5th

POPULATION AND HOUSING CENSUS

Rwanda, 2022

Thematic Report

MORTALITY

"Be counted because you count - Ibaruze kuko uri uw'agaciro"

THE REPUBLC OF RWANDA

BE COUNTED
BECAUSE YOU COUNT

NATIONAL INSTITUTE OF
STATISTICS OF RWANDA

Ministry of Finance and Economic Planning

National Institute of Statistics of Rwanda

Fifth Rwanda Population and Housing Census, 2022

Thematic Report

POPULATION SIZE, STRUCTURE AND DISTRIBUTION
July 2023

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LIST OF ABBREVIATIONS

ASDR	Age-Specific Death Rate
CAPI	Computer Assisted Personal Interview
CBHI	Community-Based Health Insurance
CTC	Census Technical Committee
CMR	Child Mortality Rate
CDR	Crude Death Rate
CRVS	Civil registration and vital statistics.
EA	Enumeration Area
ECD	Early Childhood development
EDPRS	Economic Development and Poverty Reduction Strategy
EICV	Integrated Household Living Conditions Survey
EU	European Union
GBV	Gender based Violence
GDP	Gross Domestic Production
GoR	Government of Rwanda
DHS	Demographic and Health Survey
HMIS	Health Management Information System
HDI	Human Development Index
HIV/AIDS	Human Immuno Virus/Acquired Immune Deficiency Syndrome
ICCM	Integrated Community Case Management
ICPD	International Conference on Population and Development
IMR	Infant Mortality Rate
MMR	Maternal Mortality Ratio
MDGS	Millennium Development Goals
MINEDUC	Ministry of Education
MINECOFIN	Ministry of Finance and Economic Planning
MINAFEFET	Ministry of Foreign Affairs and Cooperation
MoH	Ministry of Health
NISR	National Institute of Statistics of Rwanda
NCDs	Non Communicable disease
PES	Post Enumeration Survey
PHC	Population and Housing Census
PRB	Population Reference Bureau
RPHC5	Fifth Rwandan Population and Housing Census
RDF	Rwanda Defence Force
RDHS	Rwanda Demographic and Health Survey
SDH	Social Determinants of Health
SDR	Standardized Death Rate
SNR	Service National du Recensement
TFR	Total Fertility Rate
U5MR	Under-5 Mortality Rate
UNFPA	United Nations Population Fund
UNICEF	United Nations Children Fund
WHO	World Health Organization

FOREWORD

The Government of Rwanda, through the National Institute of Statistics of Rwanda (NISR), conducted the Fifth Rwanda Population and Housing Census in August 2022. The Census results provide updated demographic, social and economic indicators for policy formulation and planning to support the national development agenda. Census results will also help in tracking the implementation of national, regional, continental and global development goals, such as the National Strategy for Transformation (NST), the AU Agenda 2063, and the Sustainable Development Goals (SDGs).

The Population and Housing Census in Rwanda dates back to the year 1978 when the first ever-modern census was implemented. The second, third, and fourth censuses were carried out in 1991, 2002, and 2012 respectively. The 2022 Rwanda Population and Housing Census marks therefore the fifth in the series following the United Nations Recommendations to conduct a census every ten years.

Considering census' crucial importance for the planning process, the Government of Rwanda has made the Population and Housing Census a priority to be undertaken every 10 years and adopted the use of technologies for timely delivery of census results for use.

Results of the 2022 Population and Housing Census provide population numbers from national to the lowest administrative level, as well as demographic and socio-economic indicators at both national and district levels. The census remains the only national data collection exercise that can provide the lowest levels of disaggregation to support decentralised decision making across the country.

I would like, therefore, to take this opportunity to thank all stakeholders that contributed to the success of the 2022 Rwanda Population and Housing Census. They include Ministries and other Government institutions, international organizations such as the World Bank (WB), the European Union (EU), the United Nations Population Fund (UNFPA), One-UN, UN Women, UNICEF, UNECA, the United Kingdom AID (UKAID), ONS, the African Development Bank (AfDB), the USAID, ENABEL, PARIS 21 and others for their support in diverse ways.

My special thanks go to the local government leaders from the province to the village levels who contributed a lot to the success of the 2022 Rwanda Population and Housing Census. Exceptional gratitude goes also to all enumerators and all field personnel, who collected the information and all respondents for their cooperation and dedication. The National Institute of Statistics of Rwanda (NISR) deserves special appreciation for the excellent operational and coordination of all census activities.

I finally recommend that the invaluable information contained in the different thematic reports of the 5th Rwanda Population and Housing Census be used as updated evidence for all decision and policy making for the national, regional and global development programs.
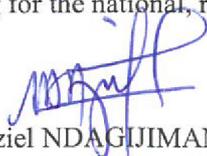
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ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

The report presents the mortality situation in Rwanda based on the 2022 Rwanda Population and Housing Census (RPHC 5). It focuses on general mortality (depicted by crude death rates, Infant mortality, under five mortality, adult mortality and life tables and differentials by sex and province. The thematic area is divided into four chapters. Chapter one presents the general introduction which provides the census background, objectives and overview of the census process; Chapter 2 presents the context and objectives of the analysis; chapter 3 focuses on methodology including data quality evaluation and Chapter 4 on the findings.

