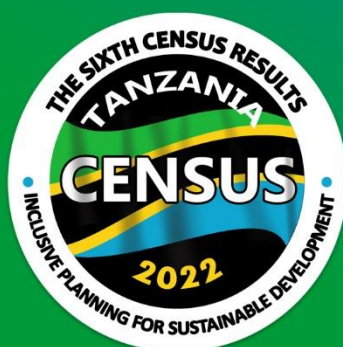# THE UNITED REPUBLIC OF TANZANIA

MORTALITY ANALYSIS IN TANZANIA

The United Republic of Tanzania

MORTALITY ANALYSIS IN TANZANIA

National Bureau of Statistics

Ministry of Finance

Dodoma

And

Office of the Chief Government Statistician

President's Office – Finance and Planning

Zanzibar

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Foreword

The 2022 Population and Housing Census (PHC) for the United Republic of Tanzania was conducted with a reference date of midnight between August 22 and 23, 2022. This marked both the sixth census since the Union of Tanganyika and Zanzibar in 1964, and the first digital census in Tanzania's history. The previous censuses took place in 1967, 1978, 1988, 2002, and 2012. The Sixth Phase Government of Tanzania, led by Her Excellency Dr. Samia Suluhu Hassan, along with the Eighth Phase Government of Zanzibar, under Dr. Hussein Ali Mwinyi, fulfilled their obligation to conduct the 2022 PHC in accordance with the United Nations Principles and Recommendations for Population and Housing Census. Their commitment and support throughout the census implementation deserve our gratitude.

The 2022 PHC was conducted per the Statistics Act Cap 351, which mandates the Government of the United Republic of Tanzania to conduct PHC every ten years. The census also adhered to the United Nations Principles and Recommendations for conducting the 2020 Round of Population and Housing Censuses, implementing advanced Information and Communication Technology (ICT) at all stages. The use of advanced technology for data collection during cartographic mapping, enumeration, data transmission, and processing made the 2022 PHC the first digital census ever carried out in Tanzania.

Additionally, for the first time, the Government of the United Republic of Tanzania conducted the 2022 Tanzania Buildings Census (2022 TBC) concurrently with the 2022 PHC. Buildings are essential infrastructure in the lives of people in Tanzania and around the world. They play a crucial role in supporting the economic, social, political, and cultural lives of individuals, families, and society as a whole. Notably, buildings, as part of premises, are key indicators for assessing the state of non-income economies for individuals or communities. The main purposes of buildings for both rural and urban residents include residential, commercial, commercial-residential, institutional, and industrial uses. The 2022 TBC aimed to address the long-standing challenge of insufficient information on buildings in the country and to align with various national, regional, and international policies related to human settlement development. Understanding that building censuses are vital for accessing

complete, accurate, and timely building information made this substantial undertaking possible.

The results of the 2022 PHC and TBC will contribute to integrated planning and sustainable development in the country. They will enhance awareness and transparency in resource allocation at all levels of administration based on actual population data. Government and stakeholders will utilize these results for monitoring and evaluating various national, regional, and international development frameworks, including the Tanzania Development Vision 2050 Zanzibar Development Vision 2050, the Third National Five-Year Development Plan 2021/22 - 2025/26, Zanzibar Development Plan 2021/22 - 2025/26, the East African Community Vision 2050, the Southern African Development Community Vision 2050, and the African Development Agenda 2063.

Furthermore, these results will help the country assess the progress of implementing the Sustainable Development Goals (United Nations Agenda 2030), which aim to achieve equality and eradicate all forms of poverty including extreme poverty by 2030, ensuring that no one is left behind. The census data will also serve as a foundation for calculating various indicators, such as enrolment and literacy rates, infant and maternal mortality rates, and unemployment rates.

The "Mortality Analysis in Tanzania" monograph is the ninth in a series of significant publications related to the 2022 PHC. Major reports produced so far include the Administrative Units Population Distribution Reports, Age and Sex Reports, the Tanzania Basic Demographic and Socio-economic Profile, and *Ripoti ya Idadi ya Watu katika Majimbo ya Uchaguzi* (Constituency Population Distribution Reports) in two volumes for the United Republic of Tanzania and Tanzania Zanzibar. The first three reports are available in three volumes covering the United Republic of Tanzania, Tanzania Mainland, and Tanzania Zanzibar. The primary objective of this report is to analyze and provide information on mortality trends in Tanzania, specifically estimating infant, child, under-five, adult, and maternal mortality rates.

The success of both the 2022 PHC and the Tanzania Building Census (TBC) relied heavily on the cooperation and contributions from the Government, particularly the various Census Committees at all administrative levels. This includes the National Central Census Committee, the National Census Advisory Committee, the National Census Technical Committee, as well as census committees at the regional, district, ward, village/mtaa, and hamlet levels. Additionally, there were forums comprising of non-state actors, including the

Collaborators Forum, private sector representatives, various institutions, and the general public.

We extend our gratitude to government leaders at all levels, especially the Minister for Finance, the Minister for Lands, Housing, and Human Settlements Development, the Minister of State in the President's Office for Finance and Planning in Zanzibar, the Minister for Lands and Housing Development in Zanzibar, Members of Parliament, Members of the House of Representatives, Councillors/Shehas, and the Regional and District Census Committees chaired by Regional and District Commissioners. Our thanks also go to the Census Coordinators for both the Tanzania mainland and Zanzibar, as well as Regional and District Coordinators, Supervisors, Enumerators, local leaders, and all respondents (heads of households, household members, and other individuals).

We are particularly grateful to the following development partners: the United Nations Population Fund (UNFPA), the World Bank (WB), the United Nations Children's Fund (UNICEF), UN-Women, the International Organization for Migration (IOM), the United States Agency for International Development (USAID), the Foreign, Commonwealth and Development Office (FCDO), the United States Census Bureau (USCB), the Republic of South Korea, the People's Republic of China, and other partners for providing equipment, expertise, training, and financial support, which were crucial in making the 2022 Population and Housing Census a success. We also acknowledge the contributions of religious, traditional, and political leaders, non-governmental organization leaders, the media, and all citizens and non-citizens who participated in the successful implementation of the census.

Special thanks also goes to Honourable Anne Semamba Makinda - Census Commissar for Mainland Tanzania Mainland Tanzania and Former Speaker of the National Assembly; and Honourable Ambassador Mohamed Haji Hamza - Census Commissar for Tanzania Zanzibar, for their effective leadership and management in educating and sensitizing all citizens and non-citizens to participate in the 2022 Population and Housing Census thus, resulting in enhanced quality, smooth and timely execution of the Census exercise.

Last but not least, we acknowledge the unprecedented efforts and commitment of the management and staff of the NBS under the leadership of Dr. Amina Msengwa, the Statistician General; and staff of the Office of the Chief Government Statistician, Zanzibar under the leadership of Mr. Salum Kassim Ali; Chief Government Statistician; Dr. Albina Chuwa, former Statistician General, staff from the Ministry of Lands, Housing and Human

Settlements Development; Ministry of Information, Communication and Information Technology; as well as other Government officials who worked tirelessly in ensuring that the 2022 Population and Housing Census was implemented successfully.

Kassim Majaliwa Majaliwa (MP)
Prime Minister of
The United Republic of Tanzania

Hemed Suleiman Abdulla (MRC)
Second Vice President of Zanzibar

Acknowledgement

Additionally, we are grateful to the professionals, regional and district supervisors, enumerators, field supervisors, and media personnel for their invaluable work. Their commitment played a crucial role in the success of the census, and we also appreciate the public for their cooperation throughout the entire Census period.

Dr. Amina Suleiman Msengwa
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Executive Summary

This Mortality Analysis Report provides an in-depth analysis of the level, trend and pattern of mortality in Tanzania. Specifically, it analyses and provides information on infant, under-five, adult and maternal mortality indicators using data from the 2022 Population and Housing Census (PHC). Where data allow, comparisons are made with estimates of previous censuses, other sources and other countries. The information is presented at national level and where necessary disaggregated by rural or urban Tanzania Mainland and Zanzibar. It is also disaggregated into the 31 administrative regions in the country (26 in Tanzania Mainland and 5 in Zanzibar). The analysis presented in this volume generally shows that there was a decline in mortality compared to previous census.

Chapter One presents an overview of the 2022 PHC and on Mortality Analysis. It presents a brief history and objectives of census undertaking in the country, the 2022 PHC as well as mortality analysis. Besides, it presents the questions used in 2022 PHC in collecting information on deaths in household and quality of mortality data. The chapter also highlights the methodology used in the estimation of mortality indicators.

Chapter Two presents adult and general population mortality. The chapter provides information on crude death rates and age-specific death rates. It also presents the information on causes of deaths. The Crude Death Rate (CDR) in 2022 is around 8 deaths per 1,000 persons for Tanzania total. CDRs were higher (around 9 deaths per 1,000 persons) for males than for females (6 deaths per 1,000 persons). The age pattern of mortality was, as expected, almost the same in males and females, with high mortality rates at younger age (under 1 year) and older ages. Adult mortality estimates using Growth Balance Method (GBM) show that, life expectancy at age x in Tanzania decreases as age increases for both males and females (ranges from 61.4 and 66.1 years lived at age group (5-9) years to 4.5 and 4.9 years lived at age 85 years and above for males and females respectively).

Chapter Three provides childhood mortality estimates. The Infant Mortality Rate (IMR) in Tanzania is 34.3 deaths per 1,000 live births. The estimated rates for Tanzania Mainland are almost the same as national estimates while for Zanzibar the IMR is 34.7 deaths per 1,000 live births. Urban areas reported lower IMR (33.4 deaths per 1,000 live births) than rural areas (34.9 deaths per 1,000 live births). Male children experienced higher mortality rates than female ones, with a male IMR of 39.6 compared with 29.0 deaths per 1,000 live

births for females and under-five mortality rates (U5MR) of 60.3 for males and 47.8 for females. Significant regional differences are found in IMR with Arusha and Kilimanjaro Regions having the lowest IMR (19.7 and 24.4 deaths per 1,000 live births respectively), while regions like Rukwa, Mtwara, Kagera and Lindi reported higher rates ranging from 40.7 to 42.8 deaths per 1,000 live births.

Chapter Four presents a Life Table which provides life expectancy at birth, the most useful summarized measurement of mortality level of in a country's population. The estimates show an overall life expectancy at birth in Tanzania was 65 years and Tanzania Mainland was 66 years. For Zanzibar, life expectancy at birth was slightly lower (64 years). The life expectancy at birth for Tanzania is higher among rural population (66 years) than urban populations (64 years). Manyara Region has the highest life expectancy of 74 years while Tanga Region has the lowest life expectancy of 60 years. While, life expectancy is higher among females (68 years) than males (62 years).

Chapter Five presents the Maternal Mortality Ratio. Results shows that MMR for Tanzania is 147 and Tanzania Mainland is 146 deaths per 100,000 live births which is lower than that of Zanzibar of 196 deaths per 100,000 live births. Results reveal that there were clear differences in maternal mortality ratio among regions ranging from 279 in Kaskazini Pemba to 80 deaths per 100,000 live births in Singida Region.

Chapter Six presents a summary of the key findings to inform the public and health stakeholders on current mortality trends and health challenges. It include a conclusion, policy implication and recommendations on the mortality indicators such as infant and child mortality rates, life expectancy at birth and maternal mortality ratio. These findings provide a baseline information on the Tanzania's population for policy formulation and review, development planning, informed decision making, monitoring and evaluation and reporting of development programmes at regional and national levels.

Census results in brief – key mortality indicators, 2022 PHC

Indicator	Tanzania	Tanzania Mainland	Tanzania Zanzibar
Crude Death Rate	**7.5**	**7.6**	**5.4**
Rural	7.5	7.6	5.6
Urban	8.1	8.1	5.0
Male	8.6	8.7	6.6
Female	6.3	6.3	4.4
Infant Mortality Rate	**34.3**	**34.3**	**34.7**
Rural	34.9	34.9	34.5
Urban	33.4	33.3	34.9
Male	39.6	39.6	40.0
Female	29.0	29.0	29.3
Child Mortality Rate	**20.0**	**20.0**	**22.2**
Rural	20.3	20.3	20.1
Urban	19.5	19.6	20.3
Male	20.6	20.6	20.3
Female	18.8	18.7	18.9
Under-Five Mortality Rate	**54.3**	**54.3**	**54.9**
Rural	55.2	55.2	54.6
Urban	52.9	52.9	55.2
Male	60.3	60.2	60.3
Female	47.8	47.7	48.2
Life Expectancy at Birth	65.4	**65.5**	**64.1**
Rural	66.3	66.9	66.3
Urban	64.2	64.2	62.7
Male	62.4	62.4	62.4
Female	68.4	68.7	65.9
Maternal Mortality Ratio	**147**	**146**	**196**

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Abbreviation and Acronym

ASDR	Age-Specific Death Rate
BOD	Burden of Disease
CDR	Crude Death Rate
CMR	Child Mortality Rate ($_4q_1$)
DSS(s)	Demographic Surveillance Sentinel Sites
EA	Enumeration Area
EMDHS	Ethiopia Mini Demographic and Health Survey
EMOC	Emergency Obstetric Care
e_0	Life Expectancy at Birth
FCDO	Foreign Commonwealth and Development Office
GBM	Growth Balance Method
HDI	Human Development Index
HSSP	Health Sector Strategic Plan
ICT	Information and Communication Technology
IMR	Infant Mortality Rate ($_1q_0$)
IOM	International Organization for Migration
LTR	Lifetime Risk
MMR	Maternal Mortality Ratio
NBS	National Bureau of Statistics
OCGS	Office of Chief Government Statistician
PHC	Population and Housing Census
SBH	Summary Birth Histories
TDHS	Tanzania Demographic and Health Survey
TBC	Tanzania Buildings Census
TFR	Total Fertility Rate
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USCB	United States Census Bureau
URT	United Republic of Tanzania
USAID	United States Agency for International Development
U5MR	Under-5 Mortality Rate ($_5q_0$)
WB	World Bank
WHO	World Health Organization

Concepts and Definitions

Age-Specific Death Rates (ASDR): The ASDR is the number of deaths per 1000 population of a specific age group.

Crude Death Rate (CDR): The CDR is the number of deaths occurring in a calendar year per 1,000 population.

Infant Mortality Rate (IMR): Infant Mortality Rate refers to number of deaths of children per 1,000 live births under the age of one year.

Life Expectancy at Birth (e_o): An estimate of the average number of years a newborn baby is expected to live subject to the mortality risks prevailing in a cross-section of a population at the time of birth.

Lifetime Risk (LTR) of maternal death: Probability that a woman will die due to maternal causes such as pregnancy complications, childbirth, or postpartum period over course of lifetime, usually expressed as a ratio or percentage.

Maternal Mortality: Deaths occurring to women of reproductive age due to pregnancy and childbirth related causes. Such deaths occur during pregnancy or delivery or within 42 days of delivery due to child bearing related complications.

Under 5 Mortality Rate (U5MR): Number of deaths of children under 5 years of age per 1,000 live births.

Chapter One

Introduction

1.1 Background on 2022 Population and Housing Census

The National Bureau of Statistics (NBS), in collaboration with the Office of the Chief Government Statistician (OCGS) Zanzibar, conducted Population and Housing Censuses (PHC) in the United Republic of Tanzania in accordance with the Statistics Act CAP 351, which requires a census to be conducted in every ten years,. This is the sixth Census after the Union of Tanganyika and Zanzibar in 1964, conducted in accordance with international standards, particularly the United Nations Principles and Recommendations for population counts. Other censuses conducted included those of 1967, 1978, 1988, 2002 and 2012.

The census referenced at the midnight of 22 and 23 August 2022 was undertaken on a *de-facto* basis. Unlike the previous censuses, the 2022 PHC enumerated people basing on place of residence on the census night. All persons found in the country were enumerated, regardless of nationalities or citizenship. The enumeration was planned for seven days; however, it took nine days. The 2022 PHC used mobile technology in gathering census data and information collection which marks the first digital census in Tanzania.

The censuses show that Tanzania's population increased from 12.3 million in 1967 to 61.7 million in 2022 (Figure 1.1). The average annual population growth rate of Tanzania increased from 2.7 percent in 2002-2012 to 3.2 percent 2012-2022, intercensal periods.

Figure 1.1: Tanzania Population Count During the Population Censuses
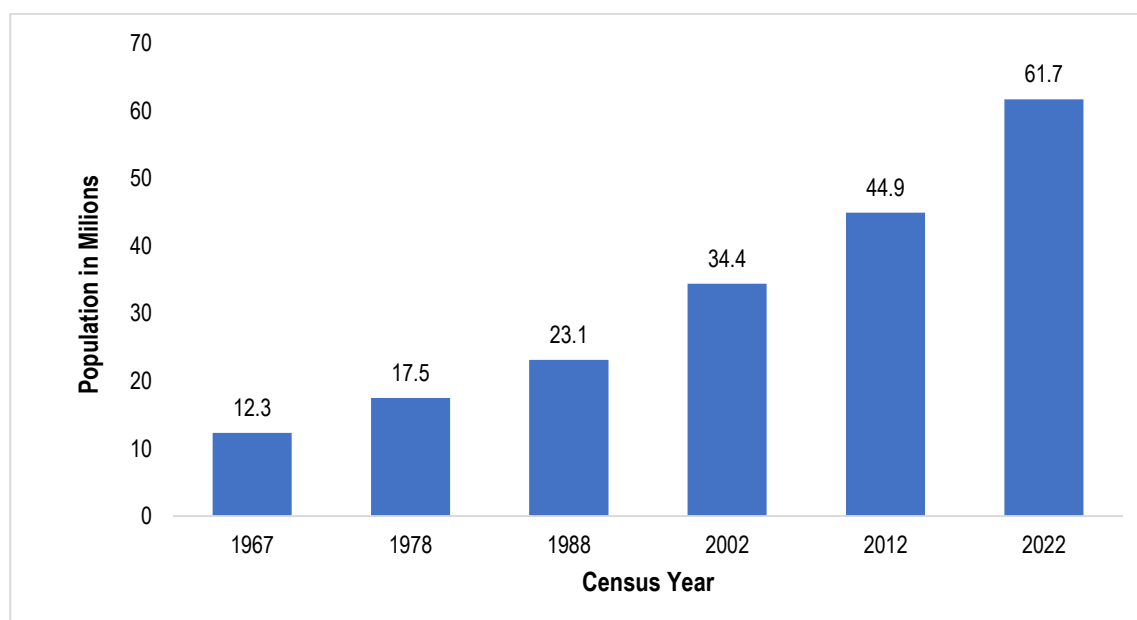
1.2 Objectives of the 2022 Population and Housing Census

The main objective of 2022 PHC is to provide information to the Government on the population size, distribution, composition and other social economic characteristics of the population as well as information on housing conditions. It would improve accessibility to reliable quality data for policy formulation, development planning, evidence-based decision making and service delivery as well as for monitoring and evaluating population and socio-economic programmes in the country. Ultimately, enhance achievement of improved quality of life in Tanzania.

The specific objectives of the 2022 PHC were to:

a) Increase availability and accessibility of accurate, timely and reliable data on demographic, socio-economic characteristics and environment;

b) Promote better knowledge management on Tanzanian socio-economic, demographic characteristics and environment as well as patterns and trends of population growth;

c) Promote better use of lower administrative levels disaggregated socio-economic, demographic and environment data;

d) Enhance capacity of NBS and OCGS in carrying out population and housing censuses and other statistical data; and

e) Establish a comprehensive buildings and National Physical Addresses database that enable evidence-based decisions as a key tool for enhancing access to social services, expansion of tax base and quality of development programmes in general.

1.3 Relevance of the Mortality Monograph

The level of mortality reflects the country's conditions of morbidity and related factors including prevalence of diseases, environmental and nutritional factors as well as the functioning of the health care systems. The analysis of mortality levels and trends in a country is, therefore, important because mortality indicators may be used in policy formulation, strategic planning, monitoring and evaluation of health related and other socio-economic programmes, as well as in analysing other demographic characteristics of population. It provides also important indicators for assessment of the socio-economic status of a population, such as calculating the Human Development Index (HDI) for assessing achievement of the national and international goals.

The information on deaths and other socio-economic characteristics collected in the population census questionnaires for more than five decades, evaluated level and pattern of mortality in Tanzania. Some of the information collected from 1991/92, 1996, 2004/05, 2010, 2015/16, 2022 Demographic and Health Surveys and 1999 Tanzania Reproductive and Child Health Survey was used in analysing mortality data in this monograph.

1.4 Objective of Mortality Monograph

The main objective of the monograph is to analyze and provide information on levels and trends of mortality in Tanzania, specifically to:

  i.   Estimate infant, under-five and adult mortality;
  ii.   Project the trend and levels of infant and under-five mortality;
  iii. Determine the childhood mortality differentials by place of residence and other characteristics;
  iv.   Estimate life expectancy at birth and provide level and trend;
  v.   Provide life expectancy at birth differentials by place of residence and other characteristics;
  vi.   Measure maternal mortality; and
  vii. Provides rates of reported causes of deaths.

This volume provides an estimation of the levels and trends of various mortality indicators in Tanzania. These include Crude Death Rate (CDR), Age Specific Death rate (ASDR), adult mortality rates, Infant Mortality Rate (IMR), Child Mortality Rate (CMR), Under-five Mortality Rate (U5MR) and Maternal Mortality Ratio (MMR). These measurements presented at national level and for Tanzania Mainland and Zanzibar are further disaggregated by rural and urban areas and the 31 administrative regions in the country (26 regions in Tanzania Mainland and 5 regions in Tanzania Zanzibar). Comparison with previous censuses or estimates from other sources including other countries, where data allows are presented.

1.5 Census Questions on Mortality

The 2022 PHC Questionnaire had a total of eight questions directly related to mortality. Five of them enquired on total number of deaths that occurred in a household by sex, age and cause of death of the deceased. The questions on causes of death focused on whether it was road traffic accidents, other injuries, suicide, domestic violence, sickness/diseases, maternal or other causes. The other three questions on maternal deaths, focused on whether it was during pregnancy, delivery or six weeks after delivery (puerperium period).

There were questions for selected population related to orphan hood that sought information as to whether one or both of the parents were alive or not. There were also questions on fertility which sought information on number of children ever born alive and surviving to women aged 12-49 years. Such information is useful in indirect estimation of mortality, which relies partially on model life tables in deriving childhood mortality and life expectancy. More details on questionnaires are provided in Appendix 2.

The questions on maternal deaths in the 2022 PHC facilitated a detailed analysis of maternal mortality in the country. Respondents in all households were asked whether any deaths occurred in the household in the last 12 months prior to the census reference date and if so, the sex and age of the deceased at the time of death, and the cause of death that allow the comparison with 2022 Tanzania Demographic and Health Survey and Malaria Indicator Survey (TDHS-MIS). It should be noted that the necessary questions for the sisterhood method for estimating MMR were not collected in the 2022 population Census.

1.6 Quality of Mortality Data

Data on mortality from censuses was scrutinized all along. This is due to possible errors in reporting or measurement biases that may affect quality of data. Respondents in households may be reluctant to report a recent death of household member, or if it occurred to an infant especially in first few days of birth or if the death occurred elsewhere. There are also problems in identifying causes of death or misreporting age of the deceased or the way questions were asked or the probing on deaths coupled with characteristics of the respondents may cause in errors in the reported deaths.

Various methods and techniques applied include Gross Balance Method (GBM) for estimating mortality rates from death age distribution were used to evaluate and adjust the information on deaths in the 2022 Population and Housing Census. The childhood mortality rates estimated using Brass and Coale (1968) and Maternal mortality ratio used spread sheet developed by the World Health Organization (WHO 2014). Lifetables were constructed using indirect mortality estimation method in MORTPAK application.

Chapter Two

Mortality in General Population

Key Points

- Crude Death Rate (CDR) for Tanzania is around 8 deaths per 1,000 population. It is higher for males (around 9 deaths per 1,000 population) than females (6 deaths per 1,000 population).
- Age pattern of mortality is almost the same for males and females, with high mortality rates in younger age (under 1 year) and older ages, as expected.
- Diseases or sicknesses have the highest percentage (83.7%) of causing all reported of deaths in Tanzania. It is higher in females (86.2%) than males (81.7%).
- Life expectancy at age 20 shows that on average adult females live almost 5 years longer than males in Tanzania. Usually, as age increases the probability of dying is higher and , it is in most ages lower for females than males.

2.1 Introduction

This chapter analyses the information on mortality and causes of deaths among general population in Tanzania. Specifically it presents unadjusted and adjusted crude death rates, age specific death rates and estimation of adult mortality. The rates of mortality show socio-economic development level and quality of life at a country level. The data from 2022 Population and Housing Census (PHC) were to provide an accurate overview on the level of mortality among the general population. The 2022 PHC asked questions on deaths in households within the one year preceding the census and child survivorship status. The Growth Balance Method was also used in estimating adult mortality by comparing the age distribution of deaths and age distribution in the population.

2.2 Crude Death Rates

The Information on deaths that occurred in a household in the past 12 months prior to the census date were used in the estimation of Crude Death Rates (CDR) and age-specific death rates. As known that, information on mortality derived from censuses has all along been unreliable, this has necessitated the need to evaluate and hence adjust the reported death data to get desired mortality levels, quality data is of importance hence evaluation of

data has to be done before embarking on estimation of mortality indices. Therefore, the adjusted deaths was done.

Table 2.1 presents the information on unadjusted and adjusted Crude Death Rate (CDR) by sex and place of residence. The results show that, adjusted CDR for Tanzania stands at around 8 deaths per 1,000 population but is higher in males (around 9 deaths per 1,000 population) than females (6 deaths per 1,000 population). CDR is higher in rural Tanzania (8 deaths per 1,000 population) than in urban Tanzania (6 deaths per 1,000 population). The same pattern is observed in Tanzania Mainland.

In Zanzibar, adjusted CDR is 5 deaths per 1,000 population; higher among males than females (around 7 and 4 deaths per 1,000 population respectively). CDR is higher in rural areas (around 6 deaths per 1,000 population) than urban areas (5 deaths per 1,000 population).

