
POPULATION DISTRIBUTION AND DENSITY IN TANZANIA: EXPERIENCES FROM 2002 POPULATION AND HOUSING CENSUS

By

Ndalahwa F. Madulu

Institute of Resource Assessment
University of Dar es Salaam

1.0. Introduction

Population distribution refers to the proportional distribution of the population over available land area. It gives a reflection of the burden to the land resources public services available in an area. Population distribution also reflects the environmental implications of population to specific areas. Population density is commonly used to refer to the number of people per land area (square kilometer). It is the ratio of the population to the land area. Population density gives the average number of people who occupy a certain piece of land. It also shows the concentration of the population over a land area. Though population density is a good indicator of aerial population distribution, it conceals many of the internal disparities in population concentration and its spatial distribution. People are normally very selective with regards to the locations settlements. Similarly, certain human activities are selective in nature in terms of location and suitability.

Analysis of population distribution and density requires periodic and systematic information on population size and its spatial distribution over time. However, this exercise is difficult to achieve due to lack of reliable data other than the census data. Census data are often used to estimate the population growth and its distribution over the intercensal periods. In order to show the extent of change with regards to population distribution and densities, an attempt has been made in this paper to compare the national, regional and district data for the 1967, 1978, 1988 and 2002 censuses.

The population is an important resource for development. Population growth affects resource base in many ways:

- Increasing number of people causes increased demand for food, water, arable land, fuel wood, and other essential materials from the natural resource pool. Over-exploitation of resources from the natural environment results from excess demand from the expanding population.
- Expanding agricultural activities encourages deforestation. The increase of population and expansion of agricultural activities intensifies land use conflicts and rapid urbanization in parts of Tanzania.
- Population growth expands and accelerates the demand for energy; especially from fuel wood which is the most commonly source of energy in rural and urban areas of Tanzania.
- The growth and distribution of the population determines the demand for essential social services (e.g. education, health, water, transport, housing, etc.), hence influences the sectoral budgetary allocation.

The influence of population on both the natural resources and socio-economic environments make it important to examine the trends in population growth and distribution. This is particularly important in the planning and implementation of development programs in the country.

The above discussion suggest that no assessment of resource potentials and prospects for sustainable development can be complete without proper understanding of the aerial distribution and concentration of the national population. In other words, there is a close linkage between population, development and the environment. In most cases, the increase in population occurs at the expense of natural resource

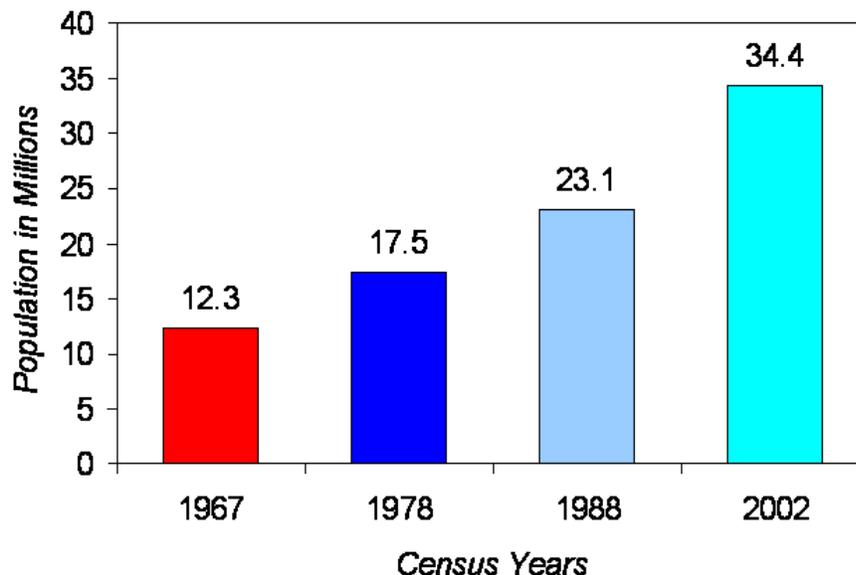
conservation and availability of social services at various levels. The social services referred here include, among others, water, health, transport, housing, and education. The presence of strong linkages between population size and resource and social services availability calls for a closer analysis of the population distribution and density at the national, regional, and district levels.

The purpose of this paper, therefore, is to discuss the population distribution and population density as observed in the 2002 Population and Housing Census. In the course of discussion, an attempt has been made to show the implications of the observed population distribution and density features. Further, a comparison of the features observed in 2002 and those made in the previous censuses (i.e. 1967, 1978 and 1988) has been made. The data used in this analytical paper were obtained from the 2002 Population and Housing Census. Additional data were obtained from the 1967, 1978 and 1988 census documents for comparison purposes. The data on land areas for all regions and districts were also used to compute the population densities at different levels. The population data has been presented both in absolute numbers and percentages. Further, the analysis of population distribution has been made at the national (Tanzania), Tanzania Mainland and Tanzania Zanzibar levels. Analysis of the regional and districts information has also been done for comparison purpose.

2.0. Population Distribution

Population distribution shows the spatial spread of people within the area available. Concerns over spatial distribution of the population have great importance in the spatial planning at national, regional and district levels. Since independence in 1961, Tanzania has conducted four national population censuses (i.e. 1967, 1978, 1988 and 2002). The data from these censuses indicate a population increase from 12.3 million in 1967 to 17.5 million in 1978, 23.2 million in 1988, and 34.4 million in 2002 (URT, 1994; 2003). Figure 1 shows the population increase between 1967 and 2003.

Figure 1: Population of Tanzania; Census Counts



Between 1967 and 2002 the population of Tanzania almost tripled. Among the current Tanzanian population of 34,443,603, about 97.1 percent (33,461,849 people) are resident in Tanzania Mainland and

2.9 percent (981,754 people) are in Tanzania Zanzibar (2.9%). The 34.4 million people living in Tanzania in 2002 occupied a total land area of 883,749 km² and the almost a million people in Zanzibar occupied 2,460 km² of land. The population of the islands was almost 2.9% of the total Tanzania population in 2002.

3.1. Regional Population Distribution

As it was the case in the previous censuses, the population of Tanzania is unevenly distributed. The uneven distribution of the population is reflected in the percent contribution and population densities of the different regions as demonstrated in Table 1. Even at the regional level the uneven distribution feature is reflected between districts, wards and villages.

Table 1: Population Distribution by Regions in 2002

Regions	Population (2002)	Percent of Total Population		
		Tanzania	Mainland	Zanzibar
Tanzania Mainland				
Mwanza	2,929,644	8.5	8.8	-
Shinyanga	2,796,630	8.1	8.4	-
Dar es Salaam	2,487,288	7.2	7.4	-
Mbeya	2,063,328	6.0	6.2	-
Kagera	2,028,157	5.9	6.1	-
Morogoro	1,753,362	5.1	5.2	-
Tabora	1,710,465	5.0	5.1	-
Dodoma	1,692,025	4.9	5.1	-
Kigoma	1,674,047	4.9	5.0	-
Tanga	1,636,280	4.8	4.9	-
Iringa	1,490,892	4.3	4.5	-
Kilimanjaro	1,376,702	4.0	4.1	-
Mara	1,363,397	4.0	4.1	-
Arusha	1,288,088	3.7	3.8	-
Rukwa	1,136,354	3.3	3.4	-
Mtwara	1,124,481	3.3	3.4	-
Ruvuma	1,113,715	3.2	3.3	-
Singida	1,086,748	3.2	3.2	-
Manyara	1,037,605	3.0	3.1	-
Pwani	885,017	2.6	2.6	-
Lindi	787,624	2.3	2.4	-
Tanzania Zanzibar				
Urban West	390,074	1.1	-	39.7
North Pemba	185,326	0.5	-	18.9
South Pemba	175,471	0.5	-	17.9
North Unguja	136,639	0.4	-	13.9
South Unguja	94,244	0.3	-	9.6
Tanzania Mainland	33,461,849	97.1	100.0	-
Tanzania Zanzibar	981,754	2.9	-	100.0
Tanzania	34,443,603	100.0	-	-

Source of Data: URT (2003:32-36)

The data shows the contribution of each Tanzania Mainland region to the Tanzania Mainland population and for each Tanzania Zanzibar region to the total Tanzania Zanzibar population. A further analysis is given to show the contribution of each region to the national population. The rank order distribution of population for the regions indicates that Mwanza (8.5%) and Shinyanga (8.1%) have maintained their leading positions as far as population size is concerned. These regions are followed by Dar es Salaam (7.2%) and Mbeya (6.0%). The most striking feature is that the Lake Victoria Zone regions (i.e. Mwanza, Shinyanga, Kagera and Mara) contribute about 27 percent of both the national and Tanzania Mainland total populations though they comprise only 13.4 percent of the total land area.