The need to satisfy the ever-increasing demand for demographic estimates as well as evidence-based decision making, is one of the major reasons for undertaking censuses periodically. One of the main objectives of the fifth Rwanda Population and Housing Census, 2022 was to collect information that would be used to estimate levels, trends and differentials of Mortality. The data is also necessary for the country to provide indicators to evaluate progress towards the achievement of Vision 2050 and Sustainable development goals and other global and regional commitments. Various methodologies were applied including indirect methods of estimation, developed mainly by Brass (with various modifications by others) to generate mortality estimates from the 2022 Census. Mortality indicators are also useful in evaluating the health sector performance.

Mortality estimates in this report show a substantial decline at all levels. The crude death rate which gives a picture of general mortality has declined from 8 deaths per 1000 population in 2012 to 6.3 in 2022.There is a slight variation between males and females (6.2 and 6.4 deaths per 1000 population respectively. Generally, there has been a decline of 63% in overall deaths. The low level of Crude death rate is indicative of a youthful age structure of the Country. The results also show that there has been a downward trend in childhood deaths. Infant Mortality rate has declined from 49 deaths per 1000 live births to 28.9 ‰ in the decade 2012-2022. Similarly, deaths of children aged below 5 years declined from 72 to 40.7 per 1000 live births in the same period.

This is indicative of the health policies and programme the Government of Rwanda has put in place. The decline in infant mortality rate has led to substantial increases in life expectancy at birth. Life expectancy at birth depicts the average number of years a new-born is expected to live if subjected to mortality schedules prevailing in the country at the time. In 2002 Census, life expectancy was at 64.5 years for both sexes. As is usually the case, it is higher among females (66.2 years) than males (62.5 years). It has increased substantially over the decade 2002-2022. Life expectancy at birth for both sexes in the period was estimated at 69.6 years with differentials by sex as is expected. Life expectancy for males is 67.7 years and females 70.2 years. The difference between males and females has narrowed slightly from 3.7 years in 2012 to 2.5 years in 2022. Life expectancy is one of the most frequently used indicators to depict health status of a country. Gains in life expectancy at birth can be explained by a rising standard of living, improved lifestyles and education, as well as access to quality health care.

Adult Mortality is estimated by looking at the values of 45q15 and 60q20. These two indicators depict premature death for those aged 15 to 60 years and mortality in old age for those aged between 60 to 80 years. The results from 2022 Census indicate that for every 1000 males who reach age 15, about 177 do not attain their 60th birthday. Conversely for every 1000 females who reach 15 years 137 are do not celebrate their 60th birthday. Similarly for the older adults for every 1000 males aged 60, 637 do not survive to age 80 while for every 1000 females aged 60, 551 do not reach age 80. These results are consistent with the fact that males have higher mortality than females.

CHAPTER 1: OVERVIEW OF THE FIFTH RWANDA POPULATION AND HOUSING CENSUS

1.1. Context and justification

The history of the Population and Housing Census in Rwanda dates back in the 1970s. To date, five modern censuses have been successfully conducted in Rwanda: 1978, 1991, 2002, 2012 and 2022.

In line with the United Nations Decennial Census Programme, the 2022 Census is the Fifth Rwanda Population and Housing Census (RPHC5) in series.

Since 2000, and following the endorsement of recommendations from major international conferences held under the auspices of the United Nations, the Government of Rwanda (GoR) has been focusing on the long-term Vision 2020 that aims at transforming Rwanda into a middle-income country. Rwanda pursued the Millennium Development Goals (2000-2015) on the international scene and currently seeks to achieve the Sustainable Development Goals (SDGs) as well as Rwanda's Vision 2050. These goals have been implemented through the medium-term planning framework of the

Economic Development and Poverty Reduction Strategy (EDPRS) and the National Strategy for Transformation (NST1). The measurement of progress in implementing national and international programmes in line with various AU and UN recommendations calls for availability of updated demographic and socio-economic statistical data to inform selected indicators at different levels.

The RPHC5 is a reliable and comprehensive source of such data. It was implemented in a way that allows the disaggregation of indicators at the lowest geographical level where it is applicable. The RPHC5 was undertaken to update the national mapping and demographic databases, to provide indicators for monitoring poverty reduction strategies and achievement of national, regional, and international development goals (NST1, Vision 2050, AU Agenda 2063, SDGs, etc.) and to strengthen the technical capacity of the National Institute of Statistics of Rwanda (NISR).

1.2. Legal and institutional frameworks

As an essential precondition for Census execution, the legislation of its operations was secured by the law No. 53bis/2013 of 28/06/2013 establishing the National Institute of Statistics of Rwanda and determining its mission, organization and functioning; and law No. 45/2013 of 16/06/2013 on the organization of statistical activities in Rwanda.

In order to ensure focused functioning during the whole period of Census execution, a Census Unit of NISR coordinated the overall implementation of the 2022 RPHC5 with support from other NISR units.

1.3. Objectives of the Census

The overall goal of the Fifth Rwanda Population and Housing Census (PHC5) is to contribute to the improvement of the quality of life of the Rwanda population by furnishing the Government and other stakeholders with relevant, reliable, and timely data and information for development planning, policy

formulation and service delivery as well as for monitoring and evaluation of development programmes.

Specifically, the 2022 Rwanda Population and Housing Census has been implemented and is well placed to:

- Have increased availability and accessibility of accurate, timely and reliable data on demographic and socio-economic characteristics for evidence-based decisions, policy formulation and monitoring and evaluation of development frameworks at national, sub-national and sectoral levels;
- Have increased utilization, at all levels, of data and information for designing, monitoring and evaluating development programmes.