Table 2.1: Unadjusted and Adjusted Crude Death Rates by Sex and Place of Residence; Tanzania, 2022 PHC

Place of Residence	Un adjusted			Adjusted		
	Total	Male	Female	Total	Male	Female
Tanzania Total	**7.5**	**8.5**	**6.5**	**7.5**	**8.6**	**6.3**
Rural	7.6	8.6	6.7	8.1	9.5	7.0
Urban	7.2	8.2	6.2	6.4	7.4	5.3
Tanzania Mainland	**7.5**	**8.5**	**6.5**	**7.6**	**8.7**	**6.3**
Rural	7.6	8.7	6.7	8.1	9.3	6.9
Urban	7.1	8.2	6.2	6.3	7.4	5.3
Zanzibar	**7.2**	**8.0**	**6.4**	**5.4**	**6.6**	**4.4**
Rural	6.7	7.7	5.8	5.6	7.2	4.3
Urban	7.6	8.3	7.0	5.0	6.0	4.1

Table 2.2 shows the comparison of adjusted CDR in 2012 and 2022 PHCs. The results show that mortality has generally declined in Tanzania by 1.8 deaths per 1,000 population in the intercensal period 2012-2022. CDR in urban Tanzania declined by 2.9 deaths per 1,000 population while in rural areas declined by 1.8 deaths per 1,000 population. In Tanzania Zanzibar, CDR declined by 1.6 deaths per 1,000 population in the intercensal period 2012-2022.

Table 2.2: Adjusted Crude Death Rates by Sex; Tanzania, 2012 and 2022 PHCs

Place of Residence	2012			2022		
	Total	Male	Female	Total	Male	Female
Tanzania Total	**9.3**	**10.0**	**8.6**	**7.5**	**8.6**	**6.3**
Rural	9.5	10.2	8.8	8.1	9.5	7.0
Urban	9.3	10.1	8.5	6.4	7.4	5.3
Tanzania Mainland	**9.4**	**10.1**	**8.6**	**7.6**	**8.7**	**6.3**
Rural	9.4	10.1	8.7	8.1	9.3	6.9
Urban	9.2	10.0	8.4	6.3	7.4	5.3
Zanzibar	**7.0**	**7.9**	**6.2**	**5.4**	**6.6**	**4.4**
Rural	7.2	8.2	6.3	5.6	7.2	4.3
Urban	6.6	7.7	5.6	5.0	6.0	4.1

The results reveal that, the differences in adjusted CDR across regions ranging from 3.6 deaths per 1,000 population in Arusha Region to 13.5 deaths per 1,000 population in Njombe Region. Fifteen regions have higher CDR above the national average of 7.5 deaths per 1,000 population include Njombe (13.5), Kilimanjaro (11.2), Mtwara (10.2), Kagera (9.5), Mara (9.1), Lindi (8.9), Tabora (8.7), Shinyanga, Kigoma, Ruvuma and Pwani (8.4 each), Tanga (8.3), Iringa (8.1), Mbeya (7.9) and Morogoro (7.7) deaths per 1,000 population (Table 2.3 and Figure 2.1).

Table 2.3: Unadjusted and Estimated Crude Death Rates by Region, Tanzania, 2022 PHC

Region	2022 Unadjusted			2022 Adjusted		
	Total	Male	Female	Total	Male	Female
Tanzania Total	**7.5**	**8.5**	**6.5**	**7.5**	**8.6**	**6.3**
Tanzania Mainland	**7.5**	**8.5**	**6.5**	**7.6**	**8.7**	**6.3**
Dodoma	7.4	8.1	6.4	7.5	8.8	6.1
Arusha	5.3	6.1	4.3	3.6	4.2	2.9
Kilimanjaro	11.2	12.8	9.2	11.2	11.7	10.1
Tanga	11.1	12.2	9.7	8.3	9.3	7.2
Morogoro	8.3	8.9	7.6	7.7	8.7	6.7
Pwani	8.9	9.7	8.1	8.4	8.8	7.8
Dar es Salaam	7.5	8.4	6.5	6.5	7.8	5.2
Lindi	10.6	11.6	9.3	8.9	10.4	7.3
Mtwara	11.6	13.0	9.9	10.2	11.1	8.9
Ruvuma	7.5	8.4	6.5	8.4	9.3	7.2
Iringa	7.1	8.1	5.9	8.1	8.8	7.0
Mbeya	7.7	8.6	6.7	7.9	8.9	6.7
Singida	6.4	7.0	5.8	5.6	6.9	4.4
Tabora	7.1	7.7	6.4	8.7	10.0	7.2
Rukwa	6.5	7.5	5.3	6.1	7.1	4.8
Kigoma	7.2	8.2	5.8	8.4	9.6	6.9
Shinyanga	6.2	6.9	5.5	8.4	9.7	6.9
Kagera	8.2	9.2	6.8	9.5	10.7	7.8
Mwanza	7.0	7.9	6.0	7.5	8.5	6.1
Mara	8.4	9.6	6.8	9.1	10.3	7.5
Manyara	5.5	6.2	4.4	5.0	5.7	3.9
Njombe	6.0	6.9	4.8	13.5	15.6	10.9
Katavi	5.9	6.7	4.9	7.5	9.5	5.4
Simiyu	6.3	7.1	5.3	6.3	6.9	5.6
Geita	6.2	7.0	5.1	7.0	8.3	5.5
Songwe	7.1	8.1	5.7	7.3	8.4	5.8
Zanzibar	**7.2**	**8.0**	**6.4**	**5.4**	**6.6**	**4.4**
Kaskazini Unguja	6.6	7.2	5.8	6.2	7.7	4.8
Kusini Unguja	6.6	7.1	5.9	6.1	7.0	5.1
Mjini Magharibi	7.6	8.3	6.8	4.9	5.9	4.0
Kaskazini Pemba	8.0	9.1	6.7	5.9	7.7	4.2
Kusini Pemba	6.6	7.4	5.6	6.3	6.8	5.5

Figure 2.1: Adjusted Crude Death Rates by Region, 2022 PHC

Region	Deaths per 1,000 population
Njombe	13.5
Kilimanjaro	11.2
Mtwara	10.2
Kagera	9.5
Mara	9.1
Lindi	8.9
Tabora	8.7
Shinyanga	8.4
Kigoma	8.4
Ruvuma	8.4
Pwani	8.4
Tanga	8.3
Iringa	8.1
Mbeya	7.9
Morogoro	7.7
Katavi	7.5
Mwanza	7.5
Dodoma	7.5
Songwe	7.3
Geita	7.0
Dar es Salaam	6.5
Kusini Pemba	6.3
Simiyu	6.3
Kaskazini Unguja	6.2
Kusini Unguja	6.1
Rukwa	6.1
Kaskazini Pemba	5.9
Singida	5.6
Manyara	5.0
Mjini Magharibi	4.9
Arusha	3.6
Tanzania Zanzibar	5.4
Tanzania Mainland	7.6
Tanzania	7.5

2.3 Age Pattern of Mortality

Figure 2.2 shows the age mortality pattern in Tanzania. The age pattern of mortality is almost the same for males and females; with higher mortality rates at the younger age (under 1 year) and older ages (75 years and above), as expected.

Figure 2.2: Reported Age Specific Death Rates by Sex; Tanzania, 2022 PHC
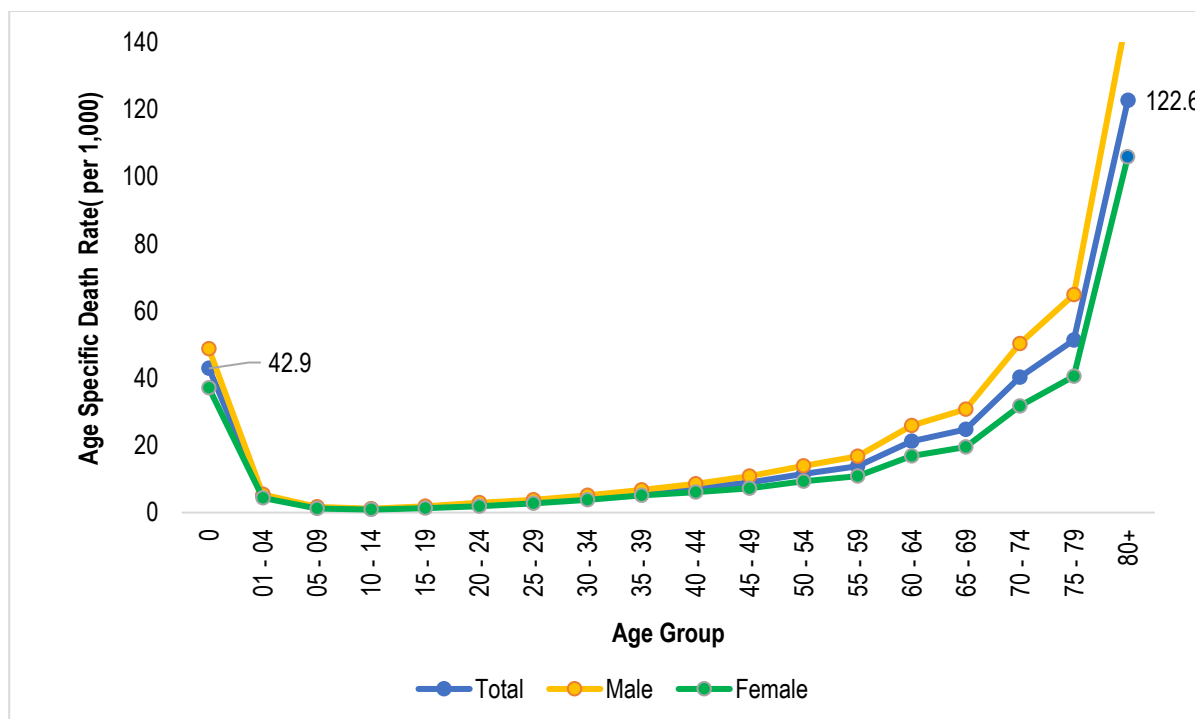
2.4 Causes of Death

The 2022 PHC collected information on causes of death among total population. The question asked was "*What was the main cause of death*", the responses were in closed ended where respondents required to answer only one reason which are; road accidents, other accidents (including fall down or drowning, fire, poison, suffocation, animal related injury and other), suicide, domestic violence or homicide, sickness or disease (including all types of sickness/disease such as malaria, tuberculosis, corona, diabetic, etc.). Other responses are maternal death, killed and unspecified reasons. Unspecified reasons include reasons that respondents could not know including sudden death, corpse being brought to the household for burial and did not know any other cause of death.

The results show that, sickness or disease was the leading cause (83.7%) for all reported deaths in Tanzania. It was higher among females (86.2%) than males (81.7%). The percentage of reported sickness or diseases as the cause of deaths in Tanzania Mainland, is almost the same as Tanzania (83.9%) while it was 78.1 percent and higher for females

(80.8%) than males (75.7%) in Zanzibar. The results also show that, 6.9 percent of reported deaths were due to unspecified causes of death and higher in males (7.2%) than females (6.6%) (Table 2.4).

Table 2.4: Percentage Distribution of Reported Deaths by Sex And Causes of Death; Tanzania 2022 PHC

| Cause of Death	Tanzania Total			Tanzania Mainland			Tanzania Zanzibar		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Road Accident	3.2	4.7	1.3	3.2	4.7	1.3	3.0	4.4	1.3
Other Accidents	2.9	3.7	1.9	2.9	3.7	1.9	2.9	4.1	1.5
Suicide	0.5	0.8	0.3	0.6	0.8	0.3	0.2	0.2	0.1
Domestic Violence/Homicide	0.3	0.3	0.2	0.3	0.3	0.2	0.1	0.2	0.1
Sickness/Disease	83.7	81.7	86.2	83.9	81.9	86.4	78.1	75.7	80.8
Maternal Death	1.2	0.0	2.7	1.2	0.0	2.7	1.2	0.0	2.6
Killed	1.3	1.7	0.7	1.3	1.7	0.7	2.1	2.5	1.6
Unspecified reasons	6.9	7.2	6.6	6.7	7.0	6.4	12.4	12.8	12.0
Total Percent	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Cause of Death (Number)	**460,694**	**254,672**	**206,022**	**447,159**	**247,356**	**199,803**	**13,535**	**7,316**	**6,219**

According to the 2022 PHC, the proportion of reported road accidents caused deaths in Tanzania was higher in the age group of 20-24 years (12.8%) followed by age group of 25-29 years (11.9%). The proportion of reported maternal deaths caused deaths is higher in the age groups 20-24 and 25-29 years (8.0% and 7.8% respectively). The results also show that, the proportion of sickness or disease caused deaths are almost same for age groups 70-74 and 75-79 years (94.0% and 94.6% respectively) (Table 2.5).

Table 2.5: Percentage Distribution of Reported Deaths by Cause of Deaths and Age Groups; Tanzania, 2022 PHC

Age Group	Total	Cause of Death							
		Road Accident	Other Accidents	Suicide	Domestic Violence/ Homicide	Sickness/ Disease	Maternal Death	Killed	Unspecified reasons
Total	460,694	3.2	2.9	0.5	0.3	83.7	1.2	1.3	6.9
0	84,423	0.4	1.6	0	0.2	78.2	0	0.7	18.9
1-4	36,810	1.5	6.4	0	0.3	86	0	0.7	5.2
5-9	12,911	4.6	8.7	0.2	0.3	80.3	0	0.9	4.9
10-14	8,189	4.7	8.6	1.2	0.4	78.2	0.5	1.3	5.2
15 - 19	10,033	8.7	6.8	2.2	0.5	69.3	5	2.9	4.7
20 - 24	13,310	12.8	6.5	2.2	0.6	61.2	8	4.1	4.6
25 - 29	15,162	11.9	5.9	2	0.7	62.9	7.8	4.3	4.6
30 - 34	17,550	9.7	4.5	1.5	0.4	69.3	6.5	3.3	4.8
35 - 39	19,036	7.7	4	1.3	0.4	73.9	5.4	2.8	4.6
40 - 44	19,773	5.8	2.9	1.2	0.3	80.1	2.4	2.5	4.8
45 - 49	20,528	4.8	2.8	1	0.3	83.5	0.8	2	4.7
50 - 54	21,410	3.6	2.3	0.7	0.3	87.4	0	1.3	4.3
55 - 59	17,281	3.2	2	0.7	0.2	88.6	0	1.3	4.1
60 - 64	24,384	2.2	1.4	0.5	0.2	91.4	0	0.9	3.5
65 - 69	17,450	1.8	1.3	0.4	0.2	92.5	0	0.8	3
70 - 74	25,258	1.2	1.2	0.2	0.2	94	0	0.6	2.7
75 - 79	19,221	1	1.1	0.2	0.1	94.6	0	0.5	2.5
80+	77,965	0.6	1	0.1	0.1	93.6	0	0.4	4.2

Figure 2.3 shows the distribution of reported road accidents, disaggregated by sex and age groups. The results show that, males are at a higher risk of dying in road accident when they in the age groups 20-24, 25-29 and 30-34 years. Although the age pattern of the cause of deaths is almost the same in males and females, they almost have the same proportions of deaths caused by road accident at age group 5-9 years and declining to age group 10-14 years where it had lower proportion of females than males.

Figure 2.3: Percentage of All Reported Deaths Caused by Road Accidents by Sex and Age Groups; Tanzania, 2022 PHC
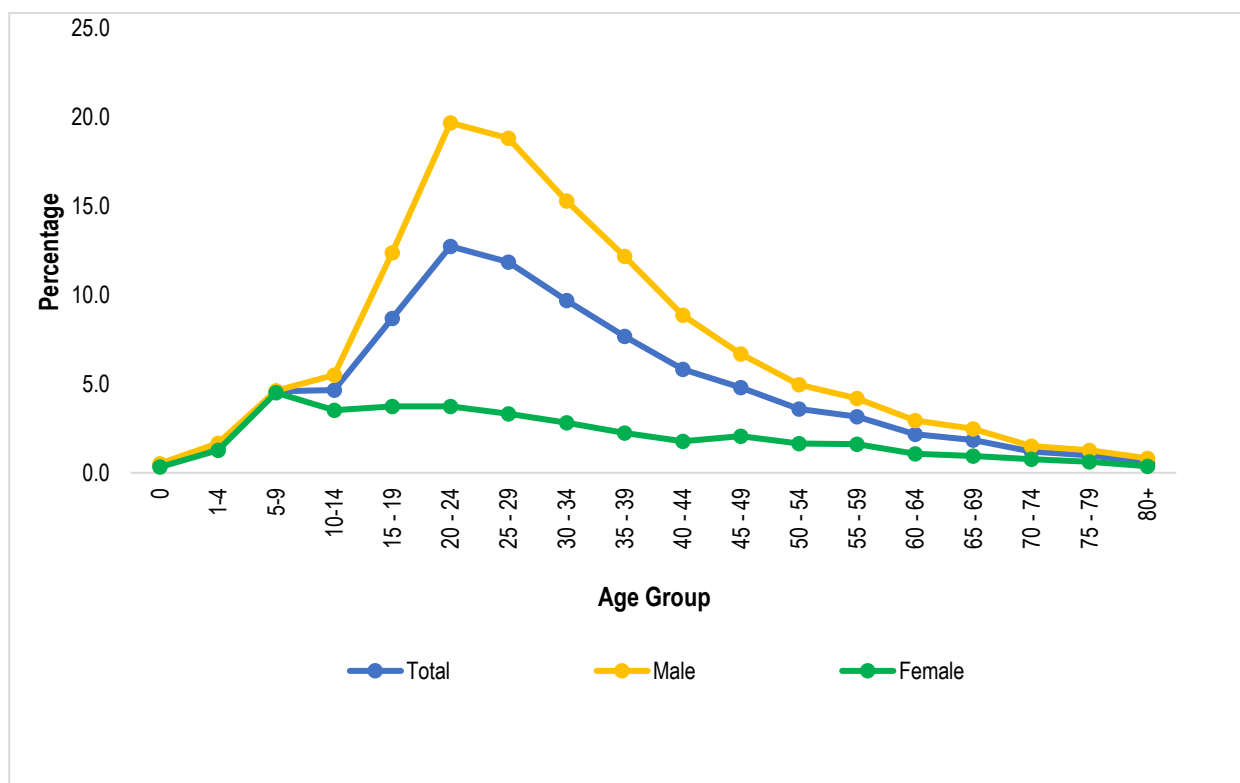
2.5 Adult Mortality Estimation using Growth Balance Method

The Gross Balance Method (GBM) was used to calculate the mortality rates. It is a demographic technique used to estimate adult mortality rates, particularly in populations where direct deaths data is incomplete or unreliable. It is based on the following assumptions:

    i.   The population has stable characteristics: mortality and fertility were constant in the past;

    ii.   The population is closed to migration; and

    iii.   All ages have the same death completeness; such as 5 or 10-years age group without population age or deaths misreporting.

The method used only one census based on population ($_5N_x$) of each sex, number of reported deaths ($_5D_x$) by age and fitting the age interval in which the completeness is to be estimated (Moultrie, et al., 2013). The mortality rate for each sex was obtained and fitted probability of surviving (l_x), life expectancy at age x and smoothed probability of dying ($_5m_x$).

Tables 2.6 to 2.7 show that, life expectancy at age x in Tanzania for males decreases as age increases, ranging from 61.4 years lived at age 5 years to 4.5 years lived at age 85 years

but females range from 66.1 years lived to 4.9 years lived. The life expectancy at age x for males range from 61.4 years lived at age 5 years to 4.9 years lived at age 85 years and for females ranges from 66.1 years lived at age 5 years to 4.9 years lived at age 85 years, in Tanzania Mainland.

While life expectancy at age x for males range from 62.6 years lived at age 5 years to 3.8 years lived at age 85 years and for females range from 65.1 years lived at age 5 years to 3.9 years lived at age 85 years in Zanzibar. The results also show that life expectancy in all age groups at age x is higher in females than males in Tanzania total, Tanzania Mainland and Zanzibar.

Table 2.6: Adult Mortality Rates by Sex and Age Groups; Tanzania Total 2022 PHC

Age Group	Male			Female		
	Fitted $l(x)$	$e(x)$	Smoothed $_5m_x$	Fitted $l(x)$	$e(x)$	Smoothed $_5m_x$
5-9	1	61.4	0.0034	1	66.1	0.0035
10-14	0.9830	57.4	0.0020	0.9829	62.2	0.0018
15-19	0.9735	52.9	0.0029	0.9738	57.8	0.0021
20-24	0.9595	48.6	0.0041	0.9634	53.4	0.0026
25-29	0.9399	44.6	0.0043	0.9511	49.0	0.0030
30-34	0.9200	40.5	0.0046	0.9371	44.7	0.0033
35-39	0.8992	36.4	0.0051	0.9218	40.4	0.0037
40-44	0.8765	32.3	0.0063	0.9048	36.1	0.0045
45-49	0.8495	28.2	0.0078	0.8848	31.9	0.0051
50-54	0.8171	24.2	0.0111	0.8624	27.6	0.0069
55-59	0.7731	20.5	0.0147	0.8333	23.5	0.0092
60-64	0.7184	16.9	0.0221	0.7958	19.5	0.0141
65-69	0.6431	13.5	0.0338	0.7418	15.8	0.0225
70-74	0.5427	10.6	0.0531	0.6626	12.3	0.0373
75-79	0.4155	8.0	0.0842	0.5497	9.4	0.0619
80-84	0.2710	6.0	0.1321	0.4024	6.9	0.1043
85+	0.1365	4.5	0.2007	0.2359	4.9	0.1721

Table 2.7: Adult Mortality Rates by Sex and Age Groups; Tanzania Mainland, 2022 PHC

Age Group	Male			Female		
	Fitted $l(x)$	$e(x)$	Smoothed $_5m_x$	Fitted $l(x)$	$e(x)$	Smoothed $_5m_x$
5-9	1	61.4	0.0034	1	66.1	0.0035
10-14	0.9830	57.4	0.0020	0.9829	62.2	0.0018
15-19	0.9735	52.9	0.0029	0.9738	57.8	0.0021
20-24	0.9595	48.6	0.0041	0.9634	53.4	0.0026
25-29	0.9399	44.6	0.0043	0.9511	49.0	0.0030
30-34	0.9200	40.5	0.0046	0.9371	44.7	0.0033
35-39	0.8992	36.4	0.0051	0.9218	40.4	0.0037
40-44	0.8765	32.3	0.0063	0.9048	36.1	0.0045
45-49	0.8495	28.2	0.0078	0.8848	31.9	0.0051
50-54	0.8171	24.2	0.0111	0.8624	27.6	0.0069
55-59	0.7731	20.5	0.0147	0.8333	23.5	0.0092
60-64	0.7184	16.9	0.0221	0.7958	19.5	0.0141
65-69	0.6431	13.5	0.0338	0.7418	15.8	0.0225
70-74	0.5427	10.6	0.0531	0.6626	12.3	0.0373
75-79	0.4155	8.0	0.0842	0.5497	9.4	0.0619
80-84	0.2710	6.0	0.1321	0.4024	6.9	0.1043
85+	0.1365	4.5	0.2007	0.2359	4.9	0.1721

Table 2.8: Adult Mortality Rates by Sex and Age Groups; Zanzibar 2022 PHC

Age Group	Male			Female		
	Fitted $l(x)$	$e(x)$	Smoothed $_5m_x$	Fitted $l(x)$	$e(x)$	Smoothed $_5m_x$
5-9	1	62.6	0.0012	1	65.1	0.0013
10-14	0.9942	57.9	0.0009	0.9935	60.5	0.0010
15-19	0.9897	53.2	0.0015	0.9885	55.8	0.0013
20-24	0.9821	48.6	0.0025	0.9818	51.1	0.0018
25-29	0.9699	44.1	0.0029	0.9729	46.6	0.0023
30-34	0.9561	39.7	0.0034	0.9618	42.1	0.0028
35-39	0.9402	35.4	0.0040	0.9485	37.7	0.0034
40-44	0.9215	31.0	0.0053	0.9325	33.3	0.0044
45-49	0.8975	26.8	0.0070	0.9121	28.9	0.0054
50-54	0.8665	22.7	0.0107	0.8877	24.7	0.0078
55-59	0.8211	18.8	0.0154	0.8539	20.6	0.0112
60-64	0.7603	15.1	0.0252	0.8072	16.6	0.0185
65-69	0.6702	11.8	0.0417	0.7357	13.0	0.0322
70-74	0.5438	8.9	0.0697	0.6260	9.8	0.0571
75-79	0.3823	6.6	0.1140	0.4697	7.2	0.0976
80-84	0.2127	4.9	0.1755	0.2855	5.3	0.1586
85+	0.0830	3.8	0.2506	0.1234	3.9	0.2367

2.6 Conclusion

The 2022 PHC results shows that, generally adult mortality rate declined in Tanzania. Crude Death Rate for Tanzania in 2022 PHC is around 8 deaths per 1,000 population and higher in males (around 9 deaths per 1,000 population) than females (6 deaths per 1,000 population) while CDR was 9 deaths per 1,000 population in 2012 . Generally, CDR shows that mortality declined in Tanzania by 1.8 deaths per 1,000 population in the intercensal period 2012-2022. Age pattern in mortality is almost the same for males and females, but expected to be high at younger age (under 1 year) and older ages.

The cause of deaths results show that in Tanzania, sickness or disease was the leading cause (83.7%) higher in females (86.2%) than males (81.7%), and is almost the same in Tanzania Mainland while in Zanzibar has the lowest percentage (78.1%). The results also show that, 6.9 percent of reported deaths were due to unspecified causes of deaths of which 3.2 percent were road accidents also higher in males (4.7%) than females (1.3%). In addition, the proportion of reported road accident caused deaths in Tanzania is higher at age group 20-24 years (12.8%) followed by age group 25-29years (11.9%).

Adult Mortality estimation using Growth Balance Method show that, life expectancy at age x in Tanzania decreases as age increases in both males and females (ranging from 61.4 and 66.1 years lived at age 5 years to 4.5 and 4.9 years lived at age 85 years for males and females respectively). Life expectancy at age 20 (e_{20}) on average female live almost 5 years longer than males in Tanzania. Usually, as the age increases the probability of dying increases and in almost all ages lower in females than males.