In 1978 only five regions (i.e. Mwanza, Shinyanga, Mbeya, Tanga and Kagera) had over a million people, 13 regions had between 0.5-1.0 million people, and 7 regions had less than 0.5 million people. Also there were 9 regions with less than .0 million people. This category included all the regions in Tanzania Zanzibar. In 1988, the number of regions with over a million people increased from five in 1978 to ten regions, and another 10 regions had between 0.5 and 1.0 million people. The rest of the regions had less than .5 million people. All the regions in the later category were from Tanzania Zanzibar. For the 2002 census, censuses, five regions recorded over two million people (Mwanza, Shinyanga, Dar es Salaam, Mbeya, and Kagera). Another 14 regions recorded between 1.0 and 2.0 million people, and only two regions had 0.5-1.0 million people. The data show that there were five regions which had less than half a million people.

The data shows that about 36 percent of the population was concentrated in only five Tanzania Mainland regions which had over two million inhabitants in 2002. These regions were Mwanza (8.5%), Shinyanga (8.1%), Dar es Salaam (7.2%), Mbeya (6.0%) and Kagera (5.9%). These regions ranked from number one to five, respectively in terms of population size in the country. The same ranking was true in Tanzania Mainland where these regions also contributed around 37 percent of the Tanzania Mainland population. In total, the five regions cover only 18.2 percent of the total land area.

The second category of regions with 1.5 to 1.8 million people comprised about 25% of the Tanzania and Tanzania Mainland populations. There were five regions in this category, namely Morogoro, Tabora, Dodoma, Kigoma, and Tanga. The third category of regions comprised regions with population ranging between 1.0 and 1.5 million inhabitants. These regions contributed about 32% of the national population and 33% of the Tanzania Mainland population. There were nine regions in this category which include Iringa (4.3%), Kilimanjaro (4.0%), Mara (4.0%), Arusha (3.7%), Rukwa (3.3%), Mtwara (3.3%), Ruvuma (3.2%), Singida (3.0%, and Manyara (3.0%). The fourth category of regions with regards to population distribution is regions which had less than a million people. There were two regions in Tanzania Mainland (Pwani and Lindi) which contributed about 5% of both the national and Tanzania Mainland populations. All regions from Tanzania Zanzibar fall in this category. A further analysis of the population in this group indicates that all Tanzania Mainland regions had over half a million inhabitants, and all regions from Tanzania Zanzibar had less than half a million people as demonstrated in Table 1. The total contribution of regions with less than a million people to the national population was about 8%, and was 5% and 100% contribution to the Tanzania Mainland and Tanzania Zanzibar populations, respectively. In 1978, about 64% of the population occupied 36% of the land area (Tanzania, 1983).

3.2. Population Change

Population change is measured by the difference between population sizes at two or more different dates (Shryock and Siegel, 1976). Population change can be measured either in terms of absolute change or as a percent change. The absolute amount of change is the difference between the population in an earlier and the later dates. The percent change is obtained by dividing the absolute change by the population at the earlier date. In measuring population change, one has to take into consideration the aspect of geographical

boundaries in order to be sure that the population of an area compared at two different times actually refers to the same spatial area.

Table 2 compares the absolute and percent change for the Tanzania population as observed in the 1967, 1978, 1988 and 2002 censuses. The table also shows the size of population and the population change for Tanzania, Tanzania Mainland and Tanzania Zanzibar.

Table 2: Distribution of Population and Percent Change by Census

Area	Census	Population	Absolute Change	Percent Change
Tanzania	1967	12,313,469		
	1978	17,512,610	5,199,141	42.2
	1988	23,174,336	5,661,726	32.3
	2002	34,443,603	11,269,267	48.6
Tanzania Mainland	1967	11,958,654		
	1978	17,036,499	5,077,845	42.5
	1988	22,455,207	5,418,708	31.8
	2002	33,461,849	11,006,642	49.0
Tanzania Zanzibar	1967	354,815		
	1978	476,111	121,296	34.2
	1988	640,675	164,564	34.6
	2002	981,754	341,079	53.2

In the case of Tanzania mainland, the population increased from about 12.0 million people in 1967 to 33.5 million in 2002. In Tanzania Zanzibar, the population increased from 354,815 in 1967 to 640,685 people in 1988 and 981,751 people in 2002. The total population of Tanzania almost doubled between 1967 and 1988 (Madulu, 1994) and almost tripled between 1967 and 2002. During the 1988 census, Tanzania's population was 23.2 million people and it increased to 34.3 million people in 2002 (URT, 2003). Comparable figures for previous censuses were 12.3 million and 17.5 million people for the 1967 and 1978 population censuses, respectively.

As the data shows, there have been significant increases both in absolute numbers and percent change, especially for the 1988-2002 inter-censal periods. Over 11 million people were added to the Tanzania population between 1988 and 2002 for Tanzania and Tanzania Mainland. This represents a 49 percent change for both Tanzania Mainland and Tanzania total. In Tanzania Zanzibar, 341,000 people were added to the population during the 1988/2002 intercensal period. This represents a 53% change in the Tanzania Zanzibar population during that period. The data demonstrate a 42 percent increase between 1967 and 1978; 32% increase between 1978 and 1988; and 49 percent increase between 1988 and 2002. Table 3 presents the population and inter-censal growth rates for the regions in Tanzania Mainland and Tanzania Zanzibar.

The data demonstrate that the population growth rate for Tanzania changed from 3.2 percent in the 1967/78 inter-censal period to 2.8 and 2.9 percent during the 1978/88 and 1988/02 inter-censal periods, respectively. Similar growth rates were observed for the Tanzania Mainland. For Tanzania Zanzibar, the growth rates increased from 2.7 percent in 1967/78 to 3.0 percent in 1978/88, and 3.1 percent in 1988/02 inter-censal period. The data also show that the rate of population growth varies between regions. The average rates of growth for the 1988/02 period ranged between 4.8 percent in Kigoma Region and 1.4 percent in Lindi. For the 1978/88 period the population growth range was from 3.8 percent in Arusha 1.4 percent in Mtwara. The range for the 1967/78 period was from 7.8 percent in Dar es Salaam to 0.6 percent in South Pemba. These data show a change in the high and low growth rates from region to region

suggesting changes in policy and socio-economic conditions to justify presence of pull or push factors to the local population.