- Have increased knowledge of stakeholders, at all levels, on population characteristics, patterns and trends;
- Have strengthened national capacities in data collection, processing, analysis, dissemination and utilization, including geographic information system (GIS).

1.4. Census phases and Methodology

1.4.1. Census phases

Following the preparatory phase of the Census, which consisted of the production of the project document detailing all activities, schedule and Census budget, the following technical activities were undertaken:

- Census mapping conducted between 18th October, 2020 to 15th July, 2021;
- A Pilot Census conducted between 16-30 September, 2021;
- Questionnaire and manual development;
- Census publicity and sensitization campaign;
- Recruitment and training of field staff;
- Census enumeration conducted between 16 -30 August, 2022;

- Post Enumeration Survey conducted between 16-30 September, 2022; and
- Post-census activities, including analysis and dissemination of census results.

The success of the RPHC5 is widely attributable to the rigorous pre-census planning and robust census enumeration monitoring undertaken by the NISR as well as the remarkable support received from the Government, people of Rwanda and the generous technical and financial assistance from international development partners.

1.4.2. Census methodology

Census mapping

Census mapping was a crucial phase of the 2022 RPHC. The purpose of the census mapping is to divide the whole country into well-delineated enumeration areas that constitute the smallest operational census units to be assigned to each enumerator during the enumeration period.

The mapping used the latest versions of technology including satellite imagery and ArcGIS software to collect and document detailed information about the administrative units of the country, including boundaries, and locations of major social GPS coordinates of housing units and economic infrastructure (schools, health centres, hospitals, markets, administrative offices, etc.). These activities were carried out together with the estimation of the population and were used for delimitation of enumeration areas (EAs) in all villages (Imidugudu) of the country.

The Census mapping operation lasted for about 9 months (from 18th October, 2020 to 15th July, 2021), which enabled the NISR to better estimate the number of staff to be recruited (e.g., enumerators, team leaders, supervisors, etc.) and all logistics for the main field data collection. Details from the Census mapping also provided guidance for adequate planning of the other census infrastructures and facilities required for field activities.

The outcomes of the Census mapping included the production of a new sampling frame for future surveys and an updated administrative area boundary map for Rwanda. In total, the country was delineated into 24,339 enumeration areas within the current boundaries of administrative units, consisting of five provinces, 30 districts, 416 sectors and 2,148 cells and 14, 436 villages. This allows for easy compilation of census results in these administrative entities.

Pilot Census

Prior to the RPHC5, a pilot census was designed for testing the census questionnaires, other census data-collection tools, enumeration time requirements and the state-of-preparedness of the entire field work organisation of the census.

The pilot census was conducted from 16th to 30th September, 2021 on a sample of 600 EAs, including 416 randomly selected EAs across all sectors and 184 purposively selected EAs in the areas bordering neighbouring countries to Rwanda and in remote rural areas in order to test the internet connectivity, data transmission, and the availability of electricity.

The pilot census was initially planned for 16th to 30th August, 2021 just to fall one year before the main census but was postponed for one month to ensure adequate preventive measures against the spread of Covid-19.

The pilot census was a rehearsal for the actual census enumeration during which the various methods and procedures for field organisation and operations as well as the census publicity/awareness campaign, census maps production, field remote monitoring, data transmission and storage, ICT infrastructure, and data analysis were tested.

The lessons learnt from the pilot census exercise were used to revise some census procedures and instruments to ensure a smooth/successful implementation of the actual census enumeration.

Questionnaires and manuals

The questionnaires' design for the 2022 RPHC consisted of updating the questionnaires used during the 2012 census coupled with consultations with stakeholders such as planners and policymakers from different sectors, ministries, other government institutions, private sector, and government's stakeholders,... in order to collect their needs in terms of statistical data. After the

development of the questionnaires and the instruction manual, the team of analysts developed a questionnaire specifications to support and ensure a smooth translation of the paper based questionnaire into the CAPI questionnaire by the IT and data processing team.

The lessons learnt during the pilot census were used by the NISR to improve and finalise the census questionnaires, containing 131 variables, as well as to revise the manuals of instructions for all the census functionaries.

The questionnaires used for data collection are presented in Annex of this report. Two different types of questionnaires were administered: one for private households and one for institutional households. The questionnaire for private households contained a person record, a household record and a mortality record. The questionnaire for institutional households contained only a person record with few questions.

Census publicity and sensitisation campaign

The success of the census is dependent upon the cooperation and participation of the entire populace. It therefore, becomes imperative to sensitize and educate the public on the importance of the census, an objective that was achieved through the implementation of the communication strategy developed for the census. A phased approach was assumed in implementing the communication strategy that includes awareness in different ways and dissemination mechanisms.

Some of the methods used for publicizing the 2022 RPHC are as below:

a. Digital Communication Programme through websites, social media, and mobile platforms;
b. Public Relations, events and mass communication;
c. Traditional Advertising through mass and outdoor media;
d. Community Mobilization (Umuganda).
e. Radios/TVs shows communication on the census calling for the public participation.

Prior to census enumeration, a national publicity and sensitisation campaign was implemented in order to inform the public about the importance and relevance of the census (RPHC5), as well as to seek the active participation, involvement and collaboration of administrative authorities during the census enumeration.

A subtle and targeted publicity and awareness campaign was conducted before the census, which was later intensified and expanded to cover all districts and villages across.