Chapter Three

Levels, Trends and Differentials in Infant and Child Mortality

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Key Points

- The national IMR is 34 deaths per 1,000 live births, with male children having higher mortality rates (40 deaths per 1,000 live births) than females (29 deaths per 1,000 live births).

- The national U5MR is 54 deaths per 1,000 live births with male children having 60 deaths versus 48 deaths per 1,000 live births in females.

- Urban areas report lower IMR (33 deaths per 1,000 live births) than rural areas (35 deaths per 1,000 live births), reversing the trend from 2012, where urban areas had higher mortality rates than rural areas. Significant regional differences exist in Arusha and Kilimanjaro IMRs showing lowest (20 and 24 deaths per 1,000 live births respectively), while regions like Rukwa, Mtwara, Kagera and Lindi reported higher rates ranging from 41 to 43 deaths per 1,000 live births.

- On one hand, the decrease in Tanzania's Infant Mortality Rate (IMR) and U5MR in Tanzania shows a significant improvement in childhood health. On the other hand, it also shows that there is a necessity to continue with ongoing policy efforts to address the remaining challenges so as to achieve the national and global health targets.

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3.1 Introduction

This chapter presents estimates of infant, child, and under-five mortality, as critical country's socio-economic and health status and the overall quality of life indicators. Understanding the mortality rates is essential in identifying vulnerable populations, particularly in regions with limitation of data for specific diseases. The primary objective of this analysis is to generate an early childhood mortality estimate that for health intervention monitoring and evaluation, as well as contribute into national strategies for improving societal welfare and health status. The analysis utilized data from the 2022 Population and Housing Census (PHC) and compared with information from previous censuses and surveys.

The chapter employs indirect methods developed by Brass and Coale (1968), using Summary Birth Histories (SBH) collected from women, which provide the number of children ever born and survival status, to estimate infant and child mortality. The complexity in this

history significantly impact accuracy of mortality estimates, since young mothers report shorter exposure to risks, while older mothers provide data with longer exposure. The resulting proportions are then transformed into age-specific probabilities of dying through mortality and fertility models, supplemented by a 'time location' method of tracking historical trends. Key data requirements include the categorization of women into five-year age groups and child survival status, while assuming consistency in mortality rates and gradual natural changes in child mortality. The comprehensive approach enhances understanding of childhood mortality dynamics and implications for public health initiatives.

3.2   Levels of Infant and Child Mortality

The infant mortality rate ($_1q_0$) measures deaths of children under one year per 1,000 live births. Child and under-five mortality assess the likelihood of dying between 1-4 ($_4q_1$) and from birth to 5 years age ($_5q_0$), influenced by biological and behavioural factors as well as social, economic, and environmental conditions.

The 2022 PHC collected data for both direct and indirect estimation of infant and child mortality. Direct estimation involved on household deaths and details of deceased children, while indirect estimation focused on questions about children ever born and alive. Due to poor data quality on household deaths from the 2022 Census, the indirect estimated mortality rates are used.

Table 3.1 shows levels of early childhood mortality disaggregated by sex and area. The overall Infant Mortality Rate (IMR) is estimated to be 34 deaths per 1,000 live births which is almost at the same level in Tanzania Mainland and Zanzibar. Child and under-five mortality rates are estimated at 20 and 54 deaths per 1,000 live births, respectively similar to other developing countries where level of childhood mortality is still high calling for better programmes for improving children survival.

Figure 3.1 presents childhood mortality estimates derived from 2022 PHC compared with the 2022 TDHS, conducted just a few months prior to the 2022 PHC. There was a minor notable discrepancy in infant mortality rate of the 2022 TDHS and 2022 PHC, particularly in Zanzibar, where the rates were 42 and 35 deaths per 1,000 live births, respectively. In addition, the under-five mortality rates reported in the 2022 TDHS and differed with the ones in 2022 PHC, due to the different methodologies employed in each survey. The under-five

mortality rate recorded in the 2022 PHC is 54 deaths per 1,000 live births for Tanzania overall, same with Tanzania Mainland and 55 deaths per 1,000 live births for Zanzibar.

Male children are expected to have a higher mortality than female children at infant, childhood up to fifth birthdays. Male IMR was 40 deaths when the female was 29 deaths per 1,000 live births while child mortality for male children was 21 and about 19 deaths per 1,000 female children live births. The mortality level for children under age of five years was estimated at 60 deaths per 1,000 male live births and 48 deaths in children per 1000 live female births. Both male and female childhood estimates for Tanzania Mainland and Zanzibar usually follow the same pattern as that of Tanzania total.

The sex differential is in the expected direction but the magnitude is too high. There are more 11 more male infant deaths per 1,000 live births compared to females. The higher infant males mortality rate than females is generally caused by several biological and social factors. Male infants are biologically more vulnerable to certain conditions such as birth complications and congenital abnormalities. In addition, healthcare-seeking behaviors and attention bias in health care for male compared to female infants could also influence outcomes (Sawyer, 2012).

Table 3.1: Infant, Child And Under-Five Mortality Rates by Sex; Tanzania, 2022 PHC

Place of Residence	Infant Mortality ($_1q_0$)			Child Mortality ($_4q_1$)			Under-Five Mortality ($_5q_0$)		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Tanzania	34.3	39.6	29.0	20.0	20.6	18.8	54.3	60.3	47.8
Tanzania Mainland	34.3	39.6	29.0	20.0	20.6	18.7	54.3	60.2	47.7
Tanzania Zanzibar	34.7	40.0	29.3	20.2	20.3	18.9	54.9	60.3	48.2

Figure 3.1: Infant and Under-Five Mortality Rates From Censuses and Survey; Tanzania, 2022 PHCs and 2022 DHS
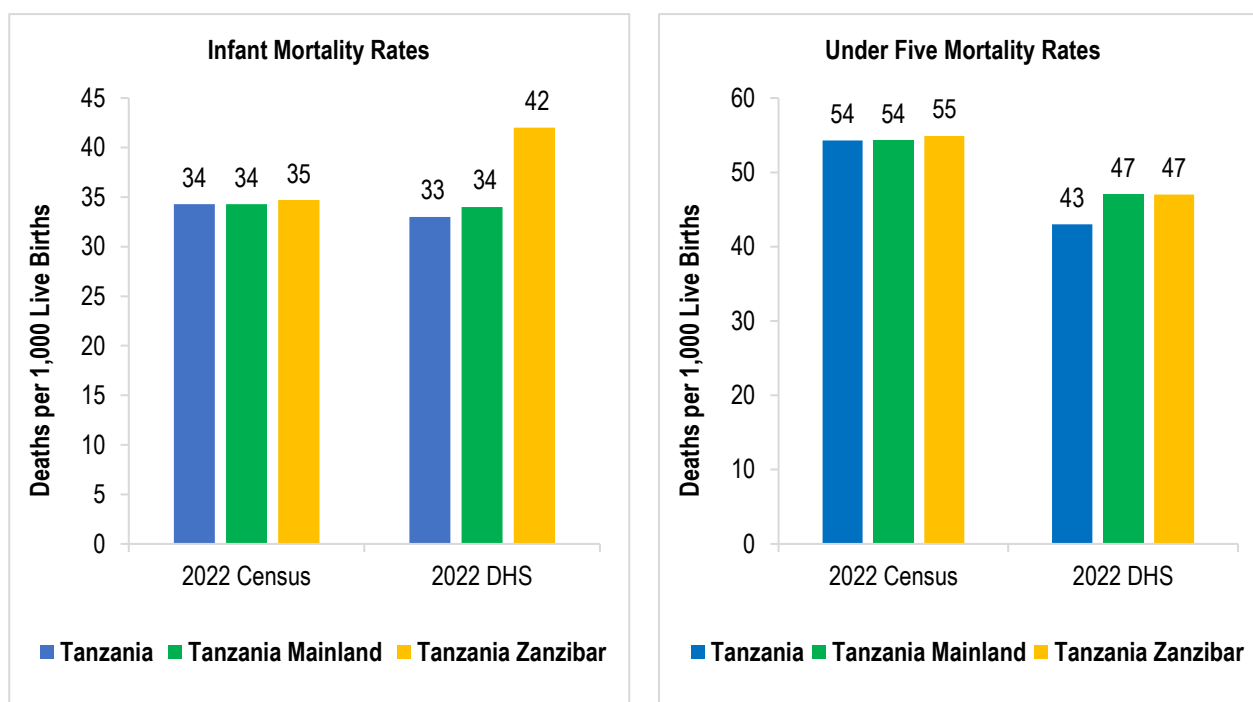
3.3 Trends of Infant and Child Mortality

The section presents the trend in Infant Mortality Rate (IMR) and Under-five Mortality Rate (U5MR) for the period 1978-2022. Five Population and Housing Censuses were conducted in this period. Figure 3.2 shows that early childhood mortality in Tanzania was declining. The infant mortality decreased to 34 deaths per 1,000 live births in 2022 census from 137, 115, 95 and 46 deaths per 1,000 live births in 1978, 1988, 2002 and 2012 censuses respectively. This implies that, IMR dropped to about a quarter in the censuses from 1978 to 2022 years. In the same period, U5MR dropped to nearly 54 deaths in 2022 from 231 (1978), 191 (1988), 153 (2002) and 67 (2012) deaths for every 1,000 live births. The results also show that childhood mortality in Tanzania Mainland follows a similar pattern as that of the Tanzania total.

Zanzibar also shows a remarkable decline in both measures of childhood mortality in this period. Infant Mortality Rate declined from 125 deaths in 1978 census to 120 deaths in 1988 Census, 89 deaths in 2002 census, 46 deaths in 2012 and to 35 deaths per 1,000 live births in 2022 census. The under-five mortality rate declined from 209 deaths in 1978 census to 55 deaths per 1,000 live births in 2022 census.

IMR and U5MR for 2022 show a significant decline from time to time as indicated from 1978 PHC to 2022 as indicated in Figure 3.1 and 3.2. The reasons for such a decline may be explained by improvements in healthcare infrastructure, better access to maternal and child healthcare, vaccination programmes, increased health awareness, and advancements in medical technology. Moreover, the values estimated by PHC for 2022 and those of TDHS for the same year for infant mortality rate (IMR) show minimal discrepancy: 34 (PHC IMR 2022) compared to 33 (TDHS IMR 2022). However, the discrepancy is more significant in under-five mortality rate (U5MR), where the PHC value for 2022 is 54 and the TDHS value for 2022 is 43. The reasons for such discrepancies may be attributed to differences in data collection methods, variations in sample populations, regional differences, or timing of data collection. The study therefore recommends using an IMR of 33 and a U5MR of 43, as indicated by the 2022 TDHS estimates since the methodology used is more preferred.

Figure 3.2: Trends in Infant and Under-Five Mortality Rates; Tanzania, 1978 to 2022
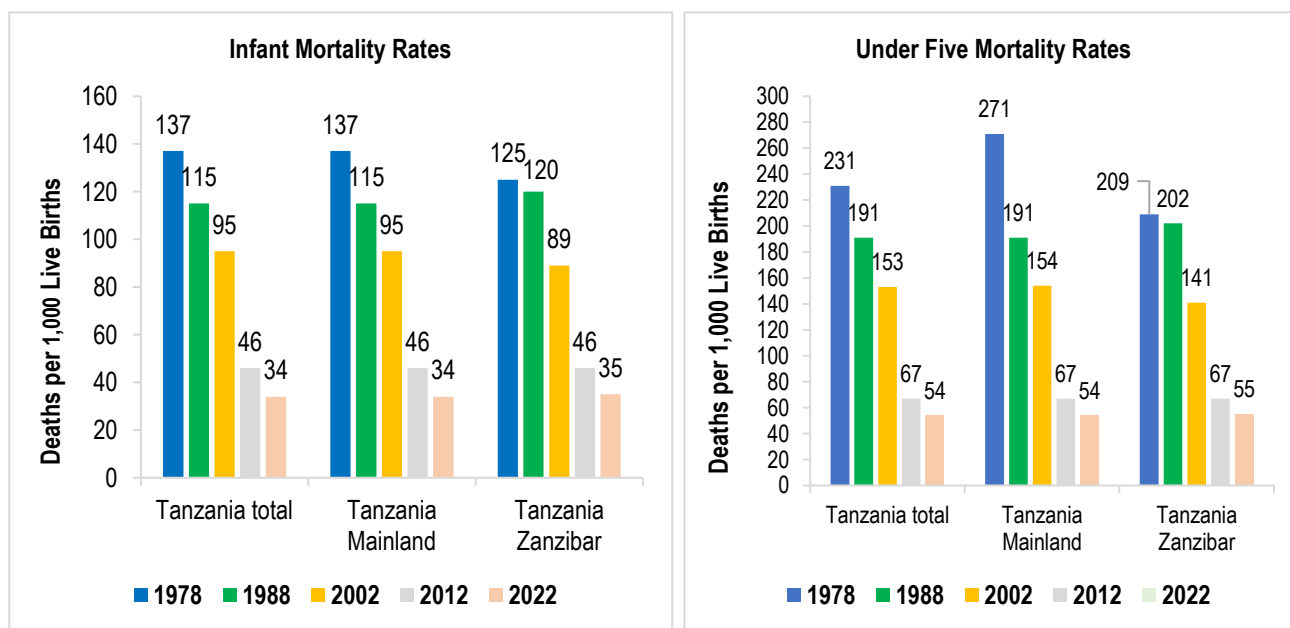
3.4 Differentials in Infant and Child Mortality

3.3.1 Rural-Urban Differentials of Infant and Child Mortality

Table 3.2 presents the rural and urban areas infant and child mortality estimates for Tanzania. Infant mortality overall estimates for the rural areas in Tanzania and Tanzania Mainland were higher than corresponding urban areas while in Zanzibar, the rate is more or less the same. The infant mortality rate for Tanzania urban was estimated at 33 deaths and Tanzania rural 35 deaths per 1,000 live births. For urban areas, the infant mortality rates for Tanzania Mainland and Zanzibar were 33 and 35 deaths per 1,000 live births respectively. For the corresponding rural areas, the rates were both 35 deaths per 1,000 live births." In addition, the rural-urban patterns of under-five mortality and child mortality rates are similar to those of infant mortality rates.

Male children in all places of residence, overall, have higher mortality than female in infant, childhood and up to fifth birthday.

Table 3.2: Rural-Urban Infant, Child and Under-Five Mortality Rates by Sex, Tanzania 2022 PHC

Place of Residence	Infant Mortality Rates			Child Mortality Rates			Under-5 Mortality Rates		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Tanzania	**34.3**	**39.6**	**29.0**	**20.0**	**20.6**	**18.8**	**54.3**	**60.3**	**47.8**
Rural	34.9	40.2	29.6	20.3	20.9	19.1	55.2	61.1	48.7
Urban	33.4	38.8	27.9	19.5	20.2	18.1	52.9	59.0	46.0
Tanzania Mainland	**34.3**	**39.6**	**29.0**	**20.0**	**20.6**	**18.7**	**54.3**	**60.2**	**47.7**
Rural	34.9	40.2	29.6	20.3	20.9	19.1	55.2	61.1	48.7
Urban	33.3	38.7	27.9	19.6	20.2	18.1	52.9	58.9	45.9
Tanzania Zanzibar	**34.7**	**40.0**	**29.3**	**20.2**	**20.3**	**18.9**	**54.9**	**60.3**	**48.2**
Rural	34.5	39.6	29.4	20.1	20.6	19.0	54.6	60.2	48.4
Urban	34.9	40.5	29.1	20.3	21.1	18.8	55.2	61.6	48.0

3.3.1 Regional Differentials in Infant and Child Mortality

Table 3.3 and Map 3.1 present data on child survivorship, showing significant regional variations in early childhood mortality in Tanzania. The 2022 Census estimate infant, child, and under-five mortality rates, disaggregated by sex and place of residence, indicating a clear gender disparity. Male infants have a higher mortality rate (40 per 1,000 live births) than females (29 per 1,000 live births), a difference of 11 infant deaths, which primary cause could be biological factors, such as genetic vulnerabilities and weak immune responses in

males (Drevenstedt et al., 2008). Socio-cultural factors such as health care gender bias and inequalities in access to medical services, particularly in rural areas of Tanzania Mainland, exacerbate disparities thus making male infants more vulnerable to diseases and poor health outcomes (Graham, 2003; Sullivan et al., 2012).

There are 12 of the 31 regions reporting rates below the national average, while remaining regions show higher mortality rates. Arusha and Kilimanjaro Regions recorded the lowest infant mortality rates of 20 and 24 deaths per 1,000 live births, respectively, followed by Manyara (25), Singida (26), and Kusini Pemba (30). In contrast, regions with high infant mortality rates ranging from 35 in Geita to 43 deaths per 1,000 live births in Lindi are above the national average, indicating significant disparities among regions in child health outcomes.

Similarly, Arusha and Kilimanjaro Regions reported the lowest under-five mortality rates at 32 and 39 deaths per 1,000 live births, respectively. Twelve out 31 regions had under-five mortality rates below the national average of 54 deaths per 1,000 live births, while 19 regions recorded higher rates, ranging from 52 to 67 deaths per 1,000 live births.

The regional data therefore underscores substantial variation in mortality rates particularly in the southern and western regions such as Lindi, Kagera, Mtwara, and Rukwa, with less mortality than others in the north regions such as Arusha and Kilimanjaro. These disparities indicating an urgent need for interventions focusing on healthcare access, maternal and child health services, and infrastructure improvements in high-mortality regions, to reduce gaps and improve child survival in the country.

Table 3.3: Infant, Child and Under-Five Mortality Rates by Sex and Regions, Tanzania 2022 PHC

Region	Infant Mortality Rate			Child Mortality Rate			Under-5 Mortality Rate		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Tanzania	**34.3**	**39.6**	**29.0**	**20.0**	**20.6**	**18.8**	**54.3**	**60.3**	**47.8**
Tanzania Mainland	**34.3**	**39.6**	**29.0**	**20.0**	**20.6**	**18.7**	**54.3**	**60.2**	**47.7**
Dodoma	32.6	37.7	27.5	19.1	19.7	17.8	51.7	57.4	45.3
Arusha	19.7	23.1	16.3	11.8	12.4	10.8	31.5	35.5	27.1
Kilimanjaro	24.4	28.1	20.6	14.4	14.9	13.5	38.8	42.9	34.1
Tanga	37.8	43.9	31.6	21.9	22.7	20.3	59.6	66.6	51.9
Morogoro	38.4	43.6	33.1	22.2	22.6	21.2	60.6	66.2	54.3
Pwani	38.4	43.6	33.1	22.2	22.6	21.2	60.6	66.2	54.3
Dar es Salaam	35.2	40.8	29.5	20.5	21.2	19.1	55.7	62.0	48.6
Lindi	42.8	49.8	35.7	24.6	25.5	22.9	67.4	75.3	58.6
Mtwara	40.9	46.8	34.8	23.6	24.1	22.3	64.4	71.0	57.2
Ruvuma	39.7	45.8	33.7	22.9	23.6	21.6	62.7	69.4	55.3
Iringa	36.4	41.7	31.0	21.1	21.7	20.0	57.5	63.4	50.9
Mbeya	33.4	38.5	28.2	19.5	20.1	18.3	52.9	58.6	46.5
Singida	26.3	30.3	22.3	15.5	16.0	14.6	41.8	46.3	36.9
Tabora	33.7	38.6	28.9	19.7	20.1	18.7	53.4	58.7	47.6
Rukwa	40.7	46.7	34.8	23.5	24.1	22.3	64.2	70.7	57.1
Kigoma	36.2	42.4	29.9	21.0	22.0	19.3	57.2	64.4	49.2
Shinyanga	32.4	37.4	27.3	18.9	19.6	17.7	51.3	57.0	45.0
Kagera	41.8	48.2	35.4	24.1	24.8	22.6	65.9	73.0	58.0
Mwanza	31.9	37.3	26.4	18.6	19.5	17.2	50.5	56.8	43.6
Mara	36.7	42.0	31.3	21.3	21.8	20.2	58.0	63.9	51.5
Manyara	25.2	29.4	21.0	14.9	15.6	13.8	40.1	45.0	34.7
Njombe	36.5	42.0	31.0	21.2	21.8	20.0	57.7	63.9	50.9
Katavi	35.5	41.1	29.9	20.6	21.4	19.3	56.1	62.4	49.2
Simiyu	32.2	37.2	35.4	18.8	19.4	9.6	51.0	56.6	44.9
Geita	35.1	40.2	30.0	20.4	20.9	19.4	55.5	61.1	49.4
Songwe	37.4	43.7	31.1	21.7	22.6	20.1	59.1	66.3	51.2
Zanzibar	**34.7**	**40.0**	**29.3**	**20.2**	**20.3**	**18.9**	**54.9**	**60.3**	**48.2**
Kaskazini Unguja	38.7	41.1	29.3	22.3	21.4	22.1	61.0	62.5	51.4
Kusini Unguja	38.7	45.3	31.8	22.3	23.4	20.4	61.0	68.7	52.2
Mjini Magharibi	35.2	40.5	29.7	20.5	21.1	19.2	55.6	61.5	48.9
Kaskazini Pemba	34.2	40.2	27.9	19.9	20.9	18.1	54.1	61.1	46.0
Kusini Pemba	29.7	33.5	35.4	17.5	17.6	7.5	47.2	51.2	42.8

Map 3.1: Under-Five Mortality Rates by Region: Tanzania 2022 Census
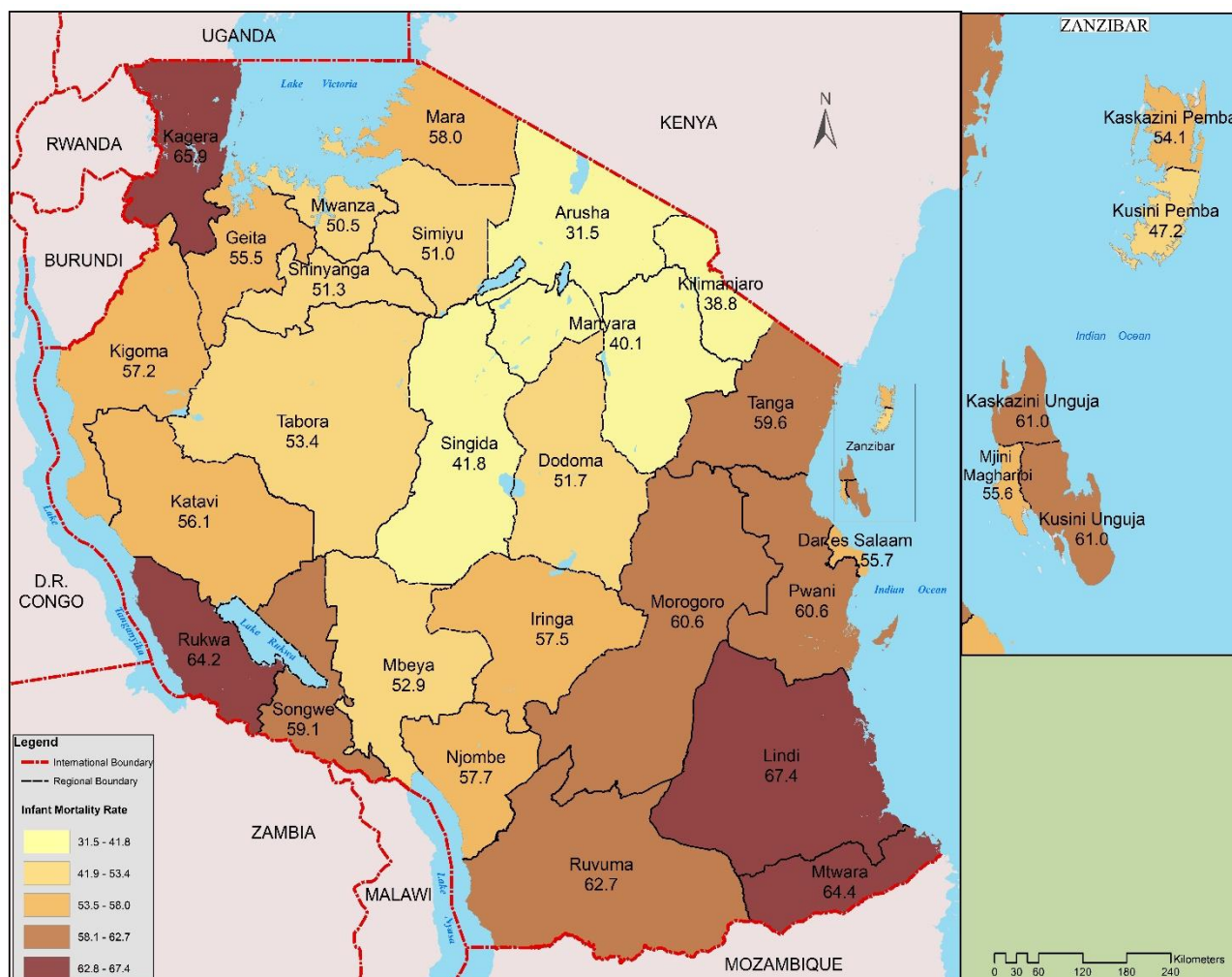
3.3.1 Sex Differentials in Childhood Mortality by Region

Figure 3.3 shows that, males had higher infant and under-five mortality rates than females except for Kusini Pemba Region. IMRs for males ranged between 23 deaths in Arusha Region and 50 deaths per 1,000 live births in Lindi. The estimated infant mortality rates for females were between 16 in Arusha Region and 36 deaths per 1,000 live births in Lindi Region. The under-five mortality rates for males ranged from 36 deaths per 1,000 live births in Arusha Region to 75 deaths in Lindi region. In comparison, the under-five mortality rates for females ranged from 27 36 deaths per 1,000 live births in Arusha Region to 59 deaths per 1,000 live births in Lindi Region.