Table 3: Census Counts and Inter-censal Growth Rates by Regions (1967-2002)

Region	Population				Growth Rate		
	1967	1978	1988	2002	1967-78	1978-88	1988-02
Dodoma	709,380	972,005	1,235,327	1,692,025	7.8	4.7	2.2
Arusha	610,474	926,223	1,348,170	1,288,088	3.8	3.8	4.0
Kilimanjaro	652,722	902,437	1,104,673	1,376,702	2.9	2.1	1.6
Tanga	771,060	1,037,767	1,280,212	1,636,280	2.7	2.1	1.8
Morogoro	682,700	939,264	1,220,564	1,753,362	2.9	2.6	2.6
Pwani	428,041	516,586	636,103	885,017	1.7	2.1	2.4
Dar es Salaam	356,286	843,090	1,360,850	2,487,288	7.8	4.8	4.3
Lindi	419,853	527,624	646,494	787,624	2.1	2	1.4
Mtwara	621,293	771,818	889,100	1,124,481	2	1.4	1.7
Ruvuma	395,447	561,575	779,875	1,113,715	3.2	3.4	2.5
Iringa	689,905	925,044	1,193,074	1,490,892	2.7	2.7	1.5
Mbeya	753,765	1,079,864	1,476,278	2,063,328	3.3	3.1	2.4
Singida	457,938	613,949	792,387	1,086,748	2.7	2.5	2.3
Tabora	502,068	817,907	1,036,150	1,710,465	4.4	2.4	3.6
Rukwa	276,091	451,897	698,718	1,136,354	4.5	4.3	3.6
Kigoma	473,443	648,941	856,770	1,674,047	2.9	2.8	4.8
Shinyanga	899,468	1,323,535	1,763,800	2,796,630	3.5	2.9	3.3
Kagera	658,712	1,009,767	1,313,594	2,028,157	3.9	2.7	3.1
Mwanza	1,055,883	1,443,379	1,876,635	2,929,644	2.8	2.6	3.2
Mara	544,125	723,827	946,418	1,363,397	2.6	2.9	2.5
Manyara	N/A	N/A	NA	1,037,605	N/A	N/A	3.8
Tanzania Mainland	11,958,654	17,036,499	22,455,193	33,461,849	3.2	2.8	2.9
North Unguja	56,360	77,017	96,989	136,953	2.8	2.3	2.5
South Unguja	39,087	51,749	70,313	94,504	2.6	3.1	2.1
Urban West	95,047	142,041	208,571	391,002	3.7	3.8	4.5
North Pemba	72,015	106,290	137,189	186,013	3.5	2.6	2.2
South Pemba	92,306	99,014	127,623	176,153	0.6	2.6	2.3
Tanzania Zanzibar	354,815	476,111	640,685	984,625	2.7	3.0	3.1
Tanzania	12,313,469	17,512,610	23,095,878	34,443,603	3.2	2.8	2.9

During the period 1967/78, Rukwa and Tabora recorded high growth rates probably due to the influx of refugees in those regions during the late 1960s and early 1970s. The current impact of refugees is noted in the growth rate of Kigoma Region during the 1988/2002 inter-censal period, and in Rukwa Region in 1978/88.

Regions that are highly urbanized like Dar es Salaam and Urban West also show high rates of population growth rate. In all censuses, Urban West recorded the highest growth rate among the Tanzania Zanzibar Regions. In Tanzania Mainland, Dar es Salaam Region recorded the highest growth rate between 1967/78 and 1978/88, and was ranked second after Kigoma in the 1988/02 period. All in all, the growth rate of the more urbanized regions is comparatively high than the other regions.

Maro, (1983) observed more marked variations at district and ward levels with a higher concentration of people in some districts and wards than others. A similar generalization was made for the 1988 and 2002

census data. Using the district population and land areas, the 2002 district data shows that about almost 50 percent of the total population occupied only 16 percent of the % of the land area (Tanzania, 2003). This means that certain district is favored in terms of population concentration than others. These observations suggest even resource utilization at the district and local levels are area specific. Regions and districts that have high concentration of population seem to have large resources consumption rates as well.

3.0. Population Density

Population density is commonly used to refer to the number of people per land area (square kilometer). It is the ratio of the population to the land area. Population density gives the average number of people who occupy are certain piece of land. It also shows the concentration of the population over a land area. Though population density is a good indicator of aerial population distribution, it conceals many of the internal disparities in population concentration and its spatial distribution. People are normally very selective with regards to the locations settlements. Similarly, certain human activities are selective in nature in terms of location and suitability. Other factors that influence population concentration include accessibility to reliable social services like transport, health and water services; climatic conditions, and availability of land and reliable economic activities. In Tanzania population density varies from region to region and from one district to another within the regions. The main causes of these variations include level of urbanization, availability of social services, suitability of land for agricultural activities, opportunities for employment and emergence of new economic enterprises like mining and fishing activities. Normally, people are very selective when it comes to establishing settlements and other economic activities. In most cases the most potential areas are utilized first before expanding to the marginal areas.

4.1.1. Tanzania Mainland

Table 4 shows the population density and ranking of the regions in Tanzania Mainland. It also shows the percent change in population density between 1988 and 2002. It is observed that the population density for Tanzania Mainland increased slightly from 26 persons per sq.km in 1988 to 38 persons per sq.km in 2002. This increase represented a 49 percent change in population density. Further assessment of the density data indicates that Dar es Salaam (1,786), Mwanza (150) and Kilimajaro (103) maintained their top position for both 1988 and 2002. Dar es Salaam ranked first followed by Mwanza and Kilimanjaro, in that order. Kagera region moved from seventh position in 1988 to fourth position in 2002 probably due to the influx of refugees and people working in the fishing and mining sectors.

The population density at the regional level ranged between 12 persons per sq.km in Lindi to 1,786 persons per sq.km in Dar es Salaam. Lindi (12), Rukwa (17), Ruvuma (18), Singida (22), Tabora (23) and Manyara (23), are the regions with the lowest population density in Tanzania Mainland. Though there is an indication of high percent change in regions like Rukwa and Tabora, their population density is still low. This might be one of the major pull factors for migrants from other regions into these regions.

The highest percent change in population density were recorded in Dar es Salaam (83%), Kigoma (96%), Tabora (65%), Rukwa (63%), Shinyanga (59%), Mwanza (56%), Kagera (54%) and (104%)¹. The high percent change in Dar es Salaam could be explained by the rapid urbanization in the region and the influx of people from other regions. High population density changes in Kigoma and Kagera are largely a function of refugee influx, and that in Tabora and Rukwa could be a function of the influx of agro-pastoral and pastoral people from Shinyanga, Mwanza and Arusha. The high percent change in population density in Mwanza and Shinyanga could be explained by the booming mining and fishing activities. The

¹ This percent change seems to be high because the 1988 population for the districts that fall into Manyara Region has been omitted.

fishing and mining activities could also be a reason for the rapid change in Kagera Region. These regions also have consistently maintained high fertility levels.

Table 4: Population Density for Tanzania Mainland Regions (1988 and 2002)