NISR was responsible for organizing and coordinating, as well as preparing and implementing appropriate communication strategies to all communities at both national and district levels. The materials were appropriately packaged and delivered to the districts for the implementation of communication activities. In addition, the NISR coordinated and implemented communication interventions as guided by the communication strategy, and where necessary, by the prevailing conditions at the district level. Census's tasks force at Province and District levels played an important role in the census public awareness.

The census results published including the population projections attest to the high level of cooperation of the political and administrative authorities and the effective participation of the general public in the entire census enumeration operation and processes.

Recruitment and training of field staff

The RPHC5 was conducted by personnel from various institutions: the NISR (the census executing agency), the Rwanda Defence Force through involvement of the Ministry of Defence, the Ministry of Emergency Management, the Rwanda National Police, the Rwanda Correctional Services and MINEDUC (Sector Inspectors of education and teachers).

The recruitment of Census functionaries was done by each institution according to the needs (i.e.,

number and categories of staff needed) of the NISR, except in the case of teachers whose recruitment was done by the NISR in collaboration with administrative authorities at the district and sector levels.

At each stage of census implementation, the necessary induction and mandatory training of NISR staff and census personnel took place. For example, the census mapping phase was preceded by the training of cartographers, while the pilot census and the actual census enumeration were preceded by the training of enumerators, data quality monitors and their supervisors.

About twelve weeks prior to the commencement of actual Census enumeration, cascaded trainings were organised for all categories of census functionaries, namely:
a. Core training for 59 people (exclusively NISR staff);
b. Master training for 200 master trainers (NISR staff expanded to the Data quality monitors/team leaders and special institutions national coordinators;
c. Training of trainers for 1,748 trainers organised in 30 training centres, one centre per district; and
d. Training of 26,536 enumerators in 445 training centres spread across all sectors of the country.

The census training sessions focused on understanding of census questionnaire content, census enumeration processes and the correct completion of census questionnaires, reading and interpretation of census maps, practical role plays, and field practice. All the trainers and trainees were subjected to mandatory qualifying tests which they had to pass before being appointed.

In order to mitigate the risk of declining quality of training at the various cascading trainings, the training content was recorded in audio-visual materials from the studio. The recorded materials were projected in each training centre and were registered in each trainee's telephone for use in case of electricity outage or at home.

Regarding the organization of the training in each centre, four trainers were in charge of the training centre. The training in each of the centres were coordinated at the central level by NISR trainers who moderated all training sessions using CISCO Webex to ensure that all contents were covered and timely management of the cessions.

Actual census enumeration

As planned, the actual census enumeration of the population in private and institutional households was conducted across the country from 16th to 30th August 2022, immediately after the Census reference night (the night of 15th to 16th August, 2022). Although data-collection activities were carried out by well-trained enumerators, quality assurance of the Census enumeration was ensured through close supervision at various levels.

The census personnel deployed for the RPHC5 comprised the following personnel:
a. Enumerators and support staff;
b. Sector supervisors;
c. Field monitors/data quality monitors and district team leaders;
d. Field analysts, data analysts; and
e. National coordinators.

In accordance with the instructions contained in the census manual, each personnel ensured the operations of daily census activities within their area of supervision. Enumerators were accountable for the work done on a daily basis to their sector supervisors, who monitored the progress using dashboards and field visits facilitated by two motorcycles hired to facilitate the transport of Sector Supervisors in their daily supervisory activities.

As the dashboard was accessible to all supervisors at different levels of supervision, each supervisor was expected to understand what was going on regarding the data collection and then provide explanations for any identified issues.

A team of 60 data monitors was working at NISR headquarters coordinated by 10 field analysts. They were responsible of the follow up on the progress of data collection through the dashboards in all enumeration areas. They interacted with sector supervisors on a daily basis by identifying the enumeration areas with low completion rates, and then suggesting possible solutions including redeployment of those who completed enumeration in EAs lagging behind. They were also reporting any issue that needed special attention of the coordination team.

The dashboards allowed coordination team to continually monitor the progress of census enumeration in all the 24,399 enumeration areas but also ensuring for quality of the census. The use of dashboards allowed the identification of the enumeration areas with risk of not completing the enumeration on time and where additional resources and support were needed (e.g. enumerators, means of transportation to ensure the completeness.

Post-enumeration activities

The post-enumeration activities include the Post-Enumeration Survey (PES), data processing, release of results, thematic analysis, and dissemination of census results. The use of technology at all stages of the census enabled the rapid and timely publication of the main indicators report, as well as the tabulations and summary results contained in the thematic reports and other census products.

The PES was conducted from 16th to 30th September 2022, just in one month after the main census enumeration. The aim of the PES was to assess the census coverage/completeness and quality of the census data.
A total of 180 enumeration areas were sampled from all districts of the country. To assess census coverage, PES and census records were matched, a task that was carried out using data science techniques and the Python programming language. Matching is the process of checking whether

records from two different data sets relate to the same household and/or person match or not. In this work, both automatic and clerical matching methods were used.

The census dataset –stabilisation, data-processing, and data-editing processes were completed within two months, after which census data tables for all thematic reports were generated. The final results were subjected to an in-depth analysis across 18 generic themes (one of which is presented in this report) in accordance with the analysis plan developed for each theme. Census monographs for each of the 30 districts will also be produced.

Data quality assessment

An independent quality review (available as an internal report to NISR) was conducted in parallel with the thematic analysis. This investigated the work done prior, during, and after the census enumeration to maximise the level of data quality. The assessment confirmed strong planning and quality assurance throughout the enumeration. Assessment of the key demographic and socio-economic variables also confirmed the good quality of the RPHC5 data in terms of representation of the population.