Infant mortality and under-five mortality rates for Tanzania are higher for males than females, and in some regions, the discrepancy, particularly for infant mortality rate, is about 12–14 deaths. This is notably seen in Lindi (14 deaths), Kagera (14 deaths), Kusini Pemba (14 deaths), Kigoma (13 deaths), and Mtwara, Ruvuma, Tanga, Songwe, and Kaskazini Unguja (12 deaths each). The possible reasons may be due to biological factors, such as

higher vulnerability of male infants to infections and diseases as cited by Ngwira et al. (2017), who noted that male infants are more susceptible to respiratory infections and complications. Additionally, differences in care-seeking behavior and maternal health practices could also contribute to these discrepancies as cited by Mishra et al. (2020), who observed that gender-based health-seeking behaviours in Tanzania, where male children may not receive timely medical attention compared to females, can contribute to higher mortality rates among males. Moreover, these regions mentioned have limited access to healthcare facilities, low maternal education levels, and inadequate maternal healthcare services, which may be a source of such a significant discrepancy as referenced by Kamuzora & Ndyetabula (2019), who identified that regions with poor healthcare infrastructure and lower maternal health awareness have higher mortality rates. Therefore, there is a need for further studies to explore these gender-based differences in childhood mortality, particularly focusing on regional healthcare disparities and maternal care practices.

Figure 3.3: Sex Differentials in Infant and Under-Five Mortality Rates by Region; Tanzania, 2022 PHC

Infant Mortality Rates

Region	Female	Male
Lindi	35.7	49.8
Kagera	35.4	48.2
Mtwara	34.8	46.8
Rukwa	34.8	46.7
Ruvuma	33.7	45.8
Kusini Unguja	31.8	45.3
Tanga	31.6	43.9
Songwe	31.1	43.7
Pwani	33.1	43.6
Morogoro	33.1	43.6
Kigoma	29.9	42.4
Njombe	31.0	42.0
Mara	31.3	42.0
Iringa	31.0	41.7
Kaskazini Unguja	29.3	41.1
Katavi	29.9	41.1
Dar es Salaam	29.5	40.8
Mjini Magharibi	29.7	40.5
Kaskazini Pemba	27.9	40.2
Geita	30.0	40.2
Tabora	28.9	38.6
Mbeya	28.2	38.5
Dodoma	27.5	37.7
Shinyanga	27.3	37.4
Mwanza	26.4	37.3
Simiyu	35.4	37.2
Kusini Pemba	33.5	35.4
Singida	22.3	30.3
Manyara	21.0	29.4
Kilimanjaro	20.6	28.1
Arusha	16.3	23.1
Tanzania Zanzibar	29.3	40.0
Tanzania Mainland	29.0	39.6
Tanzania	29.0	39.6

Under Five Mortality Rates

Region	Female	Male
Lindi	58.6	75.3
Kagera	58.0	73.0
Mtwara	57.2	71.0
Rukwa	57.1	70.7
Ruvuma	55.3	69.4
Kusini Unguja	52.2	68.7
Tanga	51.9	66.6
Songwe	51.2	66.3
Pwani	54.3	66.2
Morogoro	54.3	66.2
Kigoma	49.2	64.4
Njombe	50.9	63.9
Mara	51.5	63.9
Iringa	50.9	63.4
Kaskazini Unguja	51.4	62.5
Katavi	49.2	62.4
Dar es Salaam	48.6	62.0
Mjini Magharibi	48.9	61.5
Kaskazini Pemba	46.0	61.1
Geita	49.4	61.1
Tabora	47.6	58.7
Mbeya	46.5	58.6
Dodoma	45.3	57.4
Shinyanga	45.0	57.0
Mwanza	43.6	56.8
Simiyu	44.9	56.6
Kusini Pemba	42.8	51.2
Singida	36.9	46.3
Manyara	34.7	45.0
Kilimanjaro	34.1	42.9
Arusha	27.1	35.5
Tanzania Zanzibar	48.2	60.3
Tanzania Mainland	47.7	60.2
Tanzania	47.8	60.3

Male ■ Female

3.3.1 Mortality Differentials by Socio-Economic Determinants

Socio-economic and demographic characteristics such as mother's age when giving birth, education, marital status, occupation and survival of preceding sibling(s) could impact the newborn survival. The discussion in this sub-section focuses on mother's level of education, marital status and occupation and how they relate to childhood mortality levels. Table 3.4 presents infant and under-5 mortality differentials for the selected socio-economic and demographic characteristics.

3.3.1 Differentials by Educational Attainment

Mother's education level increases the child survival chances. The educational attainment of mothers is categorized as never attended (not attended pre-primary and nursery), primary, secondary and tertiary or above (post- secondary education). Childhood mortality rate was higher among those who attained lower level of education (United Nations Inter-Agency Group for Child Mortality Estimation, 2023). The national IMR for mothers who never attended school was 34 deaths per 1,000 live-births but higher in Zanzibar (39 deaths per 1,000 live-births). This is the same for under-five children deaths from these mothers. Almost 54 Tanzanian children per 1,000 live-births of this age die before celebrating the fifth birthday. On the other hand, the IMR and U5MR for Tanzanian mothers who attained tertiary level is 27 and 43 deaths per 1,000 live-births respectively (Table 3.4).

3.3.1 Differentials by Marital Status

Marital status in this report is categorized into four groups: those married or living together, divorced or separated, widowed and never-married. For Tanzania total, IMR is lower for mothers who are married or living together (29 deaths per 1,000 live births) and higher for never married (38 deaths per 1,000 live births). The under-five mortality rate is lower for mothers who married or living together (46 deaths per 1,000 live births) and higher for never married (60 deaths per 1,000 live births). A similar pattern is found in Tanzania Mainland (Table 3.4).

Never-married women in Tanzania tend to have higher infant mortality rates (IMR) and under-five mortality rates (U5MR) due to various socioeconomic and healthcare access factors (Masanja et al., 2008). These women are more likely to lack support systems, financial and social support from partners or extended family. Limited access to healthcare compounded by lower income levels and lower education attainment, may result in insufficient health information and care practices.

Comparatively, IMR and U5MR are lower for widowed mothers (25 deaths per 1,000 live births and 40 deaths per 1,000) live births respectively, in Zanzibar. The trend is due to several cultural, social, and economic factors. Out of sympathy, extended family networks and community members may give support to compensate loss of a partner and fostering resilience. In addition, widows may be more experienced as mothers since widowhood in many cultures often occurs later part of life or when a mother has acquired   child-rearing skills and access to proper healthcare. Widowed mothers might also have ability to prioritize children healthcare and aware or fulfil critical role as sole caregivers (NBS and OCGS, 2016).

Table 3.4: Infant and Under-Five Mortality Rates by Place of Residence, Education Attainment, Marital Status and Occupation of the Mothers; Tanzania, 2022 PHC

Socio Economic and Demographic Characteristics	Tanzania total		Tanzania Mainland		Zanzibar	
	IMR	U5MR	IMR	U5MR	IMR	U5MR
Education Attainment						
Never Attended	34.3	54.4	34.3	54.3	39.2	61.8
Primary	34.3	54.3	34.3	54.3	35.8	56.6
Secondary	31.4	49.9	31.3	49.7	33.2	52.6
Tertiary	27.3	43.4	27.1	43.0	32.2	51.1
Marital Status						
Married/Living Together	29.2	46.3	29.2	46.4	27.4	43.6
Divorced/Separated	33.4	52.9	33.6	53.2	28.5	45.3
Widowed	34.1	54.0	34.3	54.3	25.2	40.1
Never Married	37.8	59.8	37.7	59.5	47.0	73.7
Occupation Status						
Professional, Managers, Technicians	27.3	43.4	26.7	42.4	32.3	51.2
Small Business, Service and Sales, Crafts	32.0	50.7	32.0	50.7	31.4	49.7
Elementary Occupation	34.7	54.9	34.7	54.9	38.0	59.9
Clerks	34.8	55.0	34.7	54.9	34.4	54.5
Agriculture	35.3	55.9	35.2	55.8	35.6	56.3

3.3.1 Differentials by Main Occupation

Infant and under-five mortality rates in Tanzania, including Tanzania Mainland and Zanzibar, vary significantly based on occupation of women aged 15-49. Table 3.4 shows the differences in five main occupation categories:

 i.   Professionals, managers and technicians
 ii.   Small Business, service, sales and crafts

iii.   Elementary occupations[1]

iv.   Clerks

v.   Agriculture

Table 3.4 shows that women in agriculture experience much higher infant and under-five mortality rates than those in professional and managerial positions. The overall infant mortality rate for women engaged in agriculture is 35 per 1,000 live births in Tanzania, but in Tanzania Mainland rate is 35 and Zanzibar is 36. Under-five mortality rate follow a similar pattern, being 56 in Tanzania total, 56 in the Tanzania Mainland, and 56 in Zanzibar.

The results in Table 3.4 show key differences in child mortality rates between Tanzania total, Zanzibar and Tanzania Mainland, particularly how occupation affects infant and under-five mortality rates (IMR and U5MR). Women in elementary occupations in Zanzibar experience higher mortality rates (38 infant deaths and 60 under-five deaths per 1,000 live births) than women in the same occupation (35 and 55 respectively) in Tanzania Mainland.

This occupational disparity is not clear in Tanzania Mainland. While women in small business, service, sales occupations and elementary occupations have similar mortality rates in Zanzibar and Tanzania Mainland (31 infant and 50 under-five deaths per 1,000 live births in Zanzibar, compared with 32 and 51 in the Tanzania Mainland), mortality rates for women in elementary occupations are high in Zanzibar. This suggests that local factors such as healthcare access and socio-economic conditions, play a larger role in Zanzibar. Reports from organizations like the World Health Organization (WHO, 2021) and the United Nations Development Programme (UNDP, 2020) highlight on the extent at which the socio-economic inequality and health system challenges contribute disparities in health outcomes.

Studies of the Tanzania Ministry of Health (2017) and local research institutions such as the Zanzibar Health Research Foundation (ZHRF, 2020) emphasize on the added vulnerability of women in low-income, manual labour occupations, where poor working conditions, lack of access to appropriate healthcare, and gendered social roles exacerbate health risks. The studies also underscore how the local factors intersect to impact mortality, particularly among women facing both economic disadvantage and limited healthcare access opportunities (Mwanza et al., 2019).

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[1] *Elementary occupations involve the performance of a simple and routine tasks which may require the use of hand-held tools and considerable physical effort. Supervision of other workers may be included.*

Furthermore, the professional, managerial and technical workers in Zanzibar report higher IMR (32 deaths per 1,000 live births) and U5MR (51 deaths per 1,000 live births) than Tanzania Mainland workers in similar roles (27 and 42 deaths per 1,000 live births respectively), illustrating that differences health outcomes are due to regional healthcare challenges and socio-economic factors disproportionately affecting the lower-income jobs in Zanzibar.

The differentials between the mortality rates of women in agriculture and those in professional positions are remarkable. Women in professional, managerial, and technical roles report much lower rates, with 27 infant and 43 under-five deaths per 1,000 live births. The pattern is consistent in Tanzania Mainland, where women in agriculture have rates of 35 deaths per 1,000 live births for infant mortality and 56 deaths per 1,000 live births for under-five mortality.

The findings emphasize dependency in relationship between a woman's occupation and childhood mortality rates, showing how employment choice may significantly influence health outcomes in Tanzania.

3.5 Comparison with Other African Countries Participated in the 2020 Round of Census

The infant and under-five mortality rates data in several African countries shows significant variations (Figure 3.4). Each country used its own survey methods, usually involving representative sampling techniques to gather data on live births, deaths, and demographic characteristics. These methodologies ensure comprehensive and reliable estimates of child mortality rates, allowing for comparisons to different countries and periods.

Rwanda has the lowest infant mortality rate of 29 deaths per 1,000 live births, while Lesotho has the highest at 53 deaths per 1,000 live births. Other identified figures include Tanzania (34 deaths per 1,000 live births) and Kenya (36 deaths per 1,000 live births). The rates reflect the effectiveness of healthcare systems and interventions in improving child health in each country. For under-five mortality rates, again Rwanda also has the lowest at 41 deaths per 1,000 live births, and Lesotho highest at 80 deaths per 1,000 live births. The statistics therefore emphasize the need for public health strategies which address the disparities and improve child survival rates among counties.

The data on infant and under-five mortality rates from various African countries generally indicate challenges and status of achievement of Sustainable Development Goal 3.2, aiming

to end occurrence of preventable deaths of newborns and children under five years of age by 2030. The figures also show a diverse landscape in child health, emphasizing a need for focused and continued commitment in improvement of health systems in the continent.

Figure 3.4: Infant and Under-Five Mortality Rates from Other African Countries; 2020 Census Round (2015 – 2024)
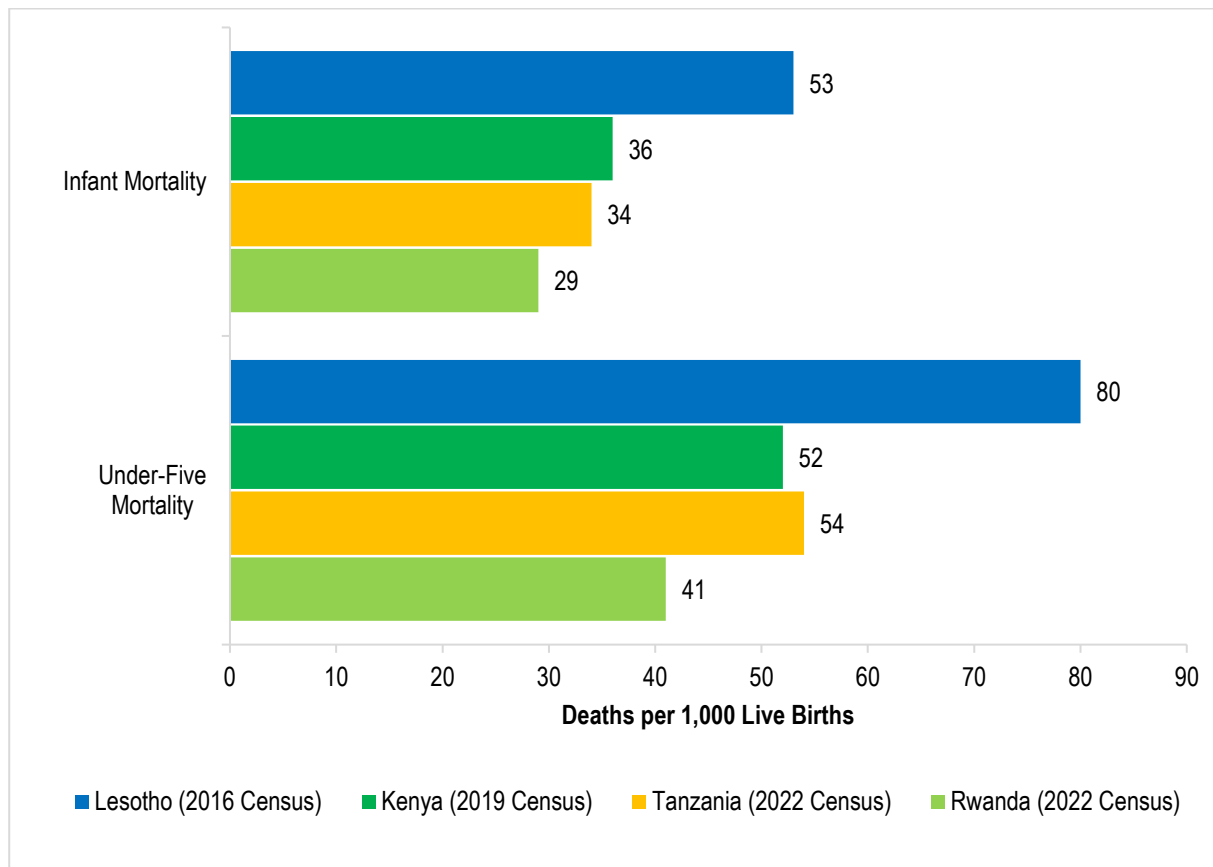
Source: 2020 Tanzania Population and Housing Census; 2016 Lesotho Population and Housing Census; 2019 Kenya Population and Housing Census; 2022 Rwanda Population and Housing Census

3.6   Conclusion

The 2022 PHC results indicate that Tanzania made a significant progress in reducing infant and under-five mortality rates, indicating that there are improvements in healthcare access and child health outcomes. However, the persistent disparities such as higher mortality rates in rural areas, among male children in specific regions shows there is a need for properly specified interventions. Thus, addressing the challenges requires a focused approach prioritizing the underserved populations and regions, strengthening healthcare systems, and promoting equitable access to essential services.

Following on the Health Sector Strategic Plan 2021–2026 and the 2030 SDGs, Tanzania must implement tailored strategies that tackle the root causes of disparities, to sustain and accelerate progress. Therefore, investments in rural healthcare infrastructure, expanded immunization programmes, improved nutrition and strengthened disease prevention measures are critical. By addressing the gaps and promoting inclusive healthcare policies, Tanzania can ensure that all children, regardless of gender or location, have the opportunity to thrive.

Chapter Four

Estimation of Life Expectancy

Key Points

- Life expectancy at birth is 65 years in Tanzania, 66 years in Tanzania Mainland and 64 years in Zanzibar.
- Life expectancy at birth is higher among females (68 years) than males (62 years).
- Manyara is the region leading with an average life expectancy of 74 years. Whilst Tanga (60) region had the lowest life expectancy at birth.
- People live longer in rural (66 years) than urban areas (64 years).

4.1 Introduction

Estimating life expectancy is a fundamental aspect of demographic and public health studies, providing an understanding on the average age which a person is expected to live under current mortality conditions. Life expectancy refers to the average number of years based on current mortality rates which a person is expected to live. Life expectancy at birth (e_0) provides the most useful summary measurement of the overall level of population mortality. This metric serves as an important indicator in population health, showing how the social, economic and environmental conditions impact human life. Life expectancy calculations require detailed mortality data of various age groups, often using population censuses, household surveys, and civil registration systems. Analysing mortality rates, life expectancy could be estimated for specific cohorts or entire populations, aiding policymakers to understand public health outcomes and identify areas for improvement.

Life tables are essential tools in demographic analysis which summarise mortality patterns and allow estimation of life expectancy and survival rates of different ages in a population. A life table provides a summary of lifetime mortality experience measurement of a population from the birth of a cohort to its end also gives a snapshot of mortality indicators from childhood to adulthood. Constructing a life table using census data on child and adult mortality involves a series of steps is commonly used in countries without complete birth and death registration systems therefore trying on age-specific mortality estimates obtained from census or survey data.

The Analysis of mortality in countries with limited and defective data systems to derive complete series of age-specific death rates from the available data may become difficult. However, most countries collect data that can be used to estimate child mortality. In addition it is possible to use either death registration statistics or census or survey data to estimate adult mortality in most countries. Usually, the resulting estimates for adult measures conditional survivorship in adulthood over some broad ages range (for example, $_{45}p_{15}$, the probability of surviving from exact age 15 to exact age 60). Thus, 2-parameter models make full use of available data in a situation because they provide a clear relationship between level of mortality in childhood and adulthood, likely to map specific age mortality schedule of the population in question far better than the 1-parameter model fitted into data on childhood mortality alone (Moultrie et al, 2013).

This chapter analyses methods used to construct life tables and provide information on life expectancy in Tanzania Total, Tanzania Mainland and Zanzibar. The chapter also presents trends in life expectancy, sex, regional differentials and comparison of life expectancy in Tanzania and in other African countries.

4.2 Construction of Life Tables

The method used in constructing the life tables for Tanzania Total, Tanzania Mainland, and Zanzibar is the Indirect Mortality Estimation by combining the model life table of older ages with children survivorship data. The infant mortality and under-five mortality rates based on number of children ever born and number of children surviving. Adult mortality rates is calculated by the Growth Balance Method basing on the number of reported deaths by age and fitting age interval over where completeness is to be estimated. It also serves as a threshold for distinguishing adult mortality from child mortality and aligning with established demographic practices. This choice helps to ensure that adult mortality estimates are more reliable, less childhood biased mortality factors, suited for demographic modelling.

4.3.1 Mortality Estimation using MORTPAK Application

The process of constructing life table requires one to estimate mortality values using MORTPAK application, by first inputting Infant Mortality Rate ($_{1}q_{0}$), Under-Five Mortality Rate ($_{5}q_{0}$), and Life Expectancy at age 20 (e_{20}). Then, process by selecting the Coale-Demeny North model life table and specifying the sex for the estimation. The model helps to estimate life table values based on known mortality rates or age-specific mortality data of similar populations. The procedure adjusts selected model life table by incorporating provided child and adult survivorship values. It calculates age-specific probabilities of dying (q(x,n)) for

individuals under 20 and use MATCH procedure to adjust q(x,5) values for individuals aged 20 and above so as to be consistent with the specific life expectancy at age 20. Once the q(x,n) values are determined, the LIFTB procedure is used to generate and print final life table, including adjusted mortality rates for children and adults (United Nations, 2013).

4.3.1 Life Table Functions

Main inputs used in constructing a life table is probability of dying (q_x) and number of survivals (l_x).

i. **Mortality rate or probability of dying (q_x):** for each interval is calculated based on the available child and adult mortality rates.

ii. **Survivor Column (l_x):** Set an arbitrary starting population, usually 100,000, for the initial cohort at age zero. The mortality rates (q_x) produced used to calculate the proportion surviving each age interval. For instance, $l\{x+1\} = l_x(1 - q_x)$.

iii. **Death Column (d_x):** Calculate number of deaths in each age interval by multiplying probability of dying and number of survivors as $dx = qx * lx$.

iv. **Number of Person-Years lived (L_x):**This is person-years lived by cohort in each age interval calculated as $_nL_x = n/2(l_x + l_x + n)$.

v. **Total number of persons years (T_x):** is sum of person-years for each age interval from oldest cohort upward to age zero. It represents the remaining person-years for individuals at each age.

vi. **Life Expectancy (e_x):** is obtained by dividing (T_x) by (l_x) at each age.

4.3 Life Table for Tanzania Total, Tanzania Mainland and Zanzibar.

The life table presents life expectancy estimates for each age. The life expectation at birth like infant mortality, is an indicator of well-being as a result improvements in health status and general living standards. It varies between males and females with that of females being higher than males.

Table 4.1: Abridged Life Tables Estimated from the 2022 Population and Housing Census – Tanzania Total

	Male						Female				
Age	q(x,n)	l(x)	L(x,n)	T(x)	e(x)	Age	q(x,n)	l(x)	L(x,n)	T(x)	e(x)
0	0.03960	100,000	96,659	6,242,936	62.4	0	0.02900	100000	97497	6841724	68.4
1	0.02155	96,040	379,055	6,146,277	64.0	1	0.01936	97100	383656	6744227	69.5
5	0.01537	93,970	466,240	5,767,222	61.4	5	0.00880	95220	474005	6360571	66.8
10	0.00943	92,526	460,449	5,300,982	57.3	10	0.00579	94382	470545	5886566	62.4
15	0.01543	91,654	454,946	4,840,534	52.8	15	0.00778	93836	467441	5416020	57.7
20	0.01999	90,239	446,785	4,385,588	48.6	20	0.01034	93106	463207	4948579	53.2
25	0.02085	88,435	437,596	3,938,803	44.5	25	0.01215	92143	457971	4485372	48.7
30	0.02243	86,592	428,158	3,501,207	40.4	30	0.01347	91023	452108	4027401	44.2
35	0.02504	84,649	418,063	3,073,049	36.3	35	0.01554	89797	445612	3575293	39.8
40	0.03067	82,529	406,513	2,654,986	32.2	40	0.02052	88402	437636	3129680	35.4
45	0.03821	79,998	392,669	2,248,474	28.1	45	0.02483	86588	427790	2692044	31.1
50	0.05401	76,942	374,778	1,855,805	24.1	50	0.03549	84438	415068	2264254	26.8
55	0.07126	72,786	351,559	1,481,027	20.3	55	0.04775	81441	398019	1849186	22.7
60	0.10605	67,599	320,996	1,129,467	16.7	60	0.07427	77553	374319	1451168	18.7
65	0.15822	60,430	279,315	808,472	13.4	65	0.11920	71793	338915	1076849	15.0
70	0.23799	50,869	225,032	529,156	10.4	70	0.19141	63235	287414	737934	11.7
75	0.35300	38,762	159,805	304,124	7.8	75	0.29779	51132	218584	450520	8.8
80	0.50250	25,079	92,710	144,319	5.8	80	0.44666	35905	138765	231935	6.5
85	0.66933	12,477	39,274	51,609	4.1	85	0.60845	19868	66703	93170	4.7
90	0.81002	4,126	10,579	12,334	3.0	90	0.75824	7779	21729	26467	3.4
95	0.90230	784	1,611	1,755	2.2	95	0.86806	1881	4277	4738	2.5
100	1.00000	77	144	144	1.9	100	1.00000	248	461	461	1.9

Table 4.2: Abridged Life Tables Estimated from the 2022 Population and Housing Census – Tanzania Mainland

	Male							Female				
Age	q(x,n)	l(x)	L(x,n)	T(x)	e(x)		Age	q(x,n)	l(x)	L(x,n)	T(x)	e(x)
0	0.03960	100,000	96,659	6,243,560	62.4		0	0.02900	100,000	97,497	6,866,859	68.7
1	0.02145	96,040	379,079	6,146,901	64.0		1	0.01926	97,100	383,682	6,769,362	69.7
5	0.01537	93,980	466,290	5,767,821	61.4		5	0.00830	95,230	474,174	6,385,680	67.1
10	0.00943	92,536	460,499	5,301,532	57.3		10	0.00554	94,440	470,891	5,911,506	62.6
15	0.01544	91,664	454,994	4,841,033	52.8		15	0.00753	93,917	467,900	5,440,615	57.9
20	0.01999	90,248	446,831	4,386,039	48.6		20	0.01003	93,209	463,793	4,972,715	53.4
25	0.02085	88,444	437,641	3,939,208	44.5		25	0.01178	92,275	458,710	4,508,923	48.9
30	0.02243	86,600	428,202	3,501,567	40.4		30	0.01304	91,188	453,021	4,050,212	44.4
35	0.02504	84,658	418,106	3,073,365	36.3		35	0.01505	89,999	446,721	3,597,191	40.0
40	0.03067	82,538	406,554	2,655,259	32.2		40	0.02000	88,644	438,952	3,150,470	35.5
45	0.03821	80,007	392,710	2,248,705	28.1		45	0.02428	86,871	429,308	2,711,519	31.2
50	0.05401	76,950	374,816	1,855,995	24.1		50	0.03487	84,762	416,788	2,282,211	26.9
55	0.07126	72,793	351,596	1,481,179	20.3		55	0.04693	81,806	399,963	1,865,423	22.8
60	0.10605	67,606	321,028	1,129,584	16.7		60	0.07316	77,967	376,528	1,465,460	18.8
65	0.15822	60,436	279,344	808,555	13.4		65	0.11770	72,263	341,400	1,088,932	15.1
70	0.23799	50,874	225,056	529,211	10.4		70	0.18943	63,757	290,109	747,531	11.7
75	0.35300	38,766	159,822	304,155	7.8		75	0.29550	51,680	221,251	457,422	8.9
80	0.50250	25,082	92,719	144,333	5.8		80	0.44435	36,409	140,965	236,172	6.5
85	0.66933	12,478	39,278	51,614	4.1		85	0.60659	20,230	68,056	95,206	4.7
90	0.81002	4,126	10,580	12,335	3.0		90	0.75713	7,959	22,272	27,151	3.4
95	0.90230	784	1,611	1,755	2.2		95	0.86761	1,933	4,403	4,879	2.5
100	1.00000	77	144	144	1.9		100	1.00000	256	476	476	1.9