Region	Area (Km ²)	Population		Density		Percent Change	Rank	
		1988	2002	1988	2002		1988	2002
Dar es Salaam	1,393	1,360,865	2,487,288	976.9	1785.6	82.8	1	1
Mwanza	19,592	1,876,635	2,929,644	95.8	149.5	56.1	2	2
Kilimanjaro	13,309	1,104,673	1,376,702	83	103.4	24.6	3	3
Kagera	28,388	1,313,594	2,028,157	46.3	71.4	54.3	7	4
Mara	19,566	946,418	1,363,397	48.4	69.7	44.0	5	5
Mtwara	16,707	889,100	1,124,481	53.2	67.3	26.5	4	6
Tanga	26,808	1,280,212	1,636,280	47.8	61.0	27.7	6	7
Shinyanga	50,781	1,763,800	2,796,630	34.7	55.1	58.7	8	8
Kigoma	37,037	856,770	1,674,047	23.1	45.2	95.7	11	9
Dodoma	41,311	1,235,327	1,692,025	29.9	41.0	37.0	9	10
Arusha	36,486	632,530	1,288,088	17.3	35.3	104.1	14	11
Mbeya	60,350	1,476,278	2,063,328	24.5	34.2	39.5	10	12
Pwani	32,407	636,103	885,017	19.6	27.3	39.3	13	13
Iringa	56,864	1,193,074	1,490,892	21	26.2	24.9	12	14
Morogoro	70,799	1,220,564	1,753,362	17.2	24.8	44.0	15	15
Manyara	45,820	715,640	1,037,605	15.6	22.6	45.2	17	16
Tabora	76,151	1,036,150	1,710,465	13.6	22.5	65.2	18	17
Singida	49,341	792,387	1,086,748	16.1	22.0	36.8	16	18
Ruvuma	63,498	779,875	1,113,715	12.3	17.5	42.6	19	19
Rukwa	68,635	698,718	1,136,354	10.2	16.6	62.3	20	20
Lindi	66,046	646,494	787,624	9.8	11.9	21.7	21	21
Tanzania Mainland	881,289	22,455,193	33,461,849	25.5	38.0	48.9		
Urban West	230	208,571	390,074	906.8	1,696.0	87.0	1	1
South Pemba	332	127,623	175,471	384.4	528.5	37.5	3	2
North Pemba	574	264,802	185,326	461.3	322.9	-30.0	2	3
North Unguja	470	96,989	136,639	206.4	290.7	40.8	4	4
South Unguja	854	70,313	94,244	82.3	110.4	34.1	5	5
Tanzania Zanzibar	2,460	640,685	984,625	260.4	400.3	53.7	4	6

The lowest percent changes were noted in Tanga (28%), Mtwara (27%), Iringa (25%), Kilimanjaro (25%) and Lindi (21%). These regions have maintained a tradition of being out-migrants producers for quite a long time. Tanga region which used to be a net migration gaining region in the 1960s, changed to be a net migration loser after the collapse of the sisal market and industries that were based in Tanga. Mtwara and Lindi has been a producer of laborers to the plantations since the colonial times. In recent years, these regions have become the main producer of the youths who move into urban areas to do petty business - the *marching guys (Machingas)*. Iringa is also a seasoned net migration loser and is famous for the

production of house maids in many urban areas. Kilimanjaro region records a low percent change in population density probably due to the problem of land scarcity in the region and the tendency of many people from the region to be business people spread all over the country.

In Tanzania Zanzibar, the population densities are higher than all Tanzania Mainland regions except for Dar es Salaam. For the whole of Tanzania Zanzibar, the population density changed from 260 persons per km² in 1988 to about 400 persons per km² in 2002. This percent increase in population density between 1988 and 2002 was 54 percent. The rapid change in population density in Tanzania Zanzibar is considered to be a function of migration as more and more policy changes have been made during the intercensal period, especially those related to encouraging foreign investment and tourism. With regards to regional variations, the highest population density was recorded in Urban West region (1,696 persons per sq. km), followed by South Pemba (529), North Pemba (323), North Unguja (291), and the lowest was in South Unguja (110) in that order. The high population density in the Urban West region seems to be a function of rapid urbanization in the region.

In terms of rank order comparison, Urban West was ranked first in both 1988 and 2002 censuses. It should also be noted that this region recorded the highest percent change in population density between 1988 and 2002. South Pemba recorded a significant rise in population density and changed the ranking position from third in 1988 to second in 2002. The recorded percent change here was 38%. North Unguja and South Unguja maintained their fourth and fifth ranking positions between the two censuses. The observed percent changes in population density were 41% in North Unguja and 34% in South Unguja. The steady positioning of these regions in the ranking is a reflection of presence of conducive environments for the local to stay, but less attractive situations for the outsiders. North Pemba is the only region which recorded a negative percent change in population density. The main explanation here is the lack of security among the rural population during the intercensal period encouraging out-migration to other regions and to urban areas and the opening up of investment opportunities in the Tanzania Mainland.

Table 5 gives a summary of the population densities for all regions in 1988 and 2002. **4.1.3.** The data demonstrate that people are particularly concentrated in more urbanized² regions like Dar es Salaam (1793 persons/km²) and Urban West (1700 persons/km²); and in regions that have better climatic conditions and economic opportunities like in Tanzania Zanzibar, Mwanza and Kilimanjaro.

As stated earlier, the highest population densities were observed in Dar es Salaam (1,786) and Urban West (1,696). These regions maintained the first and second ranking in the two censuses, respectively. Generally speaking, the Tanzania Zanzibar regions recorded higher population densities than the Tanzania Mainland regions. While South Pemba (529) ranked fourth in 1988, it ranked third in 2002 reflecting some increase in the population size basically due to rural-urban migration. Basing on similar explanations, North (323) dropped from third to fourth position between the 1988 and 2002. Mwanza region (150) is the second densely populated region in the Tanzania Mainland, and it ranked sixth in both 1988 and 2002 censuses for the Tanzania total. South Unguja (110) ranked eighth in 1988 but rose to seventh position in 2002 bypassing Kilimanjaro (103) which was ranked seventh in 1988 and dropped to eighth position in 2002.

² Urbanization is the increase in the proportion of the population living in urban areas. It is the process of people moving to cities or other densely populated areas (PRB, 2000:41)

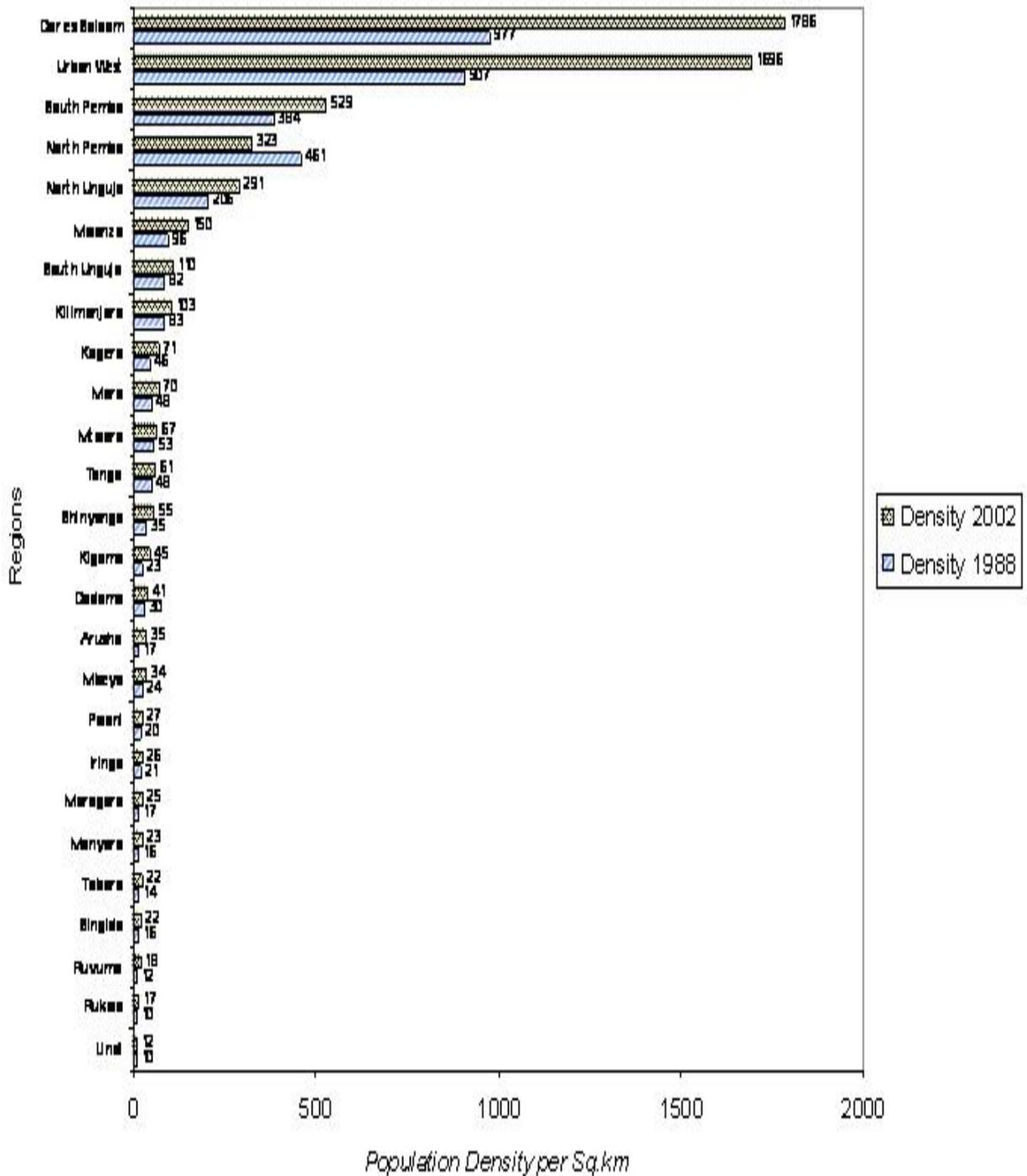
Table 5: Population Density for Tanzania Zanzibar Regions (1988 and 2002)

