102	196	100	114	214
Mawemairo	31	26	57	110	113	223	133	97	230	83	95	178	98	92	190	80	95	175	70	93	163	83	58	141

Age Groups:	55 - 64			65 + over			Total			
	M	F	T	M	F	T	M	F	T	No. of Families
GALLA O WARD										
Ayamango	30	22	52	40	14	54	674	593	1267	275
Gidamar	34	20	54	27	14	41	703	591	1294	223
Qash	56	43	99	52	18	70	1099	1088	2187	418
Majengo	16	15	31	33	19	52	438	429	867	213
Halla	12	12	24	22	26	48	459	421	880	190
Tsamasi	54	55	109	61	66	127	1365	1357	2722	560
Gallapo	83	67	150	93	79	172	1654	1633	3287	706
Orng'adida	32	32	64	41	34	75	895	911	1806	359
					TOTAL		7287	7023	14310	2944
KATESH WARD										
Mogitu	37	38	75	45	51	76	1066	1085	2151	689
Katesh	42	33	75	41	27	68	1172	1159	2331	
Jorodam	34	47	81	46	50	96	1629	1701	3330	564
Wareta	65	56	121	85	64	149	2019	1982	4001	580
Nangwa	46	48	94	26	35	61	1209	1218	2427	423
					TOTAL		7095	7145	14240	2256
MADUNGA WARD										
Utwari	30	32	62	29	29	58	730	712	1442	249
Madunga Kati	31	59	90	64	66	130	1131	1221	2352	410
Qameyu	51	55	106	89	43	132	1698	1661	3359	590
					TOTAL		3559	3594	7153	1249

Age Groups:	55 - 64			65 + over			Total			
	M	F	T	M	F	T	M	F	T	No. of Families
MAGUGU WARD										
Magug	54	53	107	79	65	144	1376	1421	2797	657
Mapea	41	30	71	50	35	89	717	650	1367	337
Gichameda	55	19	74	31	13	44	617	544	1161	275
Masware	38	16	54	31	11	42	757	573	1330	280
Sarame	55	39	94	45	30	75	545	519	1064	280
Matufa	73	62	135	55	65	120	998	1060	2058	552
Mawemairo	39	29	68	57	27	84	784	725	1509	351
					TOTAL		5794	5492	11286	2732

Mbulu District — 1978 Population of Villages in the Pilot Wards of Mbulu District, by Age Groups and Sex

Age Groups:	0			1 - 4			5 - 9			10 - 14			15 - 24			25 - 34			35 - 44			45 - 54		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
MURRAY WARD																								
Murray	49	44	93	215	195	410	193	204	397	144	159	303	159	158	317	103	119	222	103	85	188	61	75	130
Hayloto	45	37	82	175	182	357	153	118	271	107	103	210	138	159	277	90	107	197	64	63	127	38	53	91
Kwermusi	90	63	153	213	165	378	228	214	442	174	145	319	169	201	370	100	111	217	88	95	183	68	75	143
Kuta	28	35	63	150	148	298	144	127	271	125	91	216	114	126	240	83	75	158	64	85	149	63	49	112
DAUDI WARD																								
Moringa	41	32	73	143	125	268	162	176	338	144	120	264	161	162	323	98	106	204	82	73	155	82	73	155
Masieda	25	26	51	107	99	206	118	151	269	133	115	248	161	137	298	92	87	179	63	68	131	66	62	128
Gwandumehhi	28	31	59	144	128	272	166	185	351	116	124	240	138	125	263	75	108	183	73	58	131	68	71	139
Aicho	16	17	33	73	59	132	86	77	163	55	46	101	74	70	144	37	55	92	36	34	70	34	32	66
Gidamba	18	14	32	59	45	104	86	65	151	52	62	114	65	67	132	46	51	97	26	23	49	25	22	47
DONGOBESH WARD																								
Dongobesh	52	49	101	177	167	346	221	198	419	196	172	368	226	243	469	123	158	281	84	104	188	69	54	123
Naretadu	53	66	119	210	198	408	269	240	509	211	205	416	237	263	498	144	175	319	91	116	207	64	107	171
Qaloda	32	35	67	126	121	247	164	146	310	126	127	253	134	144	278	72	104	176	57	65	122	41	65	106
Gidihim	24	15	39	117	123	240	120	133	253	113	84	197	120	122	242	67	73	140	49	60	109	31	37	68
Ng'orat	18	20	38	72	73	145	100	102	202	89	88	177	108	81	189	46	56	102	40	46	86	34	43	77
Endamasak	64	66	130	215	167	382	305	257	562	217	159	376	200	221	421	168	171	339	123	104	227	98	109	207
MAGHANG WARD																								
Maghang	73	83	156	266	232	498	288	266	554	275	220	495	251	283	536	137	181	318	99	126	225	76	84	160
Labay	65	56	121	273	252	525	306	281	587	227	232	459	237	267	504	155	175	330	104	138	242	67	97	164
Endanachan	48	49	97	184	144	328	206	192	398	139	147	286	193	179	372	90	119	209	79	77	156	46	62	108
Endamilay	37	45	82	131	133	264	122	185	357	123	124	247	111	153	264	79	121	200	61	72	133	49	46	95

 1978 Population of Villages in the Pilot Wards of Mbulu District, by Age Groups and Sex

Age Groups:	55 - 64			65 + over			Total			
	M	F	T	M	F	T	M	F	T	No. of Families
MURRAY WARD										
Murray	81	67	148	80	61	141	1188	1167	2355	395
Hayloto	45	58	105	59	37	96	914	897	1811	306
Kwermusi	59	43	102	65	60	125	1260	1172	2432	393
Kuta	22	27	49	63	58	121	856	821	1677	281
					TOTAL		4218	4057	8275	1375
DAUDI WARD										
Moringa	41	28	69	61	54	115	979	936	1915	344
Masieda	44	25	69	33	16	49	842	786	1628	254
Gwandumehhi	42	40	82	36	23	59	886	893	1779	329
Aicho	21	22	43	19	2	39	451	432	883	151
Gidamba	19	22	41	23	17	40	419	388	807	149
					TOTAL		3577	3435	7012	1227
DONGOBESH WARD										
Dongobesh	39	58	97	67	60	127	1254	1263	2517	383
Maretadu	91	63	154	38	22	60	1408	1453	2861	497
Qaloda	50	45	95	24	11	35	826	863	1689	299
Gidihim	35	36	71	31	24	55	707	707	1414	221
Ng'orat	29	28	57	29	24	53	565	561	1126	194
Endamasak	62	44	106	49	39	88	1501	1337	2838	485
					TOTAL		6261	6184	12445	2079
MAGHANG WARD										
Maghang	61	49	110	51	53	104	1577	1581	3158	518
Labay	56	58	114	55	50	105	1545	1606	3151	550
Endanachan	39	26	65	56	42	98	1080	1037	2117	365
Endamilay	30	28	58	37	16	53	830	923	1753	305
					TOTAL		5032	5147	10179	1738