Table 4.3: Abridged Life Tables Estimated from the 2022 Population and Housing Census – Zanzibar

	Male						Female				
Age	q(x,n)	l(x)	L(x,n)	T(x)	e(x)	Age	q(x,n)	l(x)	L(x,n)	T(x)	e(x)
0	0.04000	100,000	96,630	6,237,959	62.4	0	0.02930	100,000	97,474	6,586,954	65.9
1	0.02115	96,000	378,991	6,141,329	64.0	1	0.01947	97,070	383,510	6,489,480	66.9
5	0.01547	93,970	466,217	5,762,338	61.3	5	0.01438	95,180	472,478	6,105,970	64.2
10	0.00949	92,517	460,389	5,296,121	57.2	10	0.00845	93,811	467,076	5,633,491	60.1
15	0.01552	91,639	454,853	4,835,731	52.8	15	0.01044	93,019	462,762	5,166,416	55.5
20	0.02007	90,217	446,654	4,380,878	48.6	20	0.01378	92,048	457,176	4,703,653	51.1
25	0.02094	88,406	437,429	3,934,224	44.5	25	0.01614	90,779	450,308	4,246,478	46.8
30	0.02253	86,555	427,955	3,496,795	40.4	30	0.01814	89,314	442,598	3,796,170	42.5
35	0.02515	84,605	417,822	3,068,840	36.3	35	0.02087	87,695	434,021	3,353,572	38.2
40	0.03079	82,477	406,229	2,651,019	32.1	40	0.02611	85,864	423,873	2,919,551	34.0
45	0.03835	79,937	392,340	2,244,790	28.1	45	0.03064	83,622	411,932	2,495,678	29.8
50	0.05418	76,871	374,402	1,852,450	24.1	50	0.04207	81,060	397,156	2,083,746	25.7
55	0.07147	72,706	351,138	1,478,048	20.3	55	0.05647	77,650	377,853	1,686,590	21.7
60	0.10631	67,510	320,530	1,126,911	16.7	60	0.08599	73,265	351,536	1,308,737	17.9
65	0.15855	60,333	278,819	806,381	13.4	65	0.13501	66,965	313,505	957,201	14.3
70	0.23842	50,767	224,528	527,563	10.4	70	0.21209	57,924	260,194	643,696	11.1
75	0.35350	38,663	159,343	303,034	7.8	75	0.32170	45,639	192,110	383,502	8.4
80	0.50304	24,996	92,359	143,692	5.7	80	0.47067	30,957	117,372	191,393	6.2
85	0.66979	12,422	39,080	51,332	4.1	85	0.62795	16,386	53,866	74,021	4.5
90	0.81032	4,102	10,512	12,253	3.0	90	0.77012	6,097	16,693	20,155	3.3
95	0.90245	778	1,598	1,741	2.2	95	0.87313	1,401	3,135	3,462	2.5
100	1.00000	76	142	142	1.9	100	1.00000	178	327	327	1.8

e₀ Males 62 Years

e₀ Females 68 Years
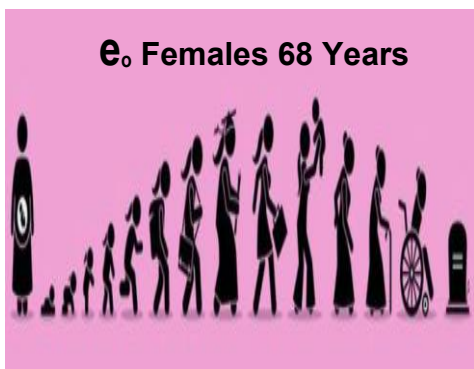
Life expectancy at birth in Tanzania is 65 years according to life tables. It means that a baby born in Tanzania now if subjected to the current levels of mortality in his/her entire life at the different ages would be expected to live for 65 years. Usually, life expectancy at birth is higher among females (68 years) than males (62 years), meaning that females live longer than males (Table 4.1).

Life expectancy at birth for Tanzania Mainland is 66 years (62 years for males and 69 years for females) and Zanzibar is 64 years (62 years and 66 years for males and females respectively) (Tables 4.2 and 4.3).

There is a large gap between male and female life expectancy in Tanzania Total (6 years) and Tanzania Mainland (7 years) partly contributed by the large infant and under five mortality rate for males of 40 and 60 deaths per 1,000 live births respectively relative to female infant mortality and under five mortality rate of 29 and 48 deaths per 1,000 live births respectively. The level of infant mortality has the largest single year contribution on life expectancy at birth therefore giving a projection of the population health status. The possible causes for such big gap in childhood mortality between male and female children are in Chapter Three. However, it is therefore necessary that studies be carried out to determine what should be done to improve the survival of males in order to reduce the mortality gap between males and females.

4.4 Trends in Life Expectancy in Tanzania

The trend analysis for life expectancy shows that Tanzania experienced a significant socioeconomic and health transformation over the past 44 years, as clearly illustrated in the trends of life expectancy at birth (Figure 4.1). Tanzania continued to perform well in various social services, especially in health sector by applying different interventions like more evenly distributed heaths facilities in the country. This helped to reduce sickness, caused deaths thereby increasing life expectancy at birth from 44 years in 1978 to 65 years in 2022. This increase is a good sign in achieving the national goal of reaching the life expectancy of 68 years by year 2025/26 as specified in the Third National Development Plan.

Figure 4.1: Trend in Life Expectancy at Birth; Tanzania, 1978-2022 PHCs
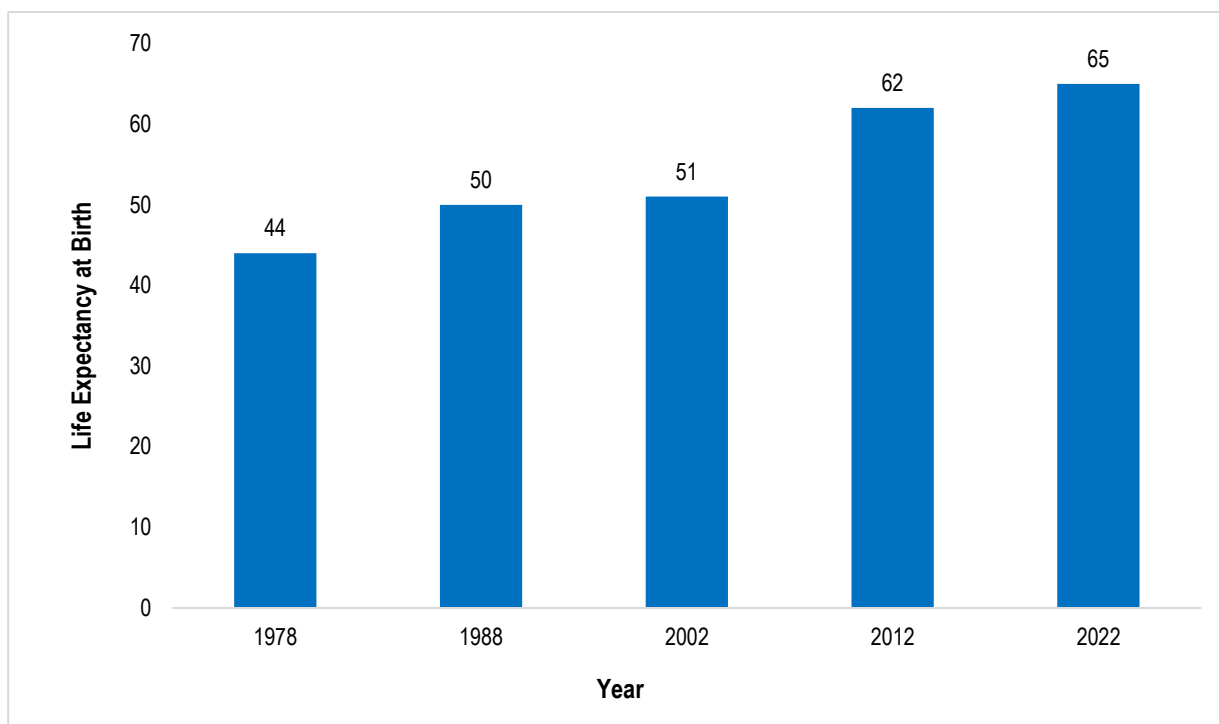
There is also an increase in life expectancy at birth for both males and females in rural and urban areas in Tanzania Mainland. However, the life expectancy in Zanzibar is more or less the same during the intercensal period 2012-2022. The same trend observed in urban areas in Zanzibar which decreased from 65 to 63 years. Rural-urban differentials are shown as the population living in rural settings have higher life expectancy of 66 years than those in urban areas (64 years). The same pattern is presented for males and females and for Tanzania Mainland and Zanzibar (Table 4.4).

There is a noticeable change in people living in rural areas to live longer than those in urban areas. Table 4.4 shows that, in 2002, the life expectancy at birth was higher in urban (57 years) than rural areas (50 years). The difference between rural and urban of 2.7 years in 2012 results is greater than 2022 results with a difference of 2.2 years. This is possibly due to higher levels of adult mortality in urban than rural areas.

Urban areas are growing at unprecedented rates in low- and middle-income countries. In some aspects of health and well-being, urban areas provide substantial improvements than rural areas. Individuals in urban areas tend to have better economic opportunities, health care availability and accessibility and standards of living. However, urban environments also bring greater health risks due to low levels of physical activity, frequent consumption of unhealthy calorie-dense foods and more exposure to pollution road traffic accidents and population density-driven infectious diseases (Nikkil and Ho, 2020). The Mainland Tanzania

Annual Vital Statistics Report (2020-2023), identify that lower respiratory infections emerged as the leading condition which caused deaths in 2021 and 2022, accounting for 15.9 percent and 9.4 of all deaths respectively. In addition, road accidents has remained in the top ten in this period causing 1.7 percent of deaths in 2021 and 3.0 percent in 2022 (RITA, 2024). The two causes of deaths are more likely to occur in urban than rural areas.

Table 4.4: Life Expectancy at Birth by Place of Residence; Tanzania, 2002, 2012 and 2022 PHCs

Place of Residence	Life Expectancy at Birth, 2002			Life Expectancy at Birth, 2012			Life Expectancy at Birth, 2022		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Tanzania	**50.9**	**50.9**	**51.0**	**61.8**	**59.8**	**63.8**	**65.4**	**62.4**	**68.4**
Rural	50.0	49.9	50.4	62.4	60.3	64.4	66.3	62.5	70.3
Urban	56.8	55.8	58.8	59.7	57.7	61.7	64.2	61.8	66.6
Tanzania Mainland	**50.4**	**50.8**	**51.0**	**61.7**	**59.7**	**63.7**	**65.5**	**62.4**	**68.7**
Rural	49.4	49.4	51.2	62.6	60.6	64.6	66.9	63.5	70.4
Urban	56.4	55.5	58.8	59.9	58.0	61.8	64.2	61.9	66.7
Tanzania Zanzibar	**59.0**	**59.7**	**60.3**	**65.2**	**63.3**	**67.1**	**64.1**	**62.4**	**65.9**
Rural	58.7	58.0	59.9	65.5	64.0	66.9	66.3	63.1	69.7
Urban	56.8	55.5	57.8	64.9	62.2	67.6	62.7	61.0	64.5

4.5 Regional Mortality Differentials

Life expectancy at birth varies by administrative region. Manyara Region is leading with average life expectancy of 74 years followed by Njombe (73 years) while Tanga Region has the least life expectancy of 60 years followed by Dar es salaam and Mtwara. Fourteen regions had life expectancies below the national average of 65 years (Figure 4.3). The differentials in mortality among regions are usually associated with the different levels of social and economic development between regions, individual living standards and socio-economic characteristics. Also, regional differences could be due to differences in rural urban population.

Table 4.5 shows the sex differentials in life expectancy at birth. All the regions recorded estimated life expectancy at birth of 60 years and above; a notable improvement from 2012 when seven regions (Dar es Salaam Rukwa, Mbeya, Kagera, Katavi, Iringa and Njombe) had life expectancy at birth of less than 60 years. There is a drastic improvement from 2012 to 2022 for Njombe (from 53 to 73 years) and Iringa (from 55 to 69 years). With this result, it appears that the HIV and AIDS epidemic which distorted lives in the two regions has now been contained. From 2012 to 2022, there is a decline of expectation of life at birth in six

regions; Kilimanjaro, Tanga, Mjini Magharibi (from 65 to 62 years), Mtwara (from 63 to 61 years), Kaskazini Pemba and Lindi (from 64 to 63 years). This is probably due to COVID-19 pandemic. Generally females expect to live longer than their male counterparts in all regions.

The six regions with low life expectancy at birth include Lindi (63 years) and Mtwara (61 years) which are also among the four regions with highest childhood mortality. Other regions with low life expectancy include Tanga (60 years), Dar es Salaam and Mjini Magharibi (62 years each) are also not doing well in childhood mortality.

Figure 4.2: Life Expectancy at Birth by Region; Tanzania, 2022 PHC

Region	Years
Manyara	74
Njombe	73
Arusha	72
Singida	70
Iringa	69
Rukwa	69
Katavi	69
Dodoma	68
Simiyu	68
Songwe	68
Kusini Pemba	68
Kaskazini Unguja	67
Shinyanga	67
Geita	67
Ruvuma	67
Kigoma	66
Kusini Unguja	66
Tabora	65
Mwanza	65
Mbeya	65
Kagera	64
Morogoro	64
Pwani	64
Mara	64
Kaskazini Pemba	63
Lindi	63
Kilimanjaro	63
Mjini Magharibi	62
Dar es Salaam	62
Mtwara	61
Tanga	60
Tanzania Zanzibar	64
Tanzania Mainland	66
Tanzania	65

Years

Table 4.5: Life Expectancy at Birth by Region; Tanzania, 2022 PHC

Place of Residence	Life Expectancy, 2012			Life Expectancy, 2022		
	Total	Male	Female	Total	Male	Female
Tanzania	**61.8**	**59.8**	**63.8**	**65.4**	**62.4**	**68.4**
Rural	62.4	60.3	64.4	66.3	62.5	70.3
Urban	59.7	57.7	61.7	64.2	61.8	66.6
Tanzania Mainland	**61.7**	**59.7**	**63.7**	**65.5**	**62.4**	**68.7**
Rural	62.6	60.6	64.6	66.9	63.5	70.4
Urban	59.9	58.0	61.8	64.2	61.9	66.7
Dodoma	64.3	60.8	67.9	68.5	65.3	71.8
Arusha	70.5	68.8	72.3	71.8	68.1	75.6
Kilimanjaro	67.3	66.3	68.4	62.7	57.8	67.8
Tanga	64.3	63.3	65.3	60.2	57.3	63.1
Morogoro	62.3	60.4	64.3	64.1	62.0	66.3
Pwani	60.2	59.7	60.7	63.8	61.2	66.4
Dar es Salaam	59.4	57.2	61.6	61.9	60.2	63.6
Lindi	63.8	61.2	66.4	62.8	59.8	66.0
Mtwara	63.4	61.8	65.1	61.3	57.5	65.2
Ruvuma	60.2	59.0	61.5	66.9	64.1	69.8
Iringa	55.4	53.2	57.7	69.1	63.3	75.1
Mbeya	58.1	56.3	60.0	65.3	61.6	69.1
Singida	67.0	65.7	68.2	69.9	66.6	73.2
Tabora	60.7	58.1	63.3	65.5	62.8	68.2
Rukwa	58.3	55.9	60.8	68.5	64.0	73.2
Kigoma	62.1	60.4	63.8	66.3	61.2	71.6
Shinyanga	59.6	57.0	62.3	67.1	64.1	70.3
Kagera	57.5	55.5	59.7	64.3	59.8	68.8
Mwanza	62.4	60.3	64.6	65.3	61.3	69.4
Mara	60.8	58.9	62.8	63.5	58.5	68.7
Manyara	68.1	66.8	69.5	73.7	68.9	78.6
Njombe	52.8	49.3	56.4	73.3	67.2	79.7
Katavi	57.3	53.9	60.9	68.5	65.1	72.1
Simiyu	64.6	63.2	66.0	68.3	64.0	72.8
Geita	63.2	61.6	64.8	67.0	63.2	70.8
Songwe	NA	NA	NA	68.2	62.6	73.8
Tanzania Zanzibar	**65.2**	**63.3**	**67.1**	**64.1**	**62.4**	**65.9**
Rural	65.5	64.0	66.9	66.3	63.1	69.6
Urban	64.9	62.2	67.6	62.7	61.0	64.5
Kaskazini Unguja	66.6	64.5	68.8	67.5	64.9	70.1
Kusini Unguja	62.3	60.1	64.5	66.2	63.7	68.8
Mjini Magharibi	65.0	62.6	67.5	62.1	59.8	64.5
Kaskazini Pemba	66.2	64.8	67.5	63.5	59.9	67.1
Kusini Pemba	65.3	64.8	65.8	67.5	63.9	71.3

Note: *Songwe Region was formed in 2015*

4.6 Comparison with Other African Countries

Figure 4.4 shows life expectancy for selected African countries which conducted Population Census in the 2020 round. Results show that, Tanzania is ranked the second, while Rwanda is leading with females expected to live for 71 and males 68 years (NISR, 2023) but Sierra Leone females are expected to live for 51 years and males for 48 years, among the selected countries (Statistics Sierra Leone, 2017). The sex differentials in life expectancy at birth are more clearly spelt out in some of the African countries where the gap is 8 years in Lesotho where females expects to live 60 years and males expects to live 52 years (Lesotho Bureau Statistics, 2016). The gap is 7 years in Zimbabwe (ZNSA, 2023). This finding shows that widening of the male – female gap is a common phenomenon in Africa.

Figure 4.3: Life Expectancy at Birth by Selected African Countries
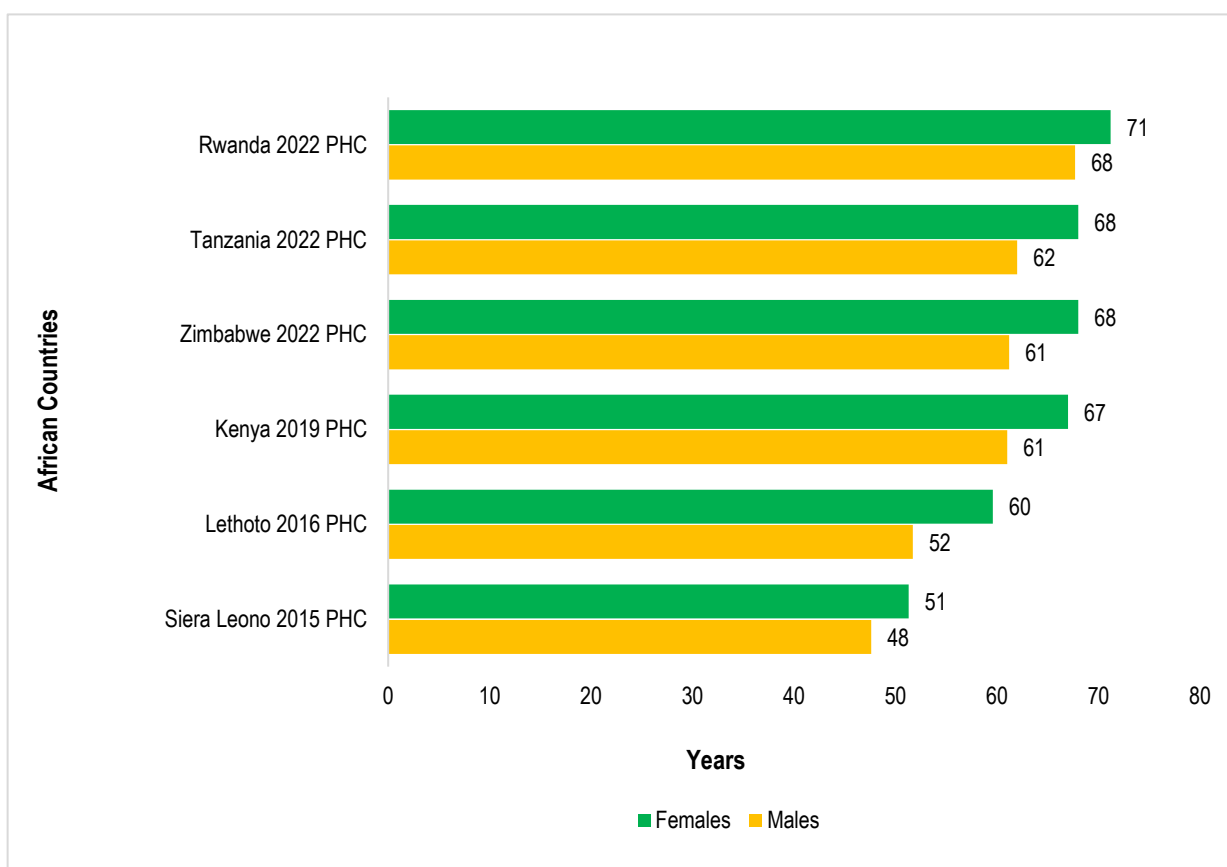
Source: *Fifth Rwanda Population and Housing Census, 2022, Thematic Report on Mortality; 2016 Lesotho Census Analytical Report Volume IIIA Population Dynamics; Zimbabwe 2022 Population and Housing Census Report, Volume 1; 2019 Kenya Population and Housing Census, Analytical Report on Mortality, Volume VII; Sierra Leone 2015 Population and Housing Census, National Analytical Report.*

4.7 Conclusion

Tanzania has shown a rise in life expectancy at birth to 65 years. However, rural dwellers have been observed to live longer than their urban counterparts. Usually urban areas tend to have better healthcare facilities, infrastructure and access to modern amenities than rural areas. However, rural areas may have higher life expectancy due to low level pollution, healthier diets from local produce and stronger community social ties, as among the key factors. It is also important to take into account the fact that urban populations face lifestyle health related risks, such as sedentary behaviour, unhealthy diets and higher exposure to dense populations related diseases eg respiratory diseases and road accidents.

Differences in economic development, access to healthcare, education levels, nutrition, and sanitation may cause regional disparities in life expectancy. Regions with better healthcare systems, high education rates and access to preventive health measures lead to longer life expectancies at birth. A region with high life expectancy at birth indicates low mortality level signifying improvement in healthcare access, economic conditions and other social determinants. It should be noted also that, regions with low life expectancy are also having high childhood mortality, calling for improved childhood health to increase life expectancy at birth.

Females tend to live longer than males in Tanzania mainly due to higher infant and under five mortality rate for male than female. In addition, males are subjected to more risks such as tobacco and alcohol use also exposure to physical labour, commonly found among males. While, females have longer life expectancy because of better social networks and community support.

It may be concluded that, life expectancy trends reflect a complex interplay of rural-urban differences, regional disparities and gender-based factors in Tanzania. Efforts should target at reducing gaps in healthcare, education and social services in the country, with a particular attention to unique needs for urban and rural populations and reducing differences in males and females health outcomes.

Chapter Five

Maternal Mortality Levels and Differentials

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Key Points

- The maternal mortality ratio dropped significantly from 432 deaths per 100,000 live births in 2012 PHC to 147 deaths per 100,000 live births in the 2022 PHC.
- The lifetime risk of maternal death indicates that 35 per 100,000 women in Tanzania are likely to die from maternal causes.
- Kaskazini Pemba MMR of 279 per 100,000 live births is higher than other regions while Singida Region MMR of 80 per 100,000 live births is the lowest.

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5.1 Introduction

Maternal mortality is widely regarded as the key indicator for a population's health and society development. The estimation of maternal mortality helps to identify population groups at high risk so as to define interventions which match the needs of health sector. The government of Tanzania through Ministry of Health have undertaken a number of interventions aiming at reducing deaths of pregnant women, increasing deliveries attended by skilled health personnel, number of health facilities providing neonatal, child and maternal health services and expansion of Emergency Obstetric Care (EMOC) coverage. Tanzania included maternal mortality questions in 2022 Census questionnaire for the second time in the population and housing censuses.

Maternal mortality indicators from the 2022 Population and Housing Census would enable monitoring and evaluation of health programmes. The indicators would be used in assessing progress towards achieving the objectives of the various national, regional and international development frameworks such as the Tanzania Development Vision 2050 and Zanzibar Development Vision 2050; Third National Five-Year Development Plan 2021/22 - 2025/26 and Zanzibar Development Plan 2021/22 - 2025/26; the East African Community Vision 2050; Southern and African Development Community Vision 2050 and the African Development Agenda 2063.

Given the shortcomings of civil registration in many sub-Saharan African countries and sample-based methodologies, it is proposed that census measurement could be used to get more precise and cost-effective estimates of maternal mortality worth for further exploration (Hill, Stanton and Gupta, 2001).