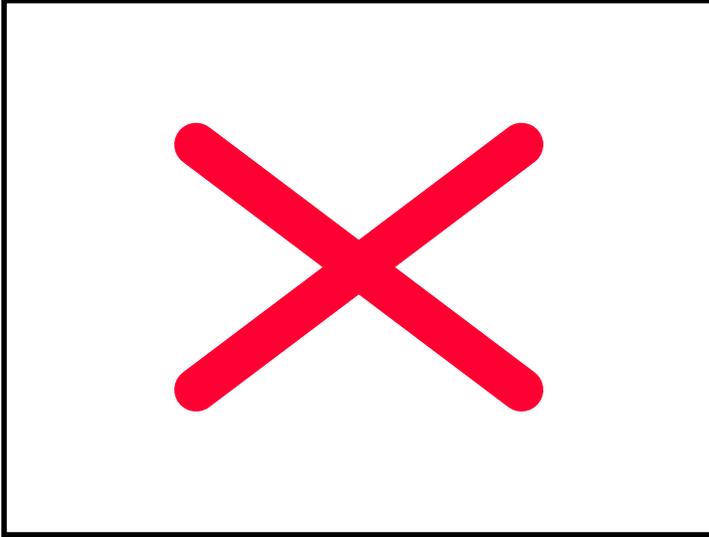
Region	Area (Km2)	Density			Rank	
		1988	2002	Percent Change	1988	2002
Dar es Salaam	1,393	976.9	1,785.6	82.8	1	1
Urban West	230	906.8	1,696.0	87.0	2	2
South Pemba	332	384.4	528.5	37.5	4	3
North Pemba	574	461.3	322.9	-30.0	3	4
North Unguja	470	206.4	290.7	40.8	5	5
Mwanza	19,592	95.8	149.5	56.1	6	6
South Unguja	854	82.3	110.4	34.1	8	7
Kilimanjaro	13,309	83	103.4	24.6	7	8
Kagera	28,388	46.3	71.4	54.2	12	9
Mara	19,566	48.4	69.7	44.0	10	10
Mtwara	16,707	53.2	67.3	26.5	9	11
Tanga	26,808	47.8	61.0	27.6	11	12
Shinyanga	50,781	34.7	55.1	58.8	13	13
Kigoma	37,037	23.1	45.2	95.7	16	14
Dodoma	41,311	29.9	41.0	37.1	14	15
Arusha	36,486	17.3	35.3	104.0	19	16
Mbeya	60,350	24.5	34.2	39.6	15	17
Pwani	32,407	19.6	27.3	39.3	18	18
Iringa	56,864	21	26.2	24.8	17	19
Morogoro	70,799	17.2	24.8	44.2	20	20
Manyara	45,820	15.6	22.6	44.9	22	21
Tabora	76,151	13.6	22.5	65.4	23	22
Singida	49,341	16.1	22.0	36.6	21	23
Ruvuma	63,498	12.3	17.5	42.3	24	24
Rukwa	68,635	10.2	16.6	62.7	25	25
Lindi	66,046	9.8	11.9	21.4	26	26
Total	883,749	26.1	39.1	49.8		

The relative population densities for regions other than Dar es Salaam and Urban West are shown in Figure 2.

As observed in Figure 2, the population density increased in all regions except in North Pemba where the population density declined from 461 persons in 1988 to 323 persons per sq.km in 2002. The highest absolute change in population density was observed in Dar es Salaam (from 977 to 1,786) and Urban West (from 907 to 1,696). Other Regions with notable increases are South Pemba, North Unguja, and Mwanza. It is clearly observed that if Dar es Salaam and Urban West Regions which are more influenced by urbanization are left aside, the top three regions with highest population density are South Pemba, North Pemba and South Unguja... Mwanza becomes fourth and the fifth is South Unguja. These observations confirm that Tanzania Zanzibar Regions demonstrate the highest population densities even in the absence of rapid urbanization. Figure 3 shows the current spatial variation in population density for all regions.

Figure 2: Population Density by Regions (1988 & 2002)





The spatial distribution of population density demonstrates clearly that there is highest population density in Dar es Salaam and the Tanzania Zanzibar Regions followed by Mwanza and Kilimanjaro Regions. The sparsely populated region is Lindi with a population density of 12 persons per sq.km only. Other regions that demonstrate low population densities are Rukwa, Ruvuma, Singida and Tabora. These regions had less than 25 persons per sq.km in both the 1988 and 2002 population censuses. However, Tabora (65%) and Rukwa (63%) recorded relatively high percent change in population density probably due to

refugee influx and the in-migration of pastoral and agro-pastoral communities from Shinyanga, Mwanza and Arusha regions.

The lowest percent changes at the national level were recorded in Lindi (21%) and North Pemba (30%). Lindi Region has maintained a tradition of being potential migrant producers for quite a long time and attracts limited people from other regions. The most notable feature in Lindi is the out-migration of the youth to Dar es Salaam and other urban areas to do petty business - the *marching guys* (*Machingas*). North Pemba, though has a high population density, it recorded the lowest percent change in population density probably due to population out-migration caused by investment opportunities in the Tanzania Mainland.

The general observation from the map shows the highest concentration of people in Tanzania Zanzibar regions and Dar es Salaam, followed by Mwanza and Kilimanjaro Regions in the second category, and other Lake Zone Regions (Kagera, Mara and Shinyanga) in the third category. The regions that demonstrate the lowest population concentration are Lindi, Rukwa and Ruvuma. The less concentration of people in Arusha, Manyara, and Singida Regions could be explained to be a function of limiting climatic and vegetation conditions. It might also be a result of large tracts of land which are put under protected areas or dominated by migrant pastoral communities. The low population concentration in Tabora and Rukwa Regions reflects the presence of many protected areas in terms of forest reserves, game reserves, and game controlled areas. Similar reasons could be used to explain the less concentration of people in Morogoro, Lindi and Ruvuma. The low concentration of people in the later category of regions could also be ahistorical because most of the southern areas were considered to be labor reserves, a condition which encouraged out-migration to other regions. This characteristic have consistently being maintained as many youths migrate from the southern regions to urban areas in the north.