The overall conclusion of the assessment is that the RPHC5 was implemented with strong quality controls and gives an excellent representation of the population of Rwanda with generally good measurement of its structure, both in terms of spread and demographic and socio-economic characteristics. The high quality of the data with respect to coverage and representation is confirmed by the results of the Post-Enumeration Survey, which measured the net coverage of the household population in the RPHC5 to be around 99% nationally with little variation across regions and by age and sex. Gross under-coverage was around 1.8% while gross over-coverage (erroneous inclusions) was around 0.2%.

The conclusion of excellent representation is also consistent with the plausible growth rate for the

population over the intercensal period implied by the national results.

Some quality issues were identified on a few population characteristics. These include age heaping, particularly for ages with terminal digits 0 and 5. However, summary measures from Whipple's index, Myers' index and the UN joint score indicate comparatively some improvement and a reduction in age heaping in the 2022 Census compared to the 2012 Census. There is also some evidence of under-reporting of infant deaths, and across other ages -

hence the use of indirect methods is recommended for estimating mortality indicators.

In conclusion, there were no major quality issues identified in the 2022 Rwanda Population and Housing Census, except for some economic activity variables with low-quality reporting. The evaluation of key demographic and socio-economic variables as well as the triangulation of the data with other sources generally confirm the excellent quality of the RPHC5. Thus, the final database of the 2022 Rwanda Population and Housing Census is of high quality.

CHAPTER 2: CONTEXT AND OBJECTIVES OF THE ANALYSIS

2.1. Introduction

Census data provide a unique opportunity to analyse various aspects of mortality. The present report uses the Rwanda 2022 Population and Housing Census data to present estimates of mortality in the country in the general population and in selected sub-populations.

The analysis of mortality from census data is relevant for more than one reason. It provides many indicators needed for policy formulation, strategic planning, monitoring and evaluation of health and socioeconomic programs as well as for other demographic analysis. For instance, it provides the levels and differentials of childhood mortality used to evaluate the effectiveness of health programs, to identify areas at risk and to better target health interventions. It measures life expectancy at birth which is an important indicator of the health and socioeconomic status of a population used in the calculation of the Human Development Index (HDI).

The outputs of the mortality analysis will also serve to monitor progress made towards the achievement of the Sustainable Development Goals (SDGs) more specifically SDG 1 and 2 which focus on enhanced prevention and management of all forms of malnutrition and SDG 3 whose aim is to ensure healthy lives and promote well-being at all ages. The emphasis is on improving health care services at all levels as well as strengthening financial sustainability of the health sector and enhancing the capacity of the health workforce. Mortality indicators are also crucial in monitoring the achievements of the social pillar of agenda 2030 and the aspirations of African Union agenda 2063. In Rwanda, the SDGs have been domesticated and infused in vision 2050 as well as in the National Strategy for Transformation, NST1 (2017-2024) and related sectors and district strategies. The findings of mortality analysis are used as crucial inputs in the population projections and in explaining findings of other thematic areas. The report outlines the objectives of the analysis, discusses the background and determinants of health in Rwanda, and presents the methodology, followed by the findings and the conclusion.

2.2. Objectives of the analysis

The overall objective of this report is to provide users with reliable and up-to-date information on mortality in Rwanda. The specific objectives are to:

- Estimate the levels and trends in mortality among the Rwanda population and to describe its patterns;
- Estimate the level and trends in childhood mortality including differentials;
- Estimate the level of adult mortality and;
- Construct life tables

2.3. Background and determinants of health in Rwanda

2.3.1. Social Determinants of Health in Rwanda

Health indicators are derived from analysis of mortality, and health systems data including infrastructure and personnel. The government of Rwanda adopted the Social Determinants of Health (SDH) framework to inform its operations in the health sector. This helps in identifying the social risk factors and unmet social needs that pose a barrier or threat to an individual's health. SDH approach promotes health equity and can prevent premature mortality. A review carried out by the health sector to assess the progress towards addressing the SDH revealed that governance is as an essential aspect for the health systems if it is to achieve the provision of essential public health services and its functions (Republic of Rwanda, Undated). For this reason, several successive reforms (health policies,

strategies, and decentralization policy) have been put in place to institutionalize good governance in the health system and improve service delivery while strengthening linkages and interactions between citizens as service users, the state and health service providers.

In Rwanda, SDH are addressed through multisector actions and are implemented by more than one sector. One of Rwanda's key achievements in addressing drivers of health inequities has been the creation of national clusters responsible for ensuring joint planning, monitoring, and evaluation of

crosscutting interventions. The importance of addressing SDH can be seen in the achievements the country has made in the key drivers of health inequalities such as education, globalization, employment and working conditions, food security, water and sanitation, healthcare services, housing, income and its distribution, unplanned urbanization social exclusion, etc. The drivers, are commonly known as social determinants of health and, are outside the control of the health sector alone because health issues cannot be solved exclusively by actions of the health sector. The key indicators for SDH in Heath are the mortality estimates.

2.3.2. Policy Environment

Rwanda's Vision 2050 articulates the long-term strategic direction for "the Rwanda we want" and the mechanisms to achieve this ambition. It hopes to build on success of the past two decades in reducing poverty, increasing incomes, improving living standards, strengthening good governance, promoting home grown solutions, establishing rule of law, maintaining stability, promoting gender equality and women empowerment, peace and security. Vision 2050 aims to transform the economy and modernize the lives of all Rwandans. Vision 2050 encompasses considerations of the global and regional development agendas, to ensure harmonization of targets and indicators contained in the Sustainable Development Goals (SDGs), African Union (AU) Agenda 2063, East African Community (EAC) Vision 2050, and the Paris Agreement on climate change among other instruments.