5.2   Data Used and their Quality

All households respondents were asked whether any relative death occurred in the 12 months prior to census reference date and if so, what was the sex, age at the time of death and the cause of death. Respondents were further asked questions on women who died between age 10 and 49 years to establish whether the cause of death was pregnancy-related: "*Did the death occur during pregnancy?"; and if not, "Did the death occur during childbirth?"; and if not, "Did the death occur during the 42 days period following the end of a pregnancy or childbirth, irrespective of the way the pregnancy ended?"*. Also, they were asked whether the death occurred at home or in a health facility.

Maternal mortality estimation requires proper reporting to enable identification of number of females who died and those who died of maternity-related causes (to estimate maternal mortality indices). Common problems of census in developing countries, such as over-reporting, under-reporting of deaths, age-misreporting and wrong dating of events were stated because it affects analysis to enable collection of complete and accurate data on mortality.

A significant difference in the proportion of maternal deaths was observed in analysing reported maternal deaths in households, depending on sex of the respondent or household head - suggesting an over-estimation of maternal deaths if the respondent was a male. An adjustment factor - age-specific proportion of maternal deaths in households with female respondent - was computed and applied on maternal deaths in households with male respondents. It is assumed that female respondents reported better maternal mortality incidences than male respondents.

5.3 Estimates of Maternal Mortality

Maternal mortality ratio, maternal mortality rate and Lifetime Risk (LTR) are the three indicators normally used for measurement of maternal mortality. However, the most commonly used measurement is the Maternal Mortality Ratio (MMR). The maternal mortality estimations used adjusted births maternal deaths which are based on the Arriaga method in estimating ASFRs. The Brass Growth Balance method was also applied in evaluating the census reported household deaths information, estimating the completeness of reporting of deaths over age of 5 years by comparing the age distribution of deaths and age distribution of the population. The average completeness was used to adjust maternal deaths before estimating MMRs.

All women need access to high quality care throughout pregnancy, and during childbirth and in the postpartum period.

The techniques assume stable population characteristics: constant mortality and fertility and no migration in the past. They also assume same completeness of death reporting in all age groups; such as 5-year age groups or 10-year age groups and no age or death misreporting in population. The two techniques provide information on the quality of death data and permit adjustment where estimated completeness is less than 100 percent. Pregnancy-related maternal deaths are then adjusted using inverse of estimated complete proportion.

The maternal mortality ratio for Tanzania estimated at 147 and Tanzania Mainland is 146 maternal death per 100,000 live births. In other words, for every 1,000 live births in Tanzania, about one women died of pregnancy-related causes in this period. Maternal mortality ratio for Zanzibar is 196 deaths per 100,000 live births, higher than that of Tanzania Mainland (Figure 5.1).

Zanzibar has higher MMR than reported in Tanzania Mainland

Tanzania MMR	• **147 per 100,000 live birth**
Tanzania Mainland MMR	• **146 per 100,000 live birth**
Zanzibar MMR	• **196 per 100,000 live birth**

The maternal mortality ratio for Tanzania total decreased from 432 to 147 deaths per 100,000 live births while for Tanzania Mainland decreased from 434 to 146 deaths per 100,000 live births and Zanzibar decreased from 350 to 196 deaths per 100,000 live births. Although there was a decline, the results are still high compared with the target set in various Development Plans and SDGs. MMR was to be reduced to less than 70 per 100,000 live births by 2030; East African Vision to 69 per 100,000 live births by 2050 and ZADEP to 99 per 100,000 live birth set by 2025/26. However, the results show that the MMR of 147 was successfully below the target of 180 per 100,000 live births set in FYDP by 2025/26.

Furthermore, results show that there is a significant difference between data reported in 2022 TDHS and 2022 PHC. 2022 TDHS indicated that MMR was lower (104 maternal deaths per 100,000 live births) (NBS et al, 2023) than reported in 2022 PHC. The MMR estimated using the 2022 TDHS is therefore more favourable because of the reliability in the methodology used. The TDHS uses the sisterhood method, which is tested to perform better than the other census methodologies. The reference periods for the 2022 TDHS-MIS and the 2022 PHC are also different. The MMR estimated using the 2022 TDHS is therefore used as the official MMR.

Figure 5.1: Maternal Mortality Ratio by Place of Residence, Tanzania, 2012 and 2022 PHCs
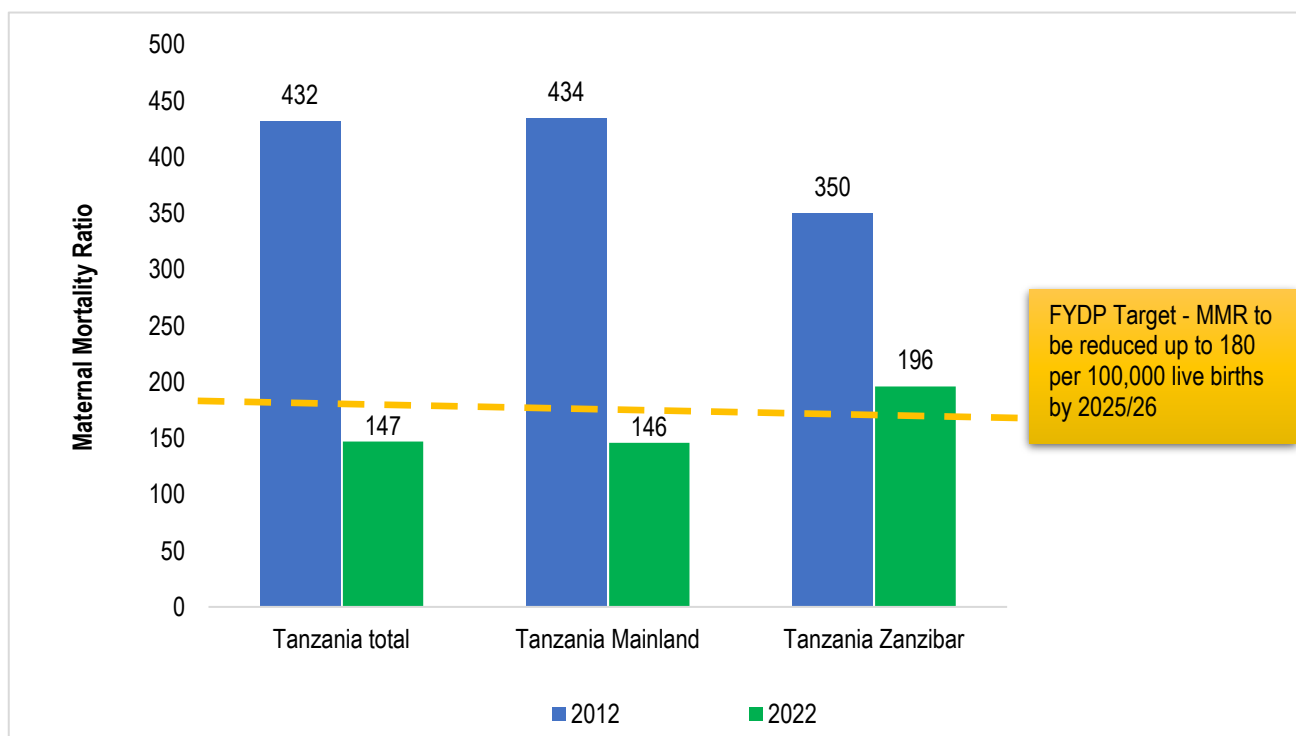
Figure 5.2 presents the age-specific maternal mortality ratio. The maternal mortality ratio generally increases significantly with age; females with high ages have higher maternal mortality ratios than those in low ages. Maternal mortality ratio for Tanzania total, Tanzania Mainland and Zanzibar at the age group 20-24 years was much lower than the other age groups, then increased in the age group of 45-49 years. Moreover, results show that MMR for all age groups are higher in Zanzibar than Tanzania Mainland.

Figure 5.2: Maternal Mortality Ratio by Age Groups; Tanzania, 2022 PHC
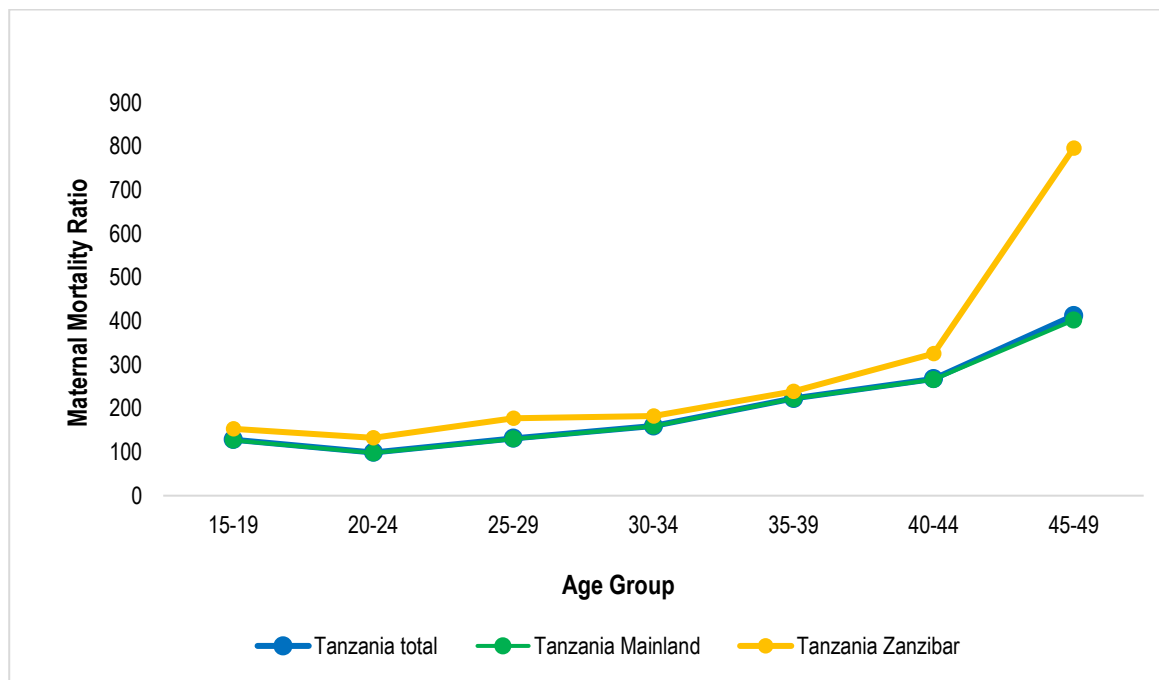
5.4   Regional Differentials in Maternal Mortality

Map 5.1 shows estimated regional maternal mortality ratios. The results reveal clear differences in maternal mortality ratio across regions ranging from 279 in Kaskazini Pemba Region to 80 deaths per 100,000 live births in Singida Region.

Kaskazini Pemba Region (279 per 100,000 live births) has significant higher MMR than other regions followed by Kusini Pemba Region (257 per 100,000 live births) and Pwani Region (232 per 100,000 live births). MMR in majority of regions (23 regions), fall between 104 and 199 per 100,000 live births. Sixteen regions have MMR below the national average of 147 per 100,000 live births while fifteen regions are above National average.

The high Maternal Mortality Ratio (MMR) in regions with high MMR might be caused by several related factors such as limited access to quality healthcare services, particularly in rural or remote areas with poor infrastructure limiting timely healthcare facilities for women (Kane & Zureick, 2016). In addition, the region having low levels of skilled birth attendance

therefore majority of women rely on traditional skills instead of healthcare professionals (Mgonja & Mselle, 2019). The lack of emergency obstetric care also contributes significantly since many healthcare centres lack necessary medical equipment and trained staff to manage complications such as haemorrhage or obstructed labour (Pembe et al., 2013). Traditional beliefs and gender norms, also cultural resistance hinder women's timely access to medical care due to preference to home births (Mgaya & Muganyizi, 2014).

Low education and health literacy level among women in the regions also exacerbate the situation, due to lack of awareness on importance of prenatal care or signs of pregnancy complications (Bintabara et al., 2015). Extreme poverty limits affordability to proper transportation or medical services among women (Lyaruu et al., 2016), while the limited family planning services accessibility leads to high-risk pregnancies, particularly among adolescents (Shayo & Msuya, 2013). Finally, weak health policies and inadequate resource allocation among regions often result in understaffed and poorly equipped health facilities, thus hindering maternal health outcomes to a large extent (Mboera et al., 2020). Addressing the multifaceted challenges requires comprehensive reforms in healthcare, education service delivery and policies to reduce maternal mortality in regions with high MMR.

Map 5.1: Maternal Mortality Ratio by Region; Tanzania, 2022 PHC

Legend
- — · — International Boundary
- – – – Regional Boundary

Maternal Mortality Ratio by Region;
Tanzania, 2022 PHC

	80 - 111
	112 - 132
	133 - 148
	149 - 199
	200 - 279

UGANDA
RWANDA
BURUNDI
D.R CONGO
ZAMBIA
MALAWI
MOZAMBIQUE
KENYA

Lake Victoria

Kagera 129
Mara 148
Mwanza 132
Geita 116
Shinyanga 127
Simiyu 88
Arusha 111
Kilimanjaro 161
Kigoma 144
Manyara 104
Tabora 122
Singida 80
Dodoma 124
Tanga 229
Katavi 126
Rukwa 164
Mbeya 160
Iringa 199
Morogoro 213
Pwani 232
Dar es Salaam 170
Songwe 143
Njombe 109
Lindi 175
Ruvuma 178
Mtwara 217

ZANZIBAR
Kaskazini Pemba 279
Kusini Pemba 257
Kaskazini Unguja 141
Mjini Magharibi 170
Kusini Unguja 110

Indian Ocean

Kilometers
0 40 80   160   240   320

5.5 Differentials by Place of Death

Table 5.1 shows the majority of maternal deaths occurred in Health Facilities (MMR of 280 death per 100,000 live births), followed by at home (60 deaths per 100,000 live births) and on the way (19 deaths per 100,000 live births). The Maternal Mortality Ratio in Tanzania are particularly high for females aged 25-39 years (1,125 deaths), closely followed by aged 30-34 years (1,029 deaths) and aged 20-24 years (999 deaths). The age group 45-49 years has the highest MMR in all places of death, mostly in health facilities.

Table 5.1: Maternal Mortality Ratio by Place of Death and Age Groups; Tanzania, 2022 PHC

Age Group	Total Female	Total Maternal Death	Number of Birth	Place of Death MMR		
				Home	Health Facility	On the way
Tanzania	**14,751,243**	**5,180**	**1,440,424**	**60**	**280**	**19**
15-19	3,147,418	510	139,574	77	273	16
20-24	2,937,224	999	404,148	46	188	14
25-29	2,462,080	1,125	353,650	51	247	20
30-34	2,019,580	1,029	270,652	55	304	21
35-39	1,652,303	915	177,956	81	410	22
40-44	1,377,867	426	71,677	91	470	33
45-49	1,154,771	176	22,767	154	584	35
Tanzania Mainland	**14,268,815**	**4,987**	**1,386,468**	**60**	**280**	**19**
15-19	3,045,554	503	137,979	77	273	15
20-24	2,840,238	969	392,483	44	188	14
25-29	2,380,294	1,077	338,669	53	245	20
30-34	1,952,007	987	257,867	55	306	21
35-39	1,597,210	878	169,255	81	415	22
40-44	1,334,140	408	68,453	92	469	35
45-49	1,119,372	165	21,762	161	565	32
Tanzania Zanzibar	**482,428**	**197**	**53,956**	**65**	**293**	**7**
15-19	101,864	5	1,595	63	251	0
20-24	96,986	30	11,665	86	171	0
25-29	81,786	48	14,981	33	287	0
30-34	67,573	41	12,785	47	258	16
35-39	55,093	43	8,701	126	345	23
40-44	43,727	19	3,224	62	32	0
45-49	35,399	11	1,005	0	690	0

5.6 Lifetime Risk

The maternal death Lifetime Risk (LTR) refers to the probability that a woman will die of a maternal cause (such as complications during pregnancy, childbirth, or the postpartum period) the course of lifetime, usually expressed as a ratio or percentage. LTR measures of the overall maternal death risk in a given population and often used to assess the severity of maternal health challenges. This risk varying by country is influenced by several factors, including:

i. **Access to healthcare**: Adequate prenatal care, skilled birth attendance and emergency obstetric care may reduce maternal mortality.

ii. **Healthcare infrastructure**: High-income countries typically have lower LTRs due to better healthcare infrastructures.

iii. **Socioeconomic status**: Women from poor economic backgrounds, especially in low-resource settings are more likely to face higher maternal death risks.

iv. **Prevalence of maternal health conditions**: Pre-existing conditions (like hypertension, diabetes, or anaemia) can increase the risk of maternal complications.

v. **Country/region**: Location matters because the risk varies greatly among countries, with sub-Saharan Africa having the highest risks due to poor healthcare access and high level of preventable complications.

According to the World Health Organization (WHO), in low-income countries, the LTR may be high up to 1 in 50 women while in high-income countries, the LTR is much lower, ranging from around 1 in 3,000 to 1 in 8,000 women. This disparity emphasizes the importance of improving healthcare infrastructure and access to skilled maternal care in regions with high risks. The lifetime risk of maternal death can be calculated using the following:

$$LTR = \frac{\text{Number of maternal deaths}}{\text{Number of women of reproductive age}} \times 100,000$$

Tanzania Zanzibar has high LTR Compared with Tanzania Mainland
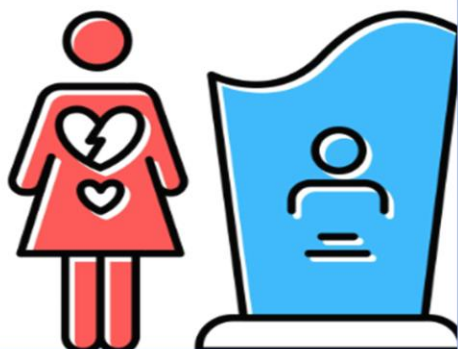
The LTR of maternal death is an important indicator for maternal health and underscores need for continuous country efforts in reducing maternal mortality, particularly in low-resource settings where the risks are high. Results show that the national LTR for maternal mortality was 35 per 100,000 women. The same results were in Tanzania Mainland while Zanzibar was 41 per 100,000 women (Figure 5.3).

Figure 5.3: Lifetime Risk of Maternal Death; Tanzania, 2022 PHC
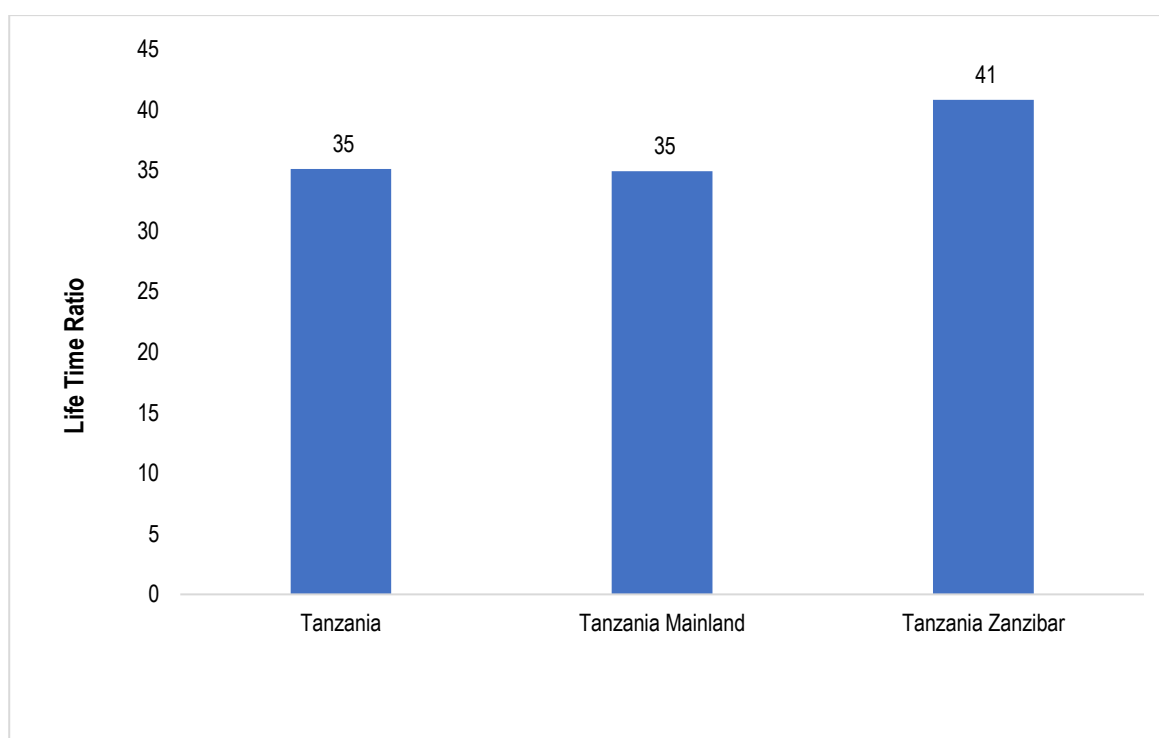
5.7   Comparison with Other African Countries

Figure 5.4 shows that MMR reported in 2022 PHC preliminary report for Zimbabwe, Rwanda 2022 PHC and 2019 PHC Kenya is higher (363 deaths per 100,000 live births) (ZNSA, 2022), 154 deaths per 100,000 live births (NISR, 2023) and 355 deaths per 100,000 live births (KNBS) respectively than Tanzania 2022 PHC (147 deaths per 100,000 live births). Although none of the selected comparative countries has reached the SDG targets, Tanzania seems to be in the right direction since MMR is closer to the indicated targets than other countries, maternal mortality seems to be lower than other African countries.

Figure 5.4: Maternal Mortality Ratios by Selected African Countries
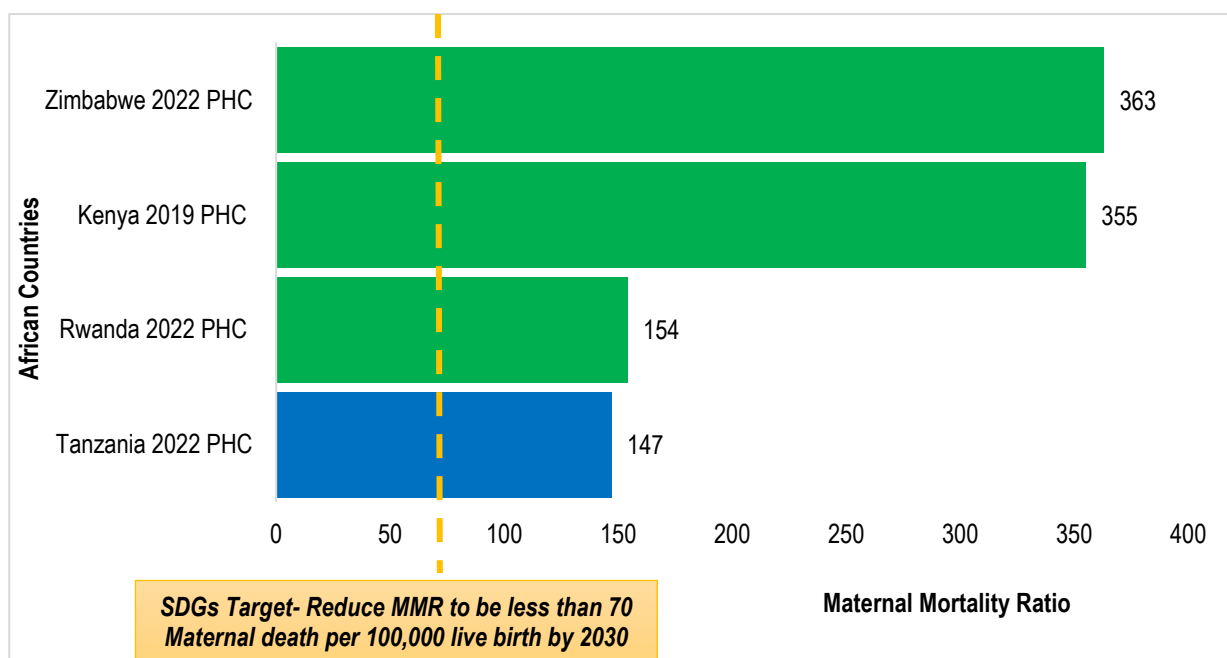
Source: *2022 Zimbabwe Population and Housing Census, Preliminary Report on Mortality and Orphan hood; 2019 Kenya Population and Housing Census, Analytical report on Mortality; The Fifth Rwanda Population and Housing Census, 2022 (RPHC 2022),Thematic Report Mortality*

5.8 Conclusion

The maternal mortality ratio has dropped significantly from 432 deaths per 100,000 live births in 2012 PHC to 147 deaths per 100,000 live births in the 2022 PHC. The results indicate unequal burden of MMRs with high variations among regions. The results ranging from 279 deaths per 100,000 live births in Kaskazini Pemba to 80 deaths per 100,000 live births in Singida. There could be a number factors behind the regional maternal mortality variances such as quality of service and other social factors such as marital status during pregnancy; unfortunately the census questionnaire lacked direct questions on those factors.

Despite of the significant reduction in maternal mortality, the SDGs target of reducing maternal mortality to less than 70 deaths per 100,000 live births has not yet been achieved. However, the Government of the United Republic of Tanzania is on track to meet this target by 2030. Although the Government is currently implementing strategies to reduce maternal mortality, the 2022 PHC findings identified gaps that require the following additional interventions:

i. Further improvement on maternal health services delivery with particular attention to local levels resource allocation such as ensuring availability of more qualified health

workers capable to accurately diagnose and managing cases while at the same time empowering citizens to demand accountability service delivery improvement;

ii.   Reducing inequities in MMR among regions through knowledge sharing and using lessons from the more successful regions as well as developing an in-depth understanding of cultures and other social relations hindering health improvement goals achievements.   Male partners be involved in the dissemination of maternal health practices to enable them to participate in minimizing risks among reproductive age women and balance of gender and family power dynamics in urban and rural areas; and

iii. Identify measures for reducing patient congestion in health facilities in urban and rural areas as a way of eliminating the service delivery gap between urban and rural areas. It should include assessment on adequacy of key infrastructure as an important resource in quality service delivery and health systems available.