Table 6 shows the trend in population density by Regions for the 1967, 1978, 1988 and 2002 population censuses. It is observed that the population density for Tanzania Mainland increased from 14 persons per sq.km in 1967 to 38 persons per sq.km in 2002 suggesting a 179 percent change. In Tanzania Zanzibar, the increase in population density was from 134 to 400 persons per sq.km in 1967 and 2002, respectively. These levels indicate a 199 percent change between the two points in time. The population density for the whole of Tanzania was similar to that of Tanzania Mainland but the percent range between 1967 and 2002 was 179% at that level.

It is observed that the population density is highest in Tanzania Zanzibar where it ranged from 149 to 400 persons per sq.km between 1967 and 2002. The increase in population density for Tanzania Mainland was 14 to 38 persons per sq.km between 1967 and 2002. An almost similar range has been noted for Total Tanzania. At the regional level, the highest population densities are recorded in the highly urbanized regions like Dar es Salaam.

Maro (1983) used an *index of population distribution* to compare population data of two censuses and show the changes in population distribution over time. The *index of population distribution* is obtained by dividing the population density of the districts by the national average density. When the index is equal to 1.0 the proportion of the total population living in that district is equal to the proportion of the total area occupied by the district. Values above or below 1.0 indicates a proportion of the total population exceeding or less than the proportion of the total area, respectively (Madulu, 1994).

Table 6: Population Density by Region 1967, 1978, 1988 and 2002

Region	Land Area (Sq. Kms)	Population Density				Percent Change 1967-2002
		1967	1978	1988	2002	
<i>Tanzania Mainland</i>						
Dodoma	41,311	17	24	30	41	141.2
Arusha	36,486	7	17	20	35	400.0
Kilimanjaro	13,309	49	68	83	104	112.2
Tanga	26,808	29	39	48	61	110.3
Morogoro	70,799	10	13	17	25	150.0
Pwani	32,407	13	16	20	27	107.7
Dar es Salaam	1,393	256	605	977	1,793	600.4
Lindi	66,046	6	8	10	12	100.0
Mtwara	16,707	37	46	53	68	83.8
Ruvuma	63,498	6	9	12	18	200.0
Iringa	56,864	12	16	21	26	116.7
Mbeya	60,350	12	18	25	34	183.3
Singida	49,341	9	12	16	22	144.4
Tabora	76,151	7	11	14	23	228.6
Rukwa	68,635	4	7	10	17	325.0
Kigoma	37,037	13	18	23	45	246.2
Shinyanga	50,781	18	26	35	55	205.6
Kagera	28,388	23	36	47	72	213.0
Mwanza	19,592	54	74	96	150	177.8
Mara	19,566	28	37	50	70	150.0
Manyara	45,820	N/A	N/A	13	23	N/A
<i>Tanzania Zanzibar</i>						
North Unguja	470	124	169	206	291	134.7
South Unguja	854	47	62	82	111	136.2
Urban West	230	428	640	906	1,700	297.2
North Pemba	574	157	232	239	324	106.4
South Pemba	332	226	242	385	531	135.0
Tanzania Zanzibar	2,460	134	201	260	400	168.5
Tanzania Mainland	881,289	14	19	26	38	198.5
Tanzania	883,749	14	20	26	39	178.6

4.0. Rural-Urban Distribution

The distinction between rural and urban is normally made on the basis of the different characteristics that distinguish urban areas from rural areas. There is no single definition which would be applicable to all countries (Shryock et.al., 1976). However, urbanization concept has been defined as a process of population concentration based on five indicators, namely: administrative area, population size, local government area, urban characteristics, and predominant economic activity. In order to get the distinction of type of residence (rural/urban) for the 2002 Population and Housing Census, the wards were grouped into three categories i.e. rural, urban, and mixed. This enabled to separate the rural and urban population during data processing and analysis. Table 7 gives a summary of the population distribution by type of residence for the 1967, 1978, 1988 and 2002 censuses.

Table 7: Distribution of Population by type of Residence (Rural/Urban)

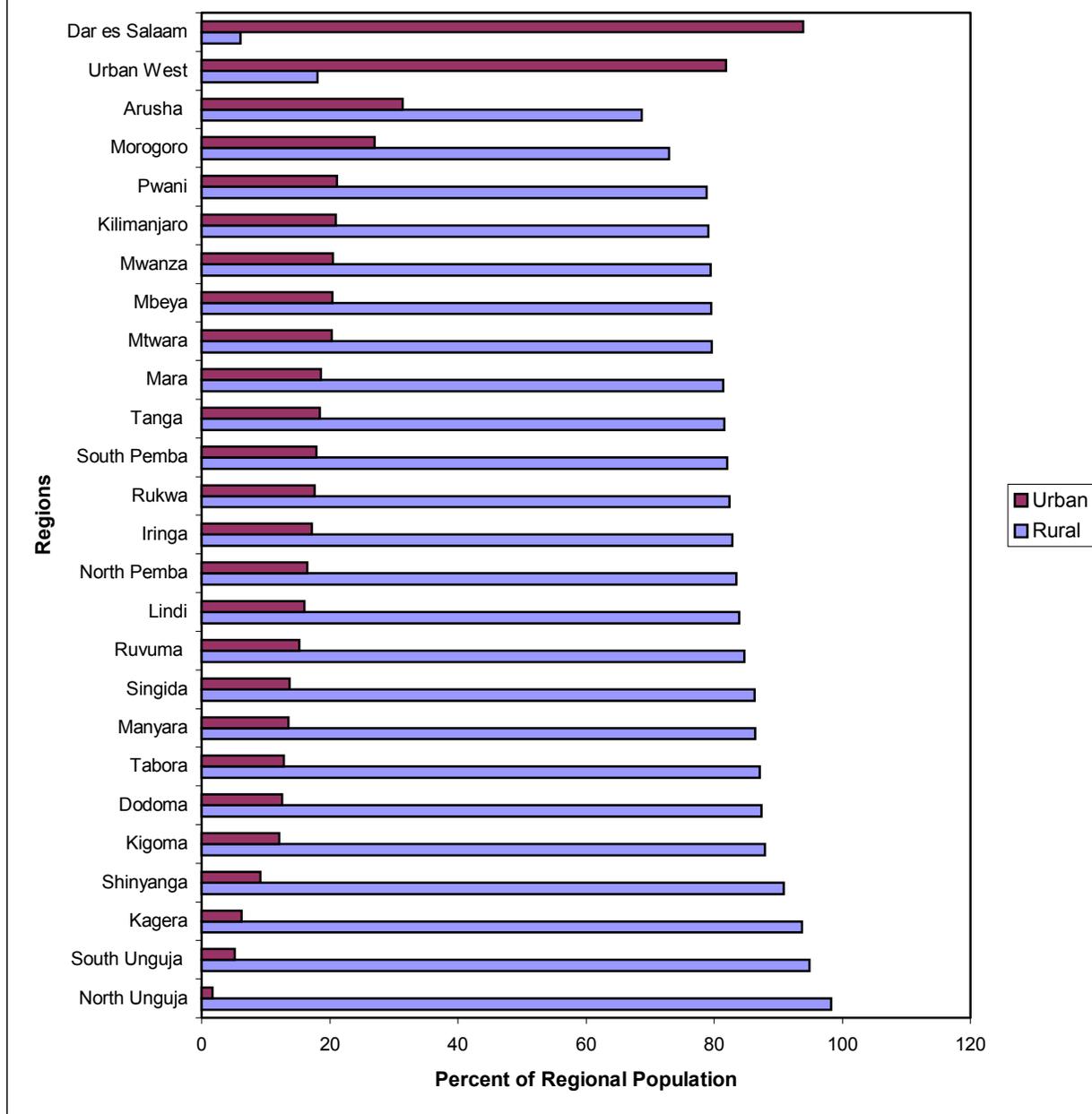
Area	Census	Population	Population Distribution by Type of Residence	
			Percent Rural	Percent Urban
Tanzania	1967	12,313,469	93.8	6.2
	1978	17,512,610	86.2	13.8
	1988	23,174,336	81.6	18.4
	2002	34,443,603	76.9	23.1
Tanzania Mainland	1967	11,958,654	94.3	5.7
	1978	17,036,498	86.7	13.3
	1988	22,455,207	82.0	18.0
	2002	33,461,849	77.4	22.6
Tanzania Zanzibar	1967	354,815	76.5	23.5
	1978	476,111	67.4	32.6
	1988	640,675	68.2	31.8
	2002	981,754	60.4	39.6

Source: URT, 1973, 2003: 31.