Priorities under the Human Development pillar include access to high quality Universal health care. Universal Health Coverage (UHC) is the overarching umbrella for SDG 3 which hopes to achieve good health and wellbeing for all at all ages. The Rwanda Health sector Strategic plan prioritizes accessible, affordable, quality, and efficient delivery of healthcare as a key pillar to enable Rwanda to achieve the Universal Health Coverage as well as other health indicators as enshrined in Vision 2050.

Rwanda's fourth Health Sector Strategic Plan (HSSP4) has proposed a paradigm shift, linking it with

Rwanda's National Constitution and Vision 2050, the Health Sector Policy 2015, NST, Universal Health Coverage (UHC) principles and the Sustainable Development Goals (SDGs). HSSP4 has been designed to be responsive to the country's aspiration to become high-income country with better quality of life of the population. Article 41 of the Rwandan Constitution amended in 2015 stipulates that health is a Human Right.

Rwanda's policy and strategic directions have propelled the country to register great improvements in the health indicators. Rwanda has made great strides in several key health indicators, including reduction in maternal mortality, infant and under 5 mortality and other health outcomes. Mortality and Health status are interrelated. Infant mortality is a particularly useful measure of health status because it: Indicates the current health status of a population; Reflects the overall state of maternal health, as well as the quality and accessibility of primary health care available to pregnant women and infants1. Generally, declines in infant mortality result in increased life expectancy, shifts in life expectancy are often used to describe changes in mortality. Changes in infant mortality are reflected in general mortality as well.

Community health workers and health insurance come out as factors that are considered to have contributed most to Rwanda's remarkable achievements in the health sector in the past decade. The country has recruited and trained 56,567

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[1] (National Center for Health Statistics. 2017). Healthy people 2020 midcourse review. Hyattsville, MD)

Community health workers with specific preventive and treatment roles in the community. Binomes are in charge of Integrated Community Case Management ICCM and treatment of malaria, growth monitoring promotion/nutrition and ECD. The "Animatrice de santé maternelle" (ASM) or (maternal health facilitator) are in charge of maternal and new-born health, and just like the Binomes, growth monitoring promotion/nutrition and ECD as well as pregnancy testing. The cadre of Health Promotion deal mainly with health promotion, NCDs and GBV and also double up in offering growth monitoring promotion/nutrition and ECD2

2.3.3. Mortality and Morbidity

Health of a population contributes immensely to the well-being of the population and economic productivity. Rwanda has made great strides in the improvement of the health status of the population through investment in health facilities and personnel and also made provision for health insurance. This section describes mortality situation in Rwanda in 2022. According to data from the Civil and Vital registration system (CRVS) the leading cause of death in the population was prematurity and low birth weight (11%), birth asphyxia (5.3%), cerebrovascular disease (3.3%), nephritis and nephrosis (3.0%), HIV/AIDs (2.9%), diabetes mellitus (2.2%), endocrine disorders (1.8%), lower respiratory infections (1.7%), road traffic accidents (1.4%), TB (1.3%), hepatitis C and congenital Heart disease both account for 1.1% and protein-energy malnutrition (1.0%). All other causes account for 5.5%.

Figure 1: Leading Causes of deaths in Rwanda (2022)
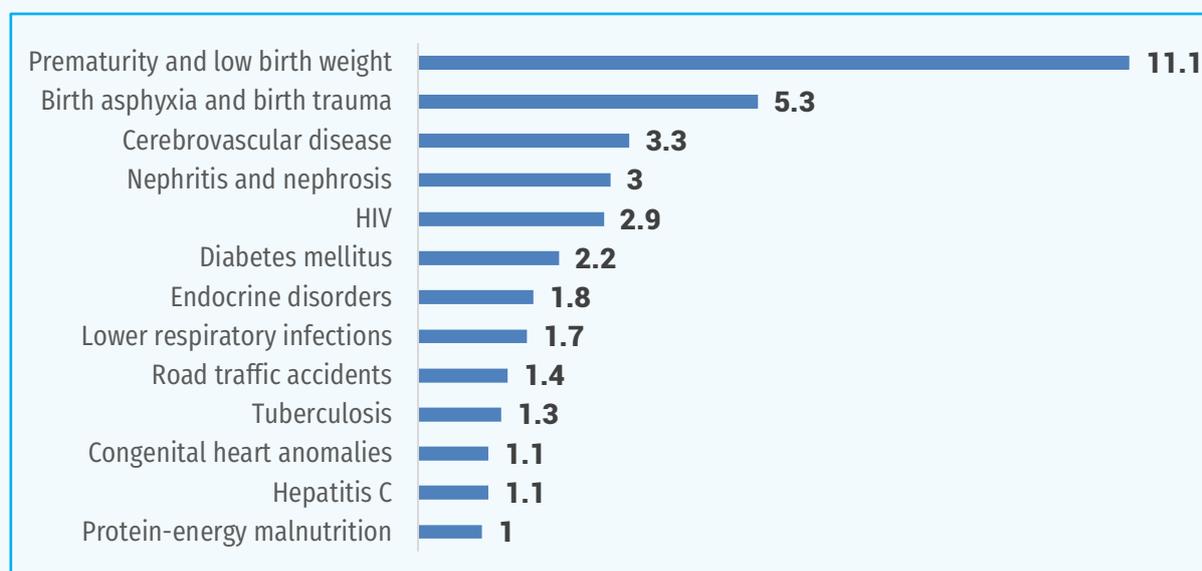
Source: CRVS system, 2022