Chapter Six

Conclusion, Policy Implications and Recommendations

6.1   Introduction

The 2022 PHC provides baseline information on the Tanzania's population for policy formulation and review, development planning, informed decision making, monitoring and evaluation and reporting of development programmes at national and regional levels. This chapter therefore presents a summary of findings, policy implications and recommendations to inform public and other health stakeholders on current mortality trends and health challenges. It will guide policy and decision-makers on how to improve healthcare access, address socioeconomic factors affecting health and align national efforts to global health targets.

6.2   Infant and Under Five Mortality

6.2.1 Findings

The key findings provided a status on infant mortality, under-five mortality, life expectancy at birth and maternal mortality.

i.   The Infant Mortality Rate for Tanzania total had decreased from 46 in 2012 to 34 deaths per 1,000 live births in 2022, with an average annual decline of 1.2 deaths per 1,000 live births. While, the Under-Five Mortality Rate for Tanzania decreased from 67 in 2012 to 54 deaths per 1,000 live births in 2022, with an average annual decline of 1.2 deaths per 1,000 live births;

ii.   Overall, infant and under five mortality estimates for the rural areas in Tanzania Mainland were higher than those for related urban areas while, IMR and U5MR are more or less at the same level in Tanzania Zanzibar;

iii.   There are five regions with very high infant and child mortality than the other regions. These are Lindi (43), Kagera (42), Mtwara (41), Rukwa (41) and Ruvuma (40) deaths per 1,000 live births; and

iv.   Individuals without formal educational attainment have higher IMR (34) and U5MR (54) than those with high formal educational attainment such as Individuals with tertiary education have the lowest rates, with IMR at 27.3 and U5MR at 43.4, indicating the importance of education in reducing child mortality.

6.2.2   Policy Implications

i.   The decrease in Infant Mortality Rate (IMR) and U5MR in Tanzania shows a significant advancement in childhood health. However, it indicates a need to ensure that ongoing policy efforts address remaining challenges to meet national and global health targets, such as the Health Sector Strategic Plan (HSSP) for 2021-2026[2] and the 2030 SDGs target;

ii.   The disparity between urban and rural areas in IMR and U5MR emphasises a need for prioritizing tailored healthcare strategies focusing urban-rural differences to reduce the advantage of urban over rural areas that has declined for some time. Hence there is a need to balance resource and facilities allocation in rural and urban areas;

iii.   Regions with very high Infant Mortality Rate (IMR) and Under-Five Mortality Rates (U5MR) are having limited access to quality healthcare; inadequate maternal and child nutrition; low immunization coverage and disease prevention; inadequate sanitation and unsafe water; and socioeconomic disparities and education gaps, among others; and

iv.   The results from the TDHS 2022 show a clear relationship between high infant and under-five mortality rates (IMR and U5MR) and poor nutritional status, particularly stunting, in Tanzania's regions. Most regions with an IMR above the national average of 34.3 also exhibit stunting rates higher than the national average of 30 percent. For example, Kagera (34%) and Ruvuma (36%) show stunting levels above the national average, with Rukwa being significantly higher at 50 percent. Conversely, Lindi and Mtwara are exceptions, with stunting rates of 21 and 22 percent respectively, both are below the national average. This suggests that regions with higher under-five mortality are often associated with poorer nutritional outcomes, underscoring the importance of addressing malnutrition to reduce child mortality.

6.2.3   Recommendations

i.   Improve rural health care access through investing more in healthcare infrastructures such as clinics and mobile health services as well as expanding training and support for healthcare workers;

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[2] *The HSSP infant mortality rate target is to achieve 25 deaths per 1,000 live births by 2026*

ii.   Strengthen community health programmes involving local leaders and educate families on preventive child health practices, safe delivery, nutrition and immunization particularly households without formal education;

iii. Establish programmes that reduce IMR and U5MR emphasising on the five regions with very high infant and child mortality;

iv.   Focus on high-risk regions such as Kagera, Ruvuma, and Rukwa by implementing comprehensive nutrition programmes, including improved maternal and child nutrition, micronutrient supplementation, and better access to healthcare services. These initiatives should address malnutrition directly, promote breastfeeding, and enhance early child care to reduce stunting and under-five mortality; and

v.   Enhance food security and nutrition education in regions with high stunting rates, promoting dietary diversity and sustainable agriculture. Local communities should be empowered with knowledge about proper feeding practices, the importance of nutritious foods, and how to improve household food production to combat malnutrition and improve child health outcomes.

6.3   Life Expectancy at Birth

6.3.1   Key Findings

i.   Life expectancy at birth in Tanzania is 65 years, Tanzania is doing well on e_0 overtime, Tanzania Mainland is 66 years, while in Zanzibar is 64 years;

ii.   Manyara (74), Njombe (73) and Arusha (72) regions are leading with highest life expectancy at birth while Tanga (60), Mtwara (61) years and Mjini Magharibi and Dar es Salaam (62 years each) regions have the lowest e_0; and

iii. People are living longer in rural areas (66 years) than urban areas (64 years).

6.3.2 Policy Implications

i.   High life expectancy at birth in some regions signifies improvement of such as healthcare access, economic conditions and social determinants. The opposite is true for those region with low $e_0;$ and

ii.   Urban areas, with sedentary lifestyles, respiratory related diseases, poor eating habits, higher road accidents, and greater drug use, contribute to a lower life expectancy (62 years) compared with rural areas, where active lifestyles and healthier living conditions support longer e_0, as seen in regions like Manyara (74 years) and Njombe (73 years).

6.3.2 Recommendations

i. Urban centres need special attention for a further increase in e0'

ii. Encourage physical activity by creating more recreational spaces and safe walking paths, while also improving access to nutritious foods and reducing the consumption of processed foods. Additionally, enhance road safety through stricter traffic regulations and infrastructure improvements to reduce accidents; and

iii. Implement community-based programmes to prevent drug use and provide better access to addiction treatment and mental health services, alongside with public health campaigns to raise awareness about the dangers of substance abuse in urban areas.

6.4 Maternal Mortality Ratio

6.4.1 Key Finding

i. The Maternal Mortality Ratio for the 2022 PHC was estimated at 147 maternal deaths per 100,000 live births;

ii. The Kaskazini Pemba Region recorded a higher maternal mortality ratio of 278 maternal deaths per 100,000 live births than other regions and Singida has the lowest MMR (80 maternal deaths per 100,000 live births); and

iii. The Lifetime Risk (LTR) of maternal death indicates that the risk of dying due to maternal causes is 35 in 100,000 women.

6.4.2 Policy implications

i. The maternal mortality ratio has dropped significantly from 432 in 2012 PHC to 147 deaths per 100,000 live births in the 2022 PHC. However, it's still long way to reach the Sustainable Development Goal 3 (SDG 3) target of reducing the global maternal mortality ratio to less than 70 per 100,000 live births by 2030. This emphasizes the importance of implementing specific strategies, in every region to bridge this gap;

ii. The higher maternal mortality ratio (278 maternal deaths per 100,000 live births) in Kaskazini Pemba Region is an indication of disparities among regions influenced by varying healthcare access, quality of maternal health services, socio-economic factors and infrastructure; and

iii. The LTR of 35 maternal deaths in 100,000 women indicates that Tanzania faces significant challenges in protecting women's health in reproductive years, indicating potential gaps in both preventative and emergency maternal health services.

6.4.3 Recommendations

i. Invest in training and deploying skilled birth attendants and emergency healthcare providers, particularly those in high-risk areas like Kaskazini Pemba, Kusini Pemba, Pwani, Morogoro, Tanga and Mtwara Regions. Regular training on emergency response should also be mandatory for all healthcare staff;

ii. Strengthen emergency transportation and referral systems for maternal cases, especially in rural and hard-to-reach areas, to reduce delays in critical care treatment; Education and awareness campaigns in community on the importance of having a trained attendant during child birth should be continued;

iii. Ensure timely access to emergency obstetric care, such as caesarean sections and blood transfusions, to reduce maternal deaths during childbirth;

iv. Establish national systems for monitoring maternal health, collecting accurate data on maternal deaths, and identifying causes to implement targeted interventions; and

v. Promote transparency and public access to maternal health data to track progress and hold stakeholders accountable.

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Appendices

Appendix 1: Contributors to the Mortality and Health Analysis in Tanzania

Census Commissars

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Daniel Ulindula	Director of Corporate Services – NBS
Fahima Mohamed Issa	Director of Demographic and Social Statistics – OCGS
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Data Processing Expert

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Appendix 2: 2022 Census Questionnaires

QUESTIONNAIRE FOR THE 2022 POPULATION AND HOUSING CENSUS

The United Republic of Tanzania

SENSA 2022 — Jiandae Kuhesabiwa

The Sixth Post Union Census

Strictly Confidential

This census is conducted in accordance with Section 6(2)(a) of the Statistics Act Cap. 351 || All responses collected in this census are protected under this Act

SECTION A: IDENTIFICATION

Region	District	Council	Constituency	Division/Wadi	Ward/Shehia	Village/Mtaa	Hamlet/Enumeration Area (EA)	Household Number	CONFIDENTIAL

A01 Please State the number all persons who Spent here at the Census Night

SECTION B: DEMOGRAPHICS INFORMATION

B01 No.	B02 HOUSEHOLD MEMBERS	B03 RELATIONSHIP TO THE HEAD	B04 SEX	B05 AGE	B06 MARITAL STATUS (APPLICABLE TO AGE 10+)	B07 MOBILE PHONE (AGE 15+)
	Please state the names of all persons who spent the census night, that is Monday night before Tueday 23rd August, 2022 in your household, starting with the name of the head of household. DO NOT FORGET TO INCLUDE ALL INFANTS, HOUSEHOLD MEMBERS WHO SLEPT IN A NEARBY FUNERAL AND THOSE WORKING NIGHT SHIFTS SUCH AS NURSES, DOCTORS, POLICE, GUARDS, ETC. WRITE DOWN FULL NAME OF EACH HOUSEHOLD MEMBER	What is the relationship of [NAME] to the head of the household? Head 1 / Spouse 2 / Son/Daughter 3 / Biological Parent 4 / Grand Child 5 / Other Relative 6 / Not Related 7	Is [NAME] a male or a female? Male 1 / Female 2	How old is [NAME]? WRITE AGE IN COMPLETE YEARS. IF UNDER ONE YEAR WRITE "00" FOR 97 YEARS AND ABOVE WRITE '97'	What is current marital status of [NAME]? never married, married, living together, divorced, separated, widowed? Never Married 1 / Married 2 / Living Together 3 / Divorced 4 / Separated 5 / Widowed 6 / Not Stated 9	Please give the mobile number of [NAME]? WRITE THE MOBILE NUMBER OF ALL HOUSEHOLD MEMBERS AGED 15+.
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0 8						

SECTION A: IDENTIFICATION

SECTION C: INFORMATION ON DISABILITIES/DIFFICULTIES

B01 No.	C01 ALBINISM	C02 SEEING	C03 HEARING	C04 WALKING	C05 REMEMBERING	C06 SELFCARE
	Is [NAME] an albino? Yes 1 / No 2	Does (NAME) have difficulty seeing, even if wearing glasses? No Difficulty 1 / Some Difficulty 2 / A Lot of Difficulty 3 / Unable to See 4 / Not Applicable 5	Does (NAME) have difficulty hearing, even if using a hearing aid? No Difficulty 1 / Some Difficulty 2 / A Lot of Difficulty 3 / Unable to Hear 4 / Not Applicable 5	Does [NAME] have difficulty walking or climbing steps? No Difficulty 1 / Some Difficulty 2 / A Lot of Difficulty 3 / Unable to Walk 4 / Not Applicable 5	Does (NAME) have difficulty remembering or concentrating? No Difficulty 1 / Some Difficulty 2 / A Lot of Difficulty 3 / Unable to Remember 4 / Not Applicable 5	Does (NAME) have difficulty with self-care, such as washing all over or dressing? No Difficulty 1 / Some Difficulty 2 / A Lot of Difficulty 3 / Unable to Care 4 / Not Applicable 5
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0 6						
0 7						
0 8						

SECTION A: IDENTIFICATION

Region	District	Council	Constituency	Division/Wadi	Ward/Shehia	Village/Mtaa	Hamlet/Enumeration Area (EA)	Household Number	CONFIDENTIAL

SECTION C: INFORMATION ON DISABILITIES/DIFFICULTIES

B01 No.	C07 COMMUNICATION	C08 OTHER DISABILITIES	C09 CAUSE OF DISABILITY	C10 ASSISTIVE DEVICES AND MATERIALS
	USING THE COMMON LANGUAGE: Does [NAME] have difficulty communicating; for example understanding or being understood?	Does, [NAME] have other type of disabilities/difficulties among the following? READ ALL TYPES OF DISABILITIES/ DIFFICULTIES TO RESPONDENT Yes = 1 | No = 2 | Don't know = 9	ASK FOR EVERY TYPE OF DISABILTY FROM C02 TO C07 IF CODE 3 OR 4 OR CODE 1 IN QUESTION C08 What is the cause of disability for [NAME]? MULTIPLE RESPONSE IS ALLOWED	ASK IF QC01 = 1 OR ANY QUESTION FROM QC02 TO Q07 = 3 OR 4 OR QC08 IS CODE 1 FOR B,C,D Does [NAME] has disability assistive devices or materials? Yes = 1 | No = 2

C07: No Difficulty (1), Some Difficulty (2), A Lot of Difficulty (3), Unable to communicate (4), Not Applicable (5)

C08: Cleft Palate (A), Hydrocephalus (B), Spinal bifida (C), Spinal cord injuries (D), Epilepsy or seizures (E), Psoriasis (F), Storiasis (G), Autism (H), Mental Health (I), Mental Disorder (J), Person with short stature (K), Leprosy (L), Person with hunchback (M), Other disability (X)

C09: Inborn (A), Disease (B), Accident (C), Old age (D), Beaten (E), Contaminated water (F), Stress (G), Drug abuse (H), Pregnancy/birth complications (I)

B01		C07					C08														C09									C10
0 1																														
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SECTION D: MIGRATION INFORMATION

B01 No.	D01 CITIZENSHIP	D02 DUAL CITIZENSHIP	D03 PLACE OF RESIDENCE	D04 WHERE RESPONDENT SPENDS MOST OF THE DAY TIME	D05 PLACE OF BIRTH
	What is (NAME) country of citizenship? IF TANZANIAN, WRITE CODE 001 IF NON-TANZANIAN WRITE APPROPRIATE CODE, FOR DUAL CITIZENSHIP WRITE "888" ►IF THE ANSWER IS CODE OF RESPECTIVE COUNTRY GO TO DO3	What is (NAME) countries of citizenship? WRITE CODES FOR THE COUNTRIES MULTIPLE RESPONSE IS ALLOWED FISRT COUNTRY SECOND COUNTRY	Which region/country does [NAME] usually live? WRITE CODE FOR THE COUNTRY, REGION AND DISTRICT IF LIVING IN TANZANIA, OR COUNTRY CODE IF LIVING OUTSIDE TANZANIATHEN GO TO THE NEXT QUESTION	Where do you spend most of your time during the day? WRITE COUNTRY, REGION AND DISTRICT CODES IF SPENDS MOST OF THE DAY TIME IN TANZANIA OR COUNTRY CODE IF OUTSIDE TANZANIA THEN GO TO THE NEXT QUESTION CODES FOR THE 8th BOX Rural =1 Regional /District Headquarters =2 Other Urban= 3	In which region/country was [NAME] born? WRITE CODE FOR COUNTRY, REGION AND DISTRICT IF BORN IN TANZANIA OR COUNTRY CODE IF BORN OUTSIDE TANZANIA. IF COUNTRY OF BIRTH IS UNKNOWN WRITE "9999999" ►IF THE RESPONDENT WAS BORN IN THE REGION WHERE THE INTERVIEW IS TAKING PLACE GO TO D10
0 1					
0 2					
0 3					
0 4					
0 5					
0 6					
0 7					
0 8					

SECTION A: IDENTIFICATION

Region	District	Council	Constituency	Division/Wadi	Ward/Shehia	Village/Mtaa	Hamlet/Enumeration Area (EA)	Household Number	CONFIDENTIAL

SECTION D: MIGRATION INFORMATION

B01	D06 TIME OF ARRIVE	D07 LIVING PERIOD	D08 PREVIOUS RESIDENCE	D09 MAIN REASON FOR MIGRATION	D10 PLACE OF RESIDENCE IN YEAR 2012	D11 PLACE OF RESIDENCE IN YEAR 2021
No.	When did [NAME] arrive to live in this region/country? WRITE MONTH AND YEAR OF ARRIVAL OF A CURRENT PLACE	How long has [NAME] been living in this region/Country? WRITE COMPLETE YEARS. IF LESS THAN ONE YEAR WRITE "00"	Where was [NAME] living before coming here? IF IN TANZANIA WRITE CODE 01 FOR RURAL, 02 FOR URBAN AREA AND COUNTRY CODE FOR OUTSIDE TANZANIA AND IF COUNTRY IS UNKWOWN WRITE CODE 999	What was [NAME's] main reason for moving to this region/to Tanzania?	In which Region /Country was [NAME] living during 2012 census? WRITE CODE FOR THE COUNTRY, REGION AND DISTRICT IF LIVING IN TANZANIA, OR COUNTRY CODE IF LIVING OUTSIDE TANZANIA THEN GO TO THE NEXT QUESTION IF COUNTRY IS UNKOWN WRITE CODE 999 ► TO BE ASKED FOR PERSONS AGED 11 YEARS OR ABOVE	In which Region /Country was [NAME] living in 2021? WRITE CODE FOR THE COUNTRY, REGION AND DISTRICT IF LIVING IN TANZANIA, OR COUNTRY CODE IF LIVING OUTSIDE TANZANIA THEN GO TO THE NEXT QUESTION ► FOR CHILDREN AGED '00' DON'T ASK THIS QUESTION SKIP TO E01

Reasons for migration codes:
01 To take up a paid job | 02 Job transfer | 03 To look for work/green pastures/clients | 04 Study/training | 05 Marriage | 06 Family moved/joining family | 07 Medical treatment/health care | 08 Conflict/insecurity/natural disater | 09 Looking for suitable land for agriculture | 10 Looking for suitable site for fishery activities | 11 Looking for suitable grazing land | 12 Cost of living | 13 Moving into a new homestead | 14 Visit friend/family | 15 Conflict of Marriage/Family | 16 Death of parent (s) | 17 To be cared

MM   YYYY

No.						
0 1						
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SECTION A: IDENTIFICATION

Region	District	Council	Constituency	Division/Wadi	Ward/Shehia	Village/Mtaa	Hamlet/Enumeration Area (EA)	Household Number	CONFIDENTIAL

SECTION E: INFORMATION ON POSSESSION OF NATIONAL DOCUMENTS AND ORPHANHOOD

B01	E01 BIRTH CERTIFICATE, PASSPORT, AND HEALTH INSURANCE	E02 OTHER DOCUMENTS - FOR PERSON AGED 18+	E02F ENTREPRENUER ID - FOR PERSON AGED 5+	E03 SURVIVAL OF PARENTS (APPLICABLE TO PERSONS BELOW AGE 18)
No.	Does [NAME] have the following Identification? Yes = 1 | No = 2 | Don't know = 9 QUESTION E01F SHOULD BE ASKED FOR A PERSON AGED 60 YEARS OR ABOVE	Does [NAME] have the following National Documents? Yes = 1 | No = 2 | Don't know = 9 ► IF D01 NOT TANZANIAN DON'T ASK CODE C, E AND F E02A1: IF A or B IS CODE 1, ASK, Please, mention National ID number of [NAME] E02C1: IF CODE C IS 1, ASK, Please, mention Zanzibar ID number of [NAME]	► IF D01 NOT TANZANIAN DON'T ASK THIS QUESTION Does [NAME] have small entrepreneur ID? Yes = 1 | No = 2 | Don't know = 9 IF CODE 2 OR 9 SKIP TO E03 E02F1: IF CODE 1, ASK, Please, mention Entrepreneur ID number of [NAME] IF ID IS NOT FOUND OR DOES NOT REMEMBER THE ID NUMBER WRITE CODE "999999999"	Is [NAME]'s Father alive? Is [NAME]'s Mother alive? Yes = 1 | No = 2 | Don't Know = 9

E01 documents: A Birth Certificate | B Birth Notification | C Travel Passport | D National Health Insurance/ Community Health Insuarence | E Other Health Insuarence | F Card for elderly treatment

E02 documents: A National ID (NIDA) | B National ID Number (NIDA) | C Zanzibar ID | D Driving Licence | E Voter's ID

FILL ID NUMBER (E02)   FILL ID NUMBER (E02F)   Father   Mother

No.					
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SECTION A: IDENTIFICATION

Region	District	Council	Constituency	Division/Wadi	Ward/Shehia	Village/Mtaa	Hamlet/Enumeration Area (EA)	Household Number	CONFIDENTIAL

SECTION F: EDUCATION INFORMATION - ALL PERSONS AGED 4 YEARS OR ABOVE

B01	F01 READING AND WRITING	F01A NUMERACY	F02 SCHOOL ATTENDANCE	F03 REASON FOR SCHOOL DROPOUT - 4 TO 24 YEARS	F04 LEVEL OF EDUCATION
No.	Can [NAME] read and write a short sentence in Kiswahili, English, Kiswahili and English or any other language? Kiswahili = 1 English = 2 Kiswahili and English = 3 Other Languages = 4 Illiterate = 5	Can [NAME] do a simple arithmetics addition, substraction, division or multiplication? Yes = 1 | No = 2	Is [NAME] currently attending, partially attended, completed or never attended school? Now attending =1 Partially attended =2 Completed =3 Never attended =4 ► IF CODE 1 OR 3 SKIP TO F04	What was the main reason for [NAME] school dropout/never attended?	► ASK IF F02 CODED 1, 2 OR 3 What level of education has [NAME] completed or is currently attending? WRITE THE APPROPRIATE CODE

Reason columns (F03): Financial Constraints 01 | School too far away 02 | Ill/Sick 03 | Disability 04 | Pregnancy 05 | Truancy/Refusal 06 | Indispine behaviour/Expulsion 07 | To work/looking for work 08 | Caring for the sick/children 09 | Marriage 10 | Difficulty/dangerous environment 11 | Unfriendly infrastructure 12 | Not started school 13

No.	F01	F01A	F02	01	02	03	04	05	06	07	08	09	10	11	12	13	F04
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CODES FOR F03

Education level	Code
Pre Primary	00
Std 1	01
Std 2	02
Std 3	03
Std 4	04
Std 5	05
Std 6	06
Std 7	07
Std 8	08

Secondary Education

Education level	Code
Pre form one	18
Form 1	09
Form 2	10
Form 3	11
Form 4	12
Form 5	13
Form 6	14

Education after Primary/Secondary School

Education level	Code
University and other related	15
Training after Primary Education	16
Training after secondary education	17
Unit (People with mental disabilities/mental health disabilities)	19

SECTION A: IDENTIFICATION

SECTION G: INFORMATION ON ECONOMIC ACTIVITY - ALL PERSONS AGED 5 YEARS OR ABOVE

B01	G01 WORK DURING LAST WEEK	G02 TEMPORARY ABSENCE	G03 SEEKING WORK	G04 AVAILABLE TO WORK
No.	During the period of Last week, which of the following work/activity did [NAME] do for many hours? ENUMERATOR: READ CATEGORIES	Even though [NAME] did not work last week, did [NAME] have a paid job, or any kind of business, or farming or other activity to generate income that you were absent from and definitely you will return to?	Did [YOU/NAME] taken any steps during the past four weeks to look for a paid job or start a business or an activity to generate income?	At present are [YOU/NAME] available to take up a paid job, or do any kind of business, farming or any activity to generate income if such opportunity arises?

G02 EXAMPLES OF TEMPORARY ABSENCE
• WAGE JOBS: LEAVE, STOOD DOWN, ILLNESS, STUDY LEAVE BUT STILL ATTACHED TO A JOB
• BUSINESS/AGRIC: TEMPORARY ABSENCES WHILE ACTIVITY CONTINUES DURING THAT ABSENCE;
• UNPAID WORKERS AND CASUAL WORKERS SHOULD NOT BE INCLUDED UNDER TEMPORARY ABSENT.

G01 categories:
1 To take up a paid job | 2 Do activity or business for generate income/help a family member in paid job or business? | 3 Work or help in family agricultural activities including crop farming, livestock or fishing? | 4 Own account work - Prepare or preserved food or drinks for storage/Construction work or help a family member with similar | 5 Did not do any work or activity

G02: Yes........1   No.......2
G03: Yes 1 | No 2
G04: Yes 1 | No 2

► IF CODE 1, 2, 3 OR 4 SKIP TO G05
► IF CODE 1 SKIP TO G05
► FOR ANY ANSWER SKIP TO G08

No.	G01 (1-5)	G02	G03	G04
0 1				
0 2				
0 3				
0 4				
0 5				
0 6				
0 7				
0 8				

SECTION A: IDENTIFICATION

Region	District	Council	Constituency	Division/Wadi	Ward/Shehia	Village/Mtaa	Hamlet/Enumeration Area (EA)	Household Number	CONFIDENTIAL

SECTION G: INFORMATION ON ECONOMIC ACTIVITY - ALL PERSONS AGED 5 YEARS OR ABOVE

B01	G05 OCCUPATION	G06 OWNER OF THE ENTERPRISE	G07 MAIN ECONOMIC ACTIVITY	G08 MINING AND QUARRYING ACTIVITY	G09 EMPLOYMENT STATUS

G05 OCCUPATION — No. ENUMERATOR: THE FOLLOWING QUESTIONS ARE ABOUT [NAME'S] MAIN JOB OR BUSINESS. YOUR MAIN JOB IS THE ONE ON WHICH YOU USUALLY SPEND MOST OF YOUR WORKING TIME INCLUDING THOSE WHO WERE TEMPORARY ABSENT

In main job, what kind of work does [NAME] usually do?

WRITE OCCUPATION FULLY OR AT LEAST IN TWO WORDS

G06 OWNER OF THE ENTERPRISE — In your main work, who is the owner of the enterprise?