The data shows that about 77% of the total Tanzanian population were resident in rural areas in 2002 and 23 percent were living in urban areas. The proportions living in urban areas for were 23 percent for Tanzania Mainland and 40 percent in Tanzania Zanzibar (URT, 2003). It can be observed from the data that the proportion of population living in urban areas has been increasing at all levels between 1967 and 2002. For the whole of Tanzania, the proportion of population in urban areas increased from 6% in 1967 to 23% in 2002. This represents a 273 percent change between the two censuses.

In Tanzania Mainland, the change of population urban was from 6% to 23% in 1967 and 2002, respectively, representing a 297 percent change. In Tanzania Zanzibar, the proportion of population living in urban areas increased from 24% to 40% between 1967 and 2002. This reflects a 69 percent change. The general observation is that while Tanzania Zanzibar is more urbanized that the Tanzania Mainland, there is an indication of rapid change in the size of urban population in the Tanzania Mainland than in Tanzania Zanzibar. Figure 4 compares the percent of rural and urban population for all the regions in Tanzania.

Figure 4: Percent Distribution of Population by Type of Residence (2002)



The comparison of the 1988 and 2002 rural-urban distribution of the population indicate a moderate increase in the size of the urban population from 18 percent in 1988 to 23 percent in 2002. In Tanzania Mainland, the urban population also increased from 18 percent to 23 percent in 1988 and 2002, respectively. The observed increase of urban population in Tanzania Zanzibar was from 32 percent in 1988 to 40 percent in 2002 (URT, 2003).

5.1. Distribution of Rural Population

As observed above, the proportion of rural population is declining. For the whole of Tanzania the rural population declined from around 94% in 1967 to about 77% in 2002 (URT, 2003). A similar change also reflects the situational change in Tanzania Mainland. The percent change in the rural population was – 18% for both for Tanzania and Tanzania Mainland. For the case of Tanzania Zanzibar, the proportion of population living in rural areas declined from 77% in 1967 to only 60% in 2002 reflecting a percent change of -21%.

The proportion of rural population by regions in Tanzania Mainland range from 6% in Dar es Salaam to 94% in Kagera Region. The most notable features here are the low proportion of rural population in Dar es Salaam (6%) and Arusha (69%). The justification from the situation in Dar es Salaam is that a large part of the region is classified as urban. The explanation for the situation in Arusha could be a result of the creation of Manyara Region which took a large part of the rural districts in the former Arusha region. The new Arusha region has a significantly large urban population due to the influence of Arusha Municipality. Apart from Dar es Salaam and Arusha which have less than 70 percent of their populations being rural, there are six regions (Morogoro, Pwani, Kilimanjaro, Mwanza, Mbeya, Mtwara) in Tanzania Mainland in which the contribution of the rural population lies in the 71-80 percent range, eleven regions (Mara, Tanga, Rukwa, Iringa, Lindi, Ruvuma, Singida, Manyara, Tabora, Dodoma, Kigoma) are in the 81-90 percent range, and only two regions (Shinyanga and Kagera) lie in the 90+ percent group.

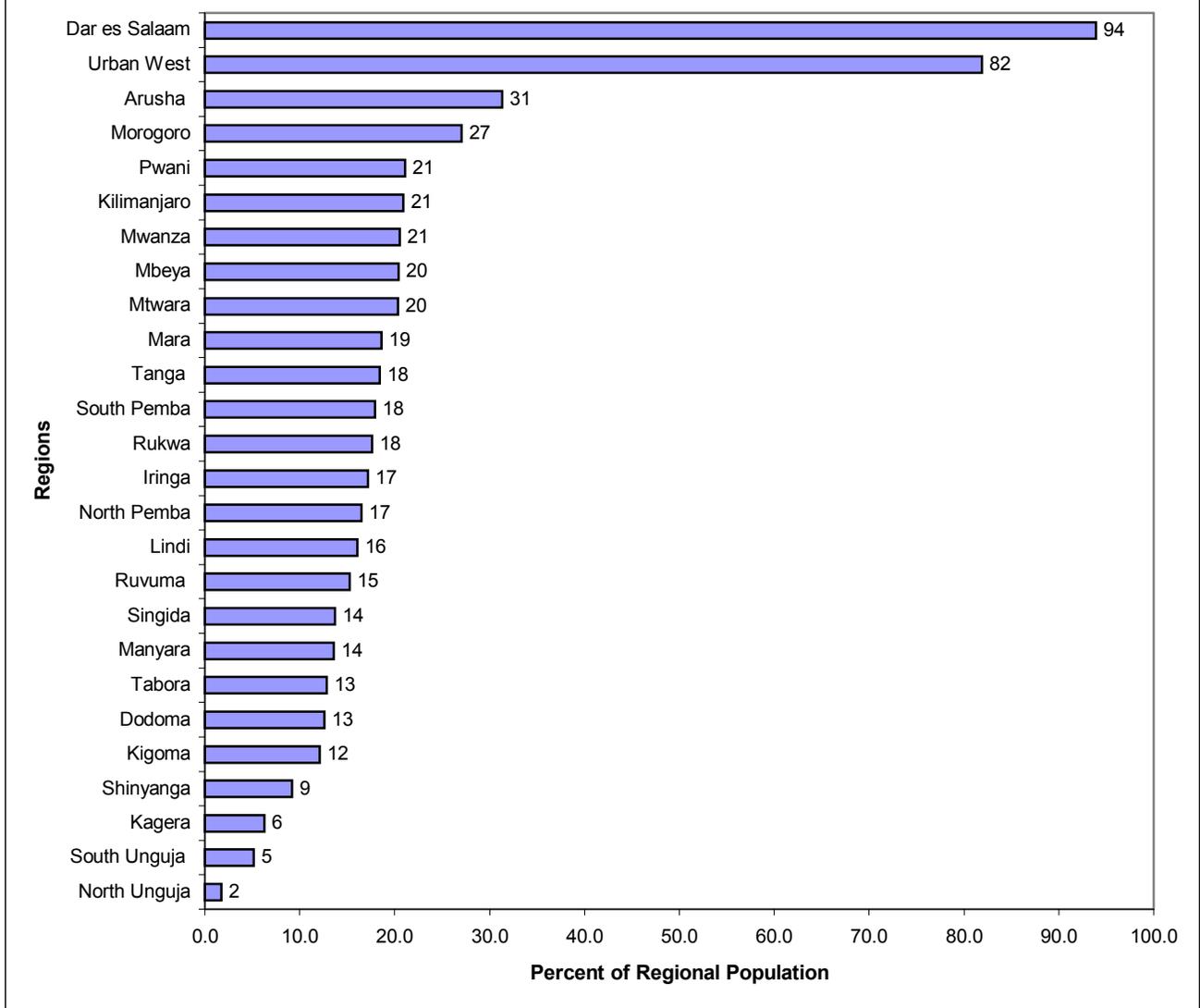
In Tanzania Zanzibar, the Urban West Region (18%) had the lowest proportion of its population living in rural areas, and North Unguja Region (98%) had the highest. In other words, Urban West and North Unguja are the most rural and urban regions, respectively in Tanzania Zanzibar. The second rural region in Tanzania Zanzibar is South Unguja (95%) followed by the North Pemba (84%) and South Pemba (82%) regions. The low rural population in Urban West is largely due to the fact that the regions are spatially covered by the Tanzania Zanzibar Municipality area. The foregoing analysis does not, however, reflect the contribution of each region to the total Tanzania rural population. Only the proportions of the regional populations living in rural areas for each region have been given here.