2.3.4. Distribution of causes of death among children aged below five years

Data from Civil Registration and Vital Statistics (CRVS) provides the causes of death among children aged under-five years (Figure 2).
Prematurity and low birth weight is cited as the leading cause of death among this group at 30% of all reported deaths. Birth asphyxia and birth trauma is ranked as the second cause of death among children at 13%. This is followed by congenital anomalies (2.6%), abdominal wall defect (2.2 %) and lower respiratory infections (1.3%). Other causes account for 3.1 % cumulatively3.

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[2] Health Sector Annual Performance Report, 2021-2022

[3] **CRVS REPOT, 2022**

According to WHO (2022), Preterm birth, intrapartum-related complications (birth asphyxia or inability to breathe at birth), infections, and birth defects are the leading causes of most neonatal deaths. These deaths can be prevented if mechanisms for quality care during delivery or immediately after birth and in the first days of life are enhanced.

Figure 2: Distribution of causes of death among children aged <5 years (%) in Rwanda, 2008
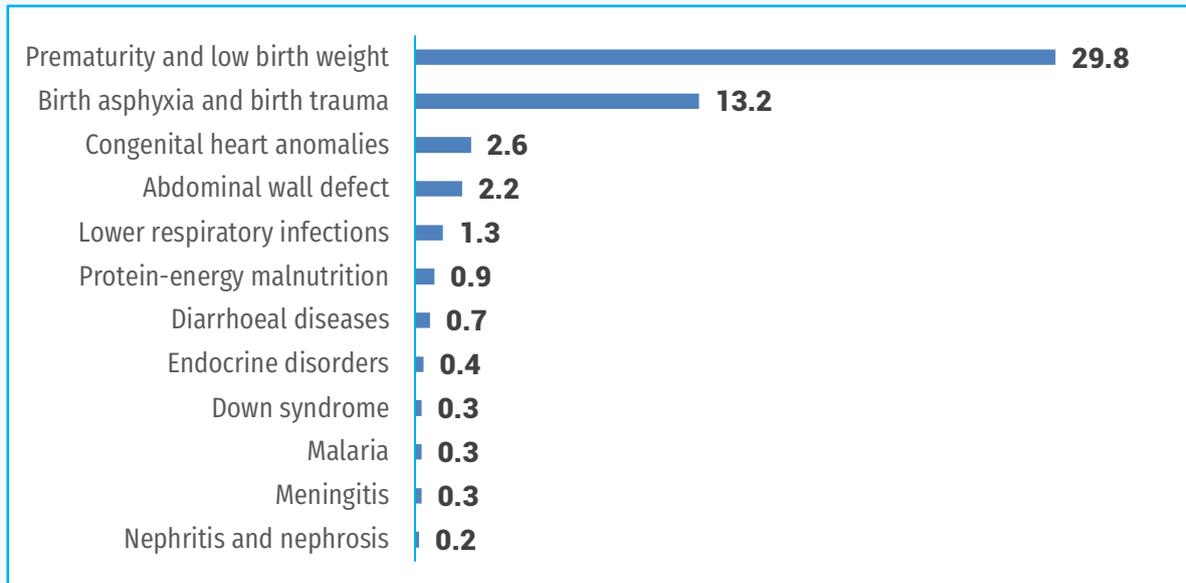
Source: CRVS system, 2022

2.3.5.   Institutional and policy factors

Over the last decade, the government of Rwanda has made tremendous progress in the health sector. Political commitment and leadership at different levels played a critical role in implementing a range of cost-effective health care interventions. The dramatic decline in all types of mortality presented above seems to reflect the direct impact of the vigorous and multidimensional interventions implemented over the past decade to fight against the leading causes of death in Rwanda (Malaria, Tuberculosis, HIV/AIDS, childhood diseases, etc.). It seems also to reflect the long-term impact of earlier interventions aimed at recovering from the 1994 genocide that had tremendously increased mortality. These actions resulted into a better access to health care and an improvement in living conditions of the population.

More health facilities were built and evenly distributed throughout the territory, mosquito nets widely distributed to households, immunization campaigns conducted, universal access to medical insurance established, hygiene promoted, etc. According to the MoH annual reports the number of non-private health facilities in Rwanda increased from 1020 in 2016 to 1785 at the end of 2021.

According to the 2019/20 RDHS 98% of mothers received antenatal care from skilled service providers. Similarly, over half of the pregnant women (59%) had their first antenatal care visit in the first trimester. Twenty-seven percent of women started ANC in the fourth or fifth month of pregnancy, and 10% did not seek care until the sixth or seventh month. In order to reduce maternal and newborn mortality, deliveries should occur in facilities where providers can manage obstetric and newborn complications that may arise during delivery. Ninety-three percent of women in Rwanda delivered their last live birth in a health facility. Immunization coverage is one of the indicators used to monitor progress toward reductions in child morbidity and mortality, as it is one of the most cost-effective public health interventions. Over 96% of the children have received all requisite vaccinations in 2019/20. According to the RDHS 2019/20. on average,