- Central Government — 01
- Local Government — 02
- Parastatal Organization — 03
- NGO, religious organisation, political party, Non-profit institution — 04
- International organization or foreign embassy — 05
- Private business (non-farm) — 06
- Registered partnership or cooperative — 07
- Own or family farm — 08
- Household(s) domestic worker — 09
- Household - Other economic activities — 10
- Other Private — 11

G07 MAIN ECONOMIC ACTIVITY — What is the main activity of the business or place where [NAME] work[s]?

WRITE ACTIVITY FULLY OR AT LEAST IN TWO WORDS

G08 MINING AND QUARRYING ACTIVITY — During the period of 12 Months that is from August 2021 to the day before the census Night, Did [YOU/NAME] work on the following mining or quarrying activities?

▶ IF CODE "Z" SKIP TO QN. G10

READ RESPONSES

- Tanzanite — A
- Gold — B
- Diamond — C
- Sands — D
- stone/gravel — E
- Other precious gems — F
- Other non-precious gems — G
- Not Applicable — Z

G09 EMPLOYMENT STATUS — In [YOUR/NAME's] job, [do/does] [YOU/NAME] work as….?

- Paid Employee — 1
- Self Employed without employees — 2
- Self employed with employees — 3
- casual worker — 4
- Workers not clasifiable by status — 5

B01 No.	DESCRIPTION	TASCO CODES	OWNER (01-11)	DESCRIPTION	ISIC CODES	A	B	C	D	E	F	G	Z	1	2	3	4	5
0 1																		
0 2																		
0 3																		
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0 8																		

SECTION A: IDENTIFICATION

Region	District	Council	Constituency	Division/Wadi	Ward/Shehia	Village/Mtaa	Hamlet/Enumeration Area (EA)	Household Number	CONFIDENTIAL

SECTION G: INFORMATION ON ECONOMIC ACTIVITY - ALL PERSONS AGED 5 YEARS OR ABOVE

B01	G10 AGRICULTURAL ACTIVITIES	G11 TYPES OF CROPS	G11A LEGAL RIGHT OVER THE OWNERSHIP	G12 TYPES OF LIVESTOCK	G13 TYPES OF FISHERY AND ACQUACULTURE	G14 TYPES OF FOREST TREES

G10 AGRICULTURAL ACTIVITIES — No. Does [NAME] involved in agricultural activities during 2021/22 agricultural year?

MULTIPLE RESPONCE IS ALLOWED

▶ IF CODE Z SKIP TO QN. G15

- Crop Farming — A
- Livestock Keeping — B
- Capture Fishery and Acquaculture (Fish farming, Crab, Sea Weeds production etc) — C
- Forestry/Tree Activity — D
- Not Applicable — Z

G11 TYPES OF CROPS — Fill Crop Type Codes (At most two) — FIRST CROP, SECOND CROP

G11A LEGAL RIGHT OVER THE OWNERSHIP — What legal right do you have over the ownership of the land used for crop production in the aagricultural year 2021/22?

- Title deed — A
- Customary law — B
- Contract — C
- Rented — D
- Share cropped — E
- Land under other forms of tenure — F
- Doesnot own — G
- Don't know — Z

G12 TYPES OF LIVESTOCK — Fill Livestock Type Codes (At most two) — 1st LIVESTOCK, 2nd LIVESTOCK

G13 TYPES OF FISHERY AND ACQUACULTURE — Fill Capture Fishery, Acquaculture Activity and Sea Weeds production Codes (At most two) — 1st ACTIVITY, 2nd ACTIVITY

G14 TYPES OF FOREST TREES — Fill Forestry/Tree Activity Type Codes (At most two) — 1st ACTIVITY, 2nd ACTIVITY

B01 No.	A	B	C	D	Z	FIRST CROP	SECOND CROP	A	B	C	D	E	F	G	Z	1st LIVESTOCK	2nd LIVESTOCK	1st ACTIVITY	2nd ACTIVITY	1st ACTIVITY	2nd ACTIVITY
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0 2																					
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Codes for COL. G11

Crop	Code	Crop	Code	Crop	Code	Crop	Code
Maize	11	Field peas	37	Banana	71	soursop	215
Paddy	12	Fiwi	101	Avocado	72	Rassberry	216
Sorghum	13	Sunflower	41	Mango	73	flower	217
Bulrush Millet	14	Sesame	42	Papaw	74	Lime	851
Finger Millet	15	Groundnut	43	Pineapple	75	Lemon	852
Wheat	16	Palm Oil	44	Orange	76	Cabbage	86
Barley	17	Coconut	45	Grapes	78	Spinach	88
Cassava	21	Soyabeans	47	Mandarin	79	Carrot	89
Sweet Potatoes	22	Caster seed	48	Guava	80	Chilies	90
Irish potatoes	23	Cotton	50	Plums	81	Amaranths	91
Yams	24	Malay apple	38	Apples	82	Pumpkins	92
Cocoyams	25	Bread fruit	67	Pears	83	Cucumber	93
Onions	26	Jack fruit	69	Peaches	84	Egg Plant	94
Ginger	27	Passion Fruit	70	Durian	97	Water Mellon	95
Garlic	28	Solanum Nigrum	903	Rambutan	99	Cauliflower	96
Beans	31	collard greens	904	Custard Apple	200	Okra	100
Cowpeas	32	Grapefruit	77	God Fruit	201	Coriander seed	102
Green gram	33	Pomelo	68	Plum	203	Tomatoes	871
Pigeon pea	34	Bilimbi	98	Date	210	White eggplant	872
Lentils	35	Star fruit	39	Vanilla	212	Green pepper	901
Bambara nuts	36	Nutmeg	65	Strawberry	213	Brocol	905

Crop	Code
Seaweed	19
Cashew nut	46
Tobacco	51
Pyrethrum	52
Sisal	53
Coffee	54
Tea	55
Cocoa	56
Rubber	57
Sugar cane	60
Cardamom	61
Jute	62
Cinnamon	64
Clove	66
Olive	110
Green Tomato	300
Lemon grass	307
Other	998
Pumpkin leaves	906
Black Pepper	18
Not applicable	999

Codes for COL. G12

Livestock	Code
Cattle	1
Goat	2
Sheep	3
Pig	4
Horse	5
Donkey	6
Chicken	7
Duck	8
Turkey	9
Rabbit	10
Other livestock	98
Not Applicable	99

Codes for COL. G13

Activity	Code
Capture Fishery	1
Acquaculture (fish farming, crab, etc exclude sea weed)	2
Sea Weed Production	3
Not Applicable	9

Codes for COL. G14

Activity	Code
Bee Keeping	1
Production of Seedling	2
Tree Plantation	3
Forest Product	4
Gathering and Hunting	5
Other forestry activities	8
Not Applicable	9

SECTION G: INFORMATION ON ECONOMIC ACTIVITY - ALL PERSONS AGED 5 YEARS OR ABOVE

B01 No.	G15 INFORMAL ECONOMIC ACTIVITIES — Does [NAME] engage in any informal economic activity? Yes = 1 | No = 2 ▶IF CODE 2 SKIP TO H01	G16 ECONOMIC ACTIVITY — What is the main activity of [NAME]'s business? WRITE ACTIVITY FULLY OR AT LEAST IN TWO WORDS — DESCRIPTION / ISIC CODE	G17 BUSINESS LOCATION — In which area does [NAME] mostly work?	G18 MACHINGA UNION FEDERATION - SHIUMA MEMBERSHIP — Is [NAME] a member of Machinga Union Federation (SHIUMA)? Yes = 1 | No = 2	G19 CURRENT CAPITAL (TZS) — Currently, how much capital does [NAME] have?	G20 MAIN SOURCE OF CAPITAL — What is the main source of [NAME]'s capital?

G19 columns: Less than 10,000 (1) | 10,000 - 49,999 (2) | 50,000 - 99,999 (3) | 100,000 - 199,999 (4) | 200,000 - 499,999 (5) | 500,000 - 999,999 (6) | 1,000,000 - 9,999,999 (7) | 10,000,000 or more (8)

G20 columns: Own sources (Personal savings from salary/crops) (1) | Government assistance (2) | Loan from Government (3) | TASAF (4) | Private persons assistance (friends, (5) | Donor Assistance/Loan (6) | Loan from Banks (7) | Loan from Pension Funds (PSSSF, NSSSF, etc) (8) | Loan from Cooperatives associations (9) | Employer Assistance (10) | Loan from Employer (11) | Loan from SACCOS/VICOBA (12) | Loan from SHIUMA (13)

No.					
0 1					
0 2					
0 3					
0 4					
0 5					
0 6					
0 7					
0 8					

CODES FOR QUESTION G17

WITHOUT PERMANENT PRIMISES

Hawking/mobile	01
Improvised post on the roadside	02
Permanent post on the roadside	03
Vehicle, motor bike, Tricycle, Bicycle	04
Customer's home	05
In my own/partner's home without special installation	06
Online bussiness	07
Improvised post in a market	08
Garbage area	09
Construction sites	10
Other without permanent premises	11

WITH PERMANENT PRIMISES

Permanent premises in a market (shop, kiosk, shed)	12
Workshop, shop, restaurant, hotel	13
Taxi station in permanent structure/ Public transport with fixed route	14
Bicycle /Boda boda/ Tricycle stations	15
Mining site	16
Farm/fishing or grazing area	17
Industrial area	18
Other area with permanent premises	19
In my own/partner's home with special installation	20

SECTION A: IDENTIFICATION

Region	District	Council	Constituency	Division/Wadi	Ward/Shehia	Village/Mtaa	Hamlet/Enumeration Area (EA)	Household Number	CONFIDENTIAL

SECTION H: LAND OWNERSHIP AND INFORMATION REGARDING ICT

B01 No.	LAND OWNERSHIP - ALL PERSONS		INFORMATION REGARDING ICT - 4 YEARS OR ABOVE		
	H01 OWNERSHIP OF LAND — Does [NAME] own any agricultural or non agricultural land either alone or jointly with someone else? ▶ IF THE ANSWER IS 4 OR 9 SKIP TO H03	H02 TITLE DEED — Does [NAME] have title deed with his/her name on it?	H03 EQUIPMENTS OWNERSHIP — Did [NAME] own the following equipments in the past 3 months? YES = 1 | NO = 2 | Don't Know = 9	H04 EQUIPMENTS USED — Did [NAME] use the following equipments in the past 3 months? Yes = 1 | No = 2 | Don't Know = 9 ▶ IF CODE 2 OR/AND 9 FOR ALL, SKIP TO QN. I01	H05 EQUIPMENT USE — In which of the following activities did [YOU/NAME] you use the equipments? Yes = 1 | No = 2 | Don't Know = 9 READ ALL CATEGORIES

H01 columns: Alone (1) | Jointly (2) | Both alone and jointly (3) | Does not own (4) | Don't Know (9)

H02 columns: Alone (1) | Jointly (2) | Both alone and jointly (3) | No title deed (4) | Don't Know (9)

H03 columns: Smart phone/Tablet (A) | Mobile phone (B) | Desktop (C) | Laptop (D)

H04 columns: Smart phone/Tablet (A) | Mobile phone (B) | Desktop (C) | Laptop (D)

H05 columns: Communication (A) | Search/receive information (B) | Online business (C) | Learning (D) | Playing games/Entertainment (E) | Sending and receiving money (F)

No.					
0 1					
0 2					
0 3					
0 4					
0 5					
0 6					
0 7					
0 8					

SECTION A: IDENTIFICATION

Region	District	Council	Constituency	Division/Wadi	Ward/Shehia	Village/Mtaa	Hamlet/Enumeration Area (EA)	Household Number	CONFIDENTIAL

SECTION I: INFORMATION ON FERTILITY - FEMALES AGED 10 YEARS OR ABOVE

B01		CHILDREN EVER BORN - CHILDREN SURVIVING				FERTILITY IN LAST 12 MONTHS FOR WOMEN AGED 10 TO 49 YEARS	
No.	I01 BIRTH	I02 BORN ALIVE IN HOUSEHOLD	I03 BORN ALIVE LIVING ELSEWHERE	I04 CHILDREN DIED		I05 CHILDREN BORN ALIVE	
	Have you ever given live birth? Yes = 1 | No = 2 ► IF CODE "2" SKIP TO I04	How many male/female children were born alive to [NAME] and are now living with you/her in this household? IF SHE IS NOT LIVING WITH ANY OF HER CHILDREN WRITE "00"	How many male/female children were born alive to [NAME] and are now living elsewhere? IF SHE HAS NO CHILDREN LIVING ELSEWHERE WRITE "00"	How many male/female children were born alive to [NAME] and are now unfortunately dead? IF NONE OF HER CHILDREN HAS DIED WRITE "00" ► IF QN 101 = 2 AND IO4 = 0 SKIP TO J01		How many of the male/female children who were born alive to [NAME] in the last 12 months? (22 AGOST, 2022 BACK TO 23 AGOST, 2021) IF THERE IS NO CHILD SURVIVING WRITE "0" ► IF THERE IS NO CHILD BORN ALIVE IN THE LAST 12 MONTHS WRITE "0" THEN GO SECTION J. DON'T ASK FEMALES AGED 50 YEARS OR ABOVE	
		MALE FEMALE	MALE FEMALE	MALE FEMALE		MALE	FEMALE
0 1							
0 2							
0 3							
0 4							
0 5							
0 6							
0 7							
0 8							

SECTION A: IDENTIFICATION

Region	District	Council	Constituency	Division/Wadi	Ward/Shehia	Hamlet/Enumeration Area (EA)	Kitongoji/Eneo la Kuhesabia Watu (EA)	Household Number	CONFIDENTIAL

SECTION J: INFORMATION ON GENERAL AND MATERNAL DEATHS IN THE HOUSEHOLD

PLEASE RECORD INFORMATION ON DEATHS THAT OCCURRED IN THE HOUSEHOLD DURING THE LAST 12 MONTHS. DO NOT FORGET CHILDHOOD MORTALITY

J01 Was there any death which occurred in this household during the last 12 months? (i.e. 22 AUGUST 2022 - 23 AUGUST 2021) Yes = 1 | No= 2 ► IF THE ANSWER IS NO, SKIP TO SECTION K	J02 How many number of death occurred in this household during the last 12 months RECORD THE NUMBER OF DEATHS

J03		SEX AND AGE OF DECEASED; AND CAUSE OF DEATH			IF DEATH IS OF A WOMAN AGED 10 TO 49 YEARS			
Death Serial Number	J04 SEX OF DECEASED	J05 AGE OF DECEASED	J06 CAUSE OF DEATH		J07 DURING PREGNANCY	J08 DURING CHILDBIRTH	J09 DURING SIX WEEKS	J10 PLACE OF DEATH
	Was the deceased a male or a female? Male =1 Female =2	How old was the deceased at the time of death? WRITE AGE IN COMPLETE YEARS. IF UNDER ONE YEAR WRITE "00" IF 97 YEARS OR ABOVE WRITE '97'	What was the main cause of death? Road Accident / Other Accidents / Suicide / Domestic Violence/Homicide / Sickness/Disease / Maternal Death / Killed / Unspecified reasons 1 2 3 4 5 6 7 8		Did the death occur during pregnancy? Yes = 1 No = 2 ► IF CODE 1 SKIP TO QUESTION J10	Did the death occur during childbirth? Yes = 1 No = 2 ► IF CODE 1 SKIP TO QUESTION J10	Did the death occur during the 6 weeks period following the end of pregnancy, irrespective of the way the pregnancy ended? Yes = 1 No = 2	ASK IF QJ07 OR J08 OR J09 = 1 Did this death occurred at home or in health facility? Home = 1 Health facility = 2 On the way = 3
0 1								
0 2								
0 3								
0 4								
0 5								
0 6								
0 7								
0 8								

SECTION A: IDENTIFICATION

Region	District	Council	Constituency	Division/Wadi	Ward/Shehia	Village/Mtaa	Hamlet/Enumeration Area (EA)	Household Number	CONFIDENTIAL

SECTION K: HOUSING OWNERSHIP, CONDITIONS, CHARACTERISTICS AND ASSETS

K01 OWNERSHIP OF THE HOUSE/BUILDING

What is the ownership status of the main dwelling used by this household?

► IF CODE 2 OR ABOVE SKIP TO K03

Owned by household	Lived in without paying any rent	Rented privately	Rented by employer	Rented by Government at susdize rent	Owned by employerf - free of charge	Owned by employer - with rent
1	2	3	4	5	6	7

K02 LEGAL RIGHT OVER THE OWNERSHIP

What legal right do you have over the ownership of this land where your house is built?

Title deed	Residential licence	Letter or offer/Acknoledgement of payments	Customary ownership	Contract	Land Registration Card (Zanzibar)	Official document from Maaakijiji/Shehia	No legal right
1	2	3	4	5	6	7	8

K03 ROOFING MATERIALS

What is the main roofing material used for the main building of this household?

Iron sheets	Tiles	Concrete	Asbestos	Grass/Leaves	Mud and Leaves	Plastics/Box	Tent
1	2	3	4	5	6	7	8

K04 FLOORING MATERIALS

What is the main flooring material used for the main building of this household?

Cement	Ceramic Tiles	Parquet or Polished wood	Terazzo	Vinyl or Asphalt strips	Wood Planks	Palm/Bamboo	Earth/Sand	Dung	Tent/Containers
1	2	3	4	5	6	7	8	9	10

K05 WALL MATERIALS

What is the main wall material used for the main building of this household?

Stones	Cement bricks/rock bricks	Sundried bricks	Burnt bricks	Timber	Timber and Sheets	Poles and mud	Grass	Glass/Aluminium	Tent/Containers
1	2	3	4	5	6	7	8	9	10

K06 ROOMS FOR SLEEPING

How many rooms are available for sleeping in this household?

RECORD NUMBER OF ROOMS FOR SLEEPING

K07 MAIN SOURCE OF DRINKING WATER

What is the main source of drinking water for this household?

Piped water into dwelling	Piped water in the yard/plot	Public tap/standpipe	Neighbour's tap/standpipe	Tubewell/borehole	Protected dug well	Unprotected dug well	Protected spring	Unprotected spring	Rain water	Bottled water	Bicycle/Motorcycle/Cart with small tank/drum	Tanker truck	Surface water (river, dam, lake, pond, stream,charco, canal, irrigation channels)
01	02	03	04	05	06	07	08	09	10	11	12	13	14

K08 MAIN SOURCE OF ENERGY FOR COOKING

What is the main source of energy used by this household for cooking?

Electricity (TANESCO/ZECO)	Solar	Generator/private sources	Gas	Biogas	Wind generated Electricity	Paraffin	Coal	Charcoal	Firewood	Wood/ residuals	Animal residuals	Charcoal briquette	Not Applicable
01	02	03	04	05	06	07	08	09	10	11	12	13	99

K09 What is the main source of energy used by this household for lighting?

Electricity (TANESCO/ZECO)	Solar	Generator (private source)	Gas (Industrial)	Gas (Biogas)	Wind generated Electricity	Acetylene lamp	Kerosine (lantern/chimney)	Kerosine (Wick lamps)	Candles	Firewood	Torch/Chines lamp	Electricity (Generated from plant residues)
01	02	03	04	05	06	07	08	09	10	11	12	13

K10 What is the main type of toilet facility used by this household?

Flush/pour flush to piped sewer system	Flush/pour flush to septic tank	Flush/pour flush to covered pit	Flush/pour flush to somewhere else	Ventilated improved pit (VIP) latrine	Pit latrine with washable slab and with lid	Pit latrine with washable slab without lid	Pit latrine with not-washable/ soil slab	Pit latrine without slab/ open pit	Bucket	No facility/bush/field/ beach
01	02	03	04	05	06	07	08	09	10	11

K11 How does the household dispose solid waste?

► IF RESPONSE IS CODE 3-9 SKIP TO K13

Regularly collected	Irregularly collected	Burnt	Roadside dumping	Burying/pit	Open space	Ocean/Lake/River/Shores	In the farm/manure	Bush/ravine
01	02	03	04	05	06	07	08	09

K12 Which authorities usually collect waste from your household?

Contractor	Waste collecting groups	Council	Private Individual(s)
1	2	3	4

K13 Does your household usually sort kitchen waste, plastic waste, glass waste, metal waste and electronic waste?

YES = 1 | NO = 2

K14 What is the main method that is used by your household to dispose E-Waste?

Mixed with other Refused	Collected by Government	Collected by Private Company	Dumped in the compound/street	Dumped in the Latrine	Burnt in open/pit	Buried	Sold/given as gift	Collected by individual (s)
1	2	3	4	5	6	7	8	9

K15 OWNERSHIP OF EQUIPMENTS/ASSETS

Does your household have/own the following assets?

Yes = 1 | No = 2

FOR CODE 1, ASSETS SHOULD BE IN WORKING CONDITION. SELECT THE APPROPRIATE ANSWER FOR EACH ITEM

Radio	Telephone (Land Line)	Mobile Phone	Bicycle	Motor vehicle	Motorcycle/Vespa	Tricycle (Guta)	Tri motorcycle (Bajaj)	Television	Electric Iron	Charcoal Iron	Cooker (Electric or Gas)	Refrigerator/Freezer	Computer /Laptop	Internet Facility	Plough	Power tiller	Hand hoe	Wheelbarrow	Oxen	Draft animals (Donkey/Camel)	House	Land/Farm	Tractor	Don't have/own
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y

SECTION A: IDENTIFICATION

Region	District	Council	Constituency	Division/Wadi	Ward/Shehia	Village/Mtaa	Hamlet/Enumeration Area (EA)	Household Number	CONFIDENTIAL

SECTION L: INFORMATION ON AGRICULTURE, LIVESTOCK, FISHERIES AND FORESTRY

L01 AGRICULTURE

Did this household use the land for crop production in the agricultural year 2021/22?

Yes = 1 | No = 2

► IF CODE 2 SKIP TO L03
IF CODE 1, how many acres is the land used for agriculture?

LAND FOR CROP PRODUCTION SHOULD BE AT LEAST 25 SQUARE METERS

L02 CROPS

Which of the following crops did the household grow during 2021/22 agricultural year?

MULTIPLE RESPONSE IS ALLOWED

Yes = 1 | No = 2

Maize	Paddy	Cassava	Banana	Sunflower	Other food crops	Cash crops
A	B	C	D	E	F	G

L03 LIVESTOCK

Did this household raise or care cattle, goats, sheep or poultry for the agricultural year 2021/22?

Yes = 1 | No = 2

► IF CODE 2 SKIP TO L06

L04 NUMBER OF LIVESTOCK

How many cattle, goats, sheep, pig, donkey or poultry were available during the Census night

IF NO LIVESTOCK, WRITE CODE "00000"

Cattle	
Goat	
Sheep	
Pig	
Donkey	
Poultry	

L05 TYPE OF GRAZING

What type of grazing is practiced in this household?

Free range = 1
Zero grazing = 2
Ranch = 3
Pastoralism = 4

THIS QUESTION SHOULD BE ASKED FOR EACH TYPE OF LIVESTOCK MENTIONED IN QUESTION L04

Cattle	
Goat	
Sheep	
Pig	
Donkey	
Poultry	

L06 FISHING/SEAWEED FARMING

Did this household engaged in fishing/fish farming/Sericulture/crabs/seaweed farming activities for the agricultural year of 2021/22?

MULTIPLE RESPONSE ALLOWED

Yes = 1 | No = 2

A	Fishing	
B	Fish farming/Sericulture/Crabs	
C	Seaweed farming	

L07 OWNERSHIP OF PLANTATION

Did this household operate any land for woodlot(s) during 2021/22 agricultural year?

Yes = 1 | No = 2

LAND FOR WOODLOTS SHOULD BE AT LEAST 0.5 ACRES

L08 BEEKEEPING

Is there any person in this household involved in beekeeping business/activity?

Yes, individually = 1 | Yes, in groups = 2 | No= 3

SECTION A: IDENTIFICATION

Region	District	Council	Constituency	Division/Wadi	Ward/Shehia	Vilage/Mtaa	Hamlet/Enumeration Area (EA)	Household Number	CONFIDENTIAL

INFORMATION ON PHYSICAL ADDRESS

A01A Does this household have a physical address?   Yes = 1 | No = 2   ► IF CODE 2 SKIP TO SECTION Z

A01B Please, state the Physical Address Number

A01C Name of the Road/Hamlet

SECTION Z: TOTAL NUMBER OF HOUSEHOLD MEMBERS

Male

Female

Total

Date of Interview   D D M M Y Y Y Y

Appendix 3: Target for Global, Regional and National Development Plans

The targets of various mortality and health indicators adopted in this report from international, regional, national and sectoral development plans are as follows:

No.	Indicator	2030 Sustainable Development Goals (SDGs)	Africa Development Agenda (Agenda 2063)	East Africa Vision(2050)	Third National Five-Year Development Plan 2021/22 - 2025/26 (FYDP)	Zanzibar Development Plan(ZADEP) 2025/26	Health Sector Strategic Plan (HSSP) 2021 - 2026
1.	Infant Mortality Rate	NIL	NIL	Reduce IMR to 36 deaths per 1,000 live births by 2050	Reduce IMR to 30 deaths per 1,000 live births by 2025/26	Reduce to 15 deaths per 1,000 live births by 2025/26	Achieve IMR 25 deaths per 1,000 live births by 2026
2.	Under-five Mortality Rate	Reduce U5MR to at least as low as 25 deaths per 1,000 live births by 2030	NIL	NIL	Reduce U5MR to 40 deaths per 1,000 live births by 2025/26		Reduce U5MR to 37 deaths per 1,000 live births by 2026
3.	Life Expectancy at birth (e_o)	NIL	Increase e_o to 75 years by 2063	Increase e_o to 76.4 years by 2050	Increase e_o to 68 years by 2025/2026	Increase e_o to 68 years by 2025/26	NIL
4.	Maternal Mortality Rate	Reduce the global MMR to less than 70 per 100,000 live births by 2030	Ensure universal access to sexual and reproductive health rights, including to reduce MMR and end preventable maternal morbidities, and to halt the spread of HIV/AIDS	Reduce MMR up to 69 per 100,000 live births by 2050	Reduce MMR to 180 per 100,000 live births by 2025/26	Reduce MMR up to 99 per 100,000 live births by 2025/26	NIL