5.2. Distribution of Urban Population

In terms of contribution to the total urban population, Dar es Salaam (29.4%), Mwanza (7.6%), Morogoro (6.0%), Mbeya (5.3%), Arusha (5.1%), and Urban West (4.0%) are the largest contributors. These regions also harbor the largest urban areas in the country. The data reflects the dominance of Dar es Salaam, which contains about 31 percent of the Tanzania Mainland urban population and 29% of the Total Tanzania urban population. In total these six regions contribute about 57% of the urban population. The first five regions from the Tanzania Mainland contributed 53% of the national urban population and about 56% of the Tanzania Mainland's urban population. The five regions with the lowest contribution to the urban population in the Tanzania Mainland are Ruvuma (2.1%), Singida (1.9%), Manyara (1.8%), and Kagera and Lindi (1.7% each). The joint contributions of these regions to the National and Tanzania Mainland urban population is 712,202 people which represents 9.0% and 9.5% of the national and Tanzania Mainland urban populations, respectively.

In Tanzania Zanzibar, 82% of the urban population is in Urban West alone. This reflects the primacy of Tanzania Zanzibar town. The contribution of Urban West to the national urban population is 4%. North Pemba and South Pemba have almost the same number of urban population. The contribution of both South Pemba and North Pemba contribution to the total urban population was 8% in Tanzania Zanzibar and 0.4% for the national level. South Unguja has the smallest urban population and its contribution is a mere 1% in Tanzania Zanzibar and 0.1% for the national level. These features are clearly demonstrated in Figure 5.

Figure 5: Percent of Urban Population For Each Region (2002)



The general observation is that population density has been on an increase in all regions and the so called rural population is on a decline. Although the magnitude of the increase differs from one region and another, the consequences of the increase may be similar. While the population increases especially in rural areas, the land area available for human use remain the same and in other areas have even declined due to degradation and introduction of new land uses like mining. It has been a common observation that areas which have high concentration of people are also characterized by high rates of resource depletion, land use conflicts and increasing environmental decay.

5. Conclusion

The analysis in this paper has concentrated on the population growth, distribution and density. It is generally observed that the national population growth declined slightly from 3.0% in 1967/78 to 2.8% in 1978/88. This slight decline has also been observed at regional level. However, the decline does not mean

that there is low population growth now. The rates are still very high by international standards. Similarly, the size of the population continued to grow in absolute numbers. Differential rates of growth between regions are basically a result of differences in the natural growth, internal migration, and rates of urbanization. To some extent the physical and climatic conditions of the regions determine the concentration and distribution of the population. About 46% of the total population was under age 15 in the 1988 census as compared to 50% in age group 15-64 and 4% in age group 65 and above (Tanzania, 1991).

Concerning the population distribution, there is unevenly distributed between regions and districts. About 50 percent of the national population is concentrated in only 16 percent of the of the land area (Tanzania, 2003). This means that certain districts have high population density than others. At the regional level, about 60 percent of the total population was concentrated in 9 regions that had 1.5 or more million people in 2002. As a consequence to this observation, there was a high concentration of people in the Lake Zone Regions (Shinyanga, Mwanza, Kagera and Mara) which contributed around 26 percent of the Tanzania population.

Among the main factors determining population distribution in Tanzania are rapid urbanization, internal and international migration, and variations in physical and climatic conditions of the regions. Rapid urbanization has been demonstrated by the rapid change and high concentration of people in regions like Dar es Salaam, Arusha and Urban West where the observed percent change in population density were 83, 104 and 87 percent, respectively.

The impact of international migration was clearer in Kigoma where the growth rate increased from 2.8percent in 1978/88 to 4.8 percent in 1988/2002, and the percent change in population density was 96 percent which is among the highest. The rapid population increase in Mwanza and Shinyanga regions could be partly explained by the influx of migrant workers into the flourishing mining and fishing sectors.

Other factors influencing population distribution in Tanzania could include suitable climatic availability of arable and grazing land, differences in natural increase, and suitability of the natural, physical and climatic conditions. Areas which have favorable climate seem to have high population density as well. Good climatic conditions and availability of forest reserves in districts like Kahama, Bukombe and Geita could explain the influx of migrant agro-pastoral communities in those areas. Comparative data for 1978, 1988 and 2002 suggest that the population was more spread in 1978 and 1988 than in 2002.

With regards to rural-urban distribution, the urban population in Tanzania is rapidly increasing. While about 77 percent of the Tanzania population is still living in rural areas, the urban population has been increasing from 6 percent in 1967 to 23 percent in 2002. For Tanzania Zanzibar, the increase in urban population was from about 24 percent in 1967 to around 40 percent in 2002.

At the regional level, the highest proportion of regional population living in urban areas was found in Dar es Salaam (94%) followed by Urban West (82%), Arusha (31%), and Morogoro (27%). Other regions with significant proportions of urban population above 20 percent are Pwani, Kilimanjaro, Mwanza, Mbeya, and Mtwara. It is further observed that, districts which have the regional headquarters in their territory exhibit the highest urban growth. In most cases, however, the current rapid urbanization is unplanned and its consequences are reflected in the deterioration of the social services and urban environments.

Due to the uneven population distribution, there is also a marked variation in population density. The change in population density is more remarkable in Tanzania Zanzibar from 260 persons per km² in 1988 to 400 persons per km² in 2002. At regional level, regions from Tanzania Zanzibar had higher population density than the regions from Tanzania mainland, with the exception of Dar es Salaam. While the

population density in Tanzania Mainland ranged between 12 persons per km² in Lindi and 1,786 persons per km² in Dar es Salaam, the range in population density for Tanzania Zanzibar was from 110 persons per km² in South Unguja to 1,696 persons per km² in Urban West. These data demonstrate the primacy of Dar es Salaam and Zanzibar towns with regards to distribution of urban population which is also reflected in the high densities. Similar variations are observed at the district levels within region.

Though the proportion of rural population is declining over years, this does not mean an increase in land per capita in rural areas. The truth is that the rural population is still increasing rapidly though its proportional contribution to the national, regional or district level population is declining in response to increasing urban population. The consequence of increasing rural population in absolute numbers is high densities and increasing population pressure on the land resources leading to environmental degradation.

6. References

Central Statistical Bureau (1997), Report on the 1997 Swaziland Population and Housing Census, Census Analytical Report, Vol. 4,

Egero, B. and R.A. Henin (eds), (1973), The Population of Tanzania: An Analysis of the 1967 Population Census, Census Vol. 6, Bralup and Bureau of Statistics, Dar es Salaam.

Haupt, A. (2000), Population Handbook, 4th Edition, Population Reference Bureau, Washington DC.

Madulu, N.F. (1994), "*Population growth and distribution in Tanzania*", in Tanzania, United Republic of, The 1988 Population Census: National Profile -The Population of Tanzania: An Analytical Report, Bureau of Statistics, Dar es Salaam (pp.27-44).

Shryock, H.S. et.al. (1976), The Methods and Materials of Demography, Academic Press, Inc. Orlando, Florida.

URT (2003), *Age and Sex Distribution, 2002 Population and Housing Census*, Vol. 2, Central Census Office, national Bureau of Statistics, Dar es Salaam.

URT (1998) The Population of Tanzania: An Analytical Report, National Profile: The 1988 Population Census, Bureau of Statistics, President's Office, Planning Commission, Dar es Salaam.