86% of households have at least one family member with health insurance4

Table 1: Number of health facilities, 2016-2021

Heath Facility type	2016	2017	2018	2019	2020	2021	2022
National Referral Hospital	8	8	8	8	8	8	8
Provincial Hospital	4	4	4	4	4	8	8
District Hospital	36	36	36	36	37	39	40
Health Centre	499	503	504	509	510	510	510
Prison Clinic	14	14	13	13	13	13	13
Health Post	471	505	703	885	1094	1,179	1,222
Private Dispensary	125	130	130	123	122	122	115
Private Clinics and polyclinic	123	128	128	149	158	180	164
Private Hospital	5	5	8	8	8	8	8
Total	1,285	1,333	1,534	1,735	1,954	2,067	2,088

Source: Health Sector Annual Performance Report, 2021-2022

Health infrastructures cannot be sufficient for providing health needs without appropriate human resources. The ratio of doctor to population increased from 1 doctor per 10,055 population in 2017 to 1 doctor per 8,242 population in 2021, and 1 nurse per 1,094 population in 2017 to 1 nurse per 1194 population in 2021. The ratio of health workers by population has declined over the decade 2012-2022.

Table 2: Ratio of health workers to Population

Ratio of health workers by population	2017 Achieved	2017 Planned	2021 Achieved	Target 2024	WHO Norms
Doctor/Population ratio	1/10,055	1/12,490	1/8,247	1/7,000	1/10000
Nurse/population ratio	1/1,094	1/1,100	1/1,198	1/800	1/1000
Midwives/population ratio	1/ 4,064	1/30,000	1/2,340	1/2,500	

Source: HSSP III, HSSP IV Health Sector Annual Performance Report, 2021-2022
MID-TERM REVIEW REPORT OF HSSP IV

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4 NISR, MOH and ICF, 2022 RDHS

CHAPTER 3: METHODOLOGY

In this chapter we will define the main concepts used in the analysis, present the data collection method and the information collected, evaluate the quality of the data and finally present the methodology used to adjust the data and to indirectly compute the mortality indicators.

3.1.   Definition of concepts

The definitions presented in this section come from the 6th edition of the Population Reference Bureau (PRB)'s Population Handbook[5].

Death (Mortality): Mortality refers to the occurrence of deaths in a population. A death is a complete absence of any signs of life at any time after a live birth has occurred.

Infant Mortality Rate (IMR): Is the probability for a new-born to die before his/her first birthday. It is expressed per 1,000 live births occurring during a specified reference period. In this case of the present census, it is the preceding year. It is usually denoted IMR or by the life table notation ($_1q_0$).

Child Mortality Rate (CMR): Is the probability for a child aged 1 year to die before reaching exact year 5. It is expressed per 1,000 live births and covers a specified reference period, in this case taken to be one year prior to the census. It is usually denoted by CMR or the life table notation ($_4q_1$).

Under-Five Mortality Rate (U5MR): Is the probability for a new-born to die before his/her fifth birthday. It is expressed per 1,000 live births occurring during a specified reference period, in this case taken to be one year prior to the census. It is usually denoted U5MR or by the life table notation ($_5q_0$).

Crude Death Rate (CDR): The total number of deaths in a given year among a population divided by the mid-year population, expressed per 1,000 inhabitants.

Standardized deaths rates (SDR). Crude Death Rates of different populations or groups are not directly comparable, nor is the CDR of the same population at different points of time. This is due to the differences in the age-sex structure of the population that has a great impact on the CDR. A simple way to eliminate this influence of the age-sex structure on the CDR is to apply a procedure known as standardization. The standardization procedure is implemented in two steps: (i) multiply the estimates ASDR by the population in each age-group of a standard population and (ii) then divide the sum of the product obtain in step 1 by the total size of the standard population.

Mid-year population. (As of at February 2022) is obtained by retro-projection of the August 2022 Population using the 2012-2022 intercensal average annual growth rate

Age-Specific Death Rate (ASDR): The number of deaths in a population of a given age (or age-group) in a given year divided by the estimated mid-year population in that age (age-group), expressed per 1,000 inhabitants.

Age-specific Central Death Rates ($_nm_x$). Is the average number of deaths each year at age x last birthday in the relevant three-year period, divided by the average population at that age over the same period.

Probability of dying between exact ages x and x+n ($_nq_x$). This is the mortality rate between age x and (x +1). That is, the probability that a person aged x exactly will die before reaching age (x +1).

Number of survivors at age x (l_x). This is the number of males or females surviving to exact age x of 100,000 live births who are assumed to be subject throughout their lives to the mortality rates experienced in the specified period.

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[5]   **Haupt Arthur, Thomas T. Kane, and Carl Haub (2011) PRB's Population Handbook,**   **6th edition. Population Reference Bureau, Washington DC.**

Number of deaths occurring between ages x and x+n (d_x) The number of persons in the cohort who die in the age interval (x, x+ n)

Number of person-years lived between ages x and x+n ($_nL_x$). Number of years of life lived by the cohort within the indicated age interval (x, x+ n) (or person-years of life in the age interval)

Survival ratio for persons aged x to x+5 ($_5P_x$). Survival ratio for persons aged x to x+5 surviving 5 years to ages x+5 to x+10 = 5Lx+5/5Lx (first 5Px = 5L0/5l0, second 5Px= 5L5/5L0, last 5Px = Tx+5/Tx).

Number of person-years lived after age x (T_x). Total person-years of life contributed by the cohort after attaining age x

Life Expectancy at Birth (e_0): Average number of years a hypothetical cohort of people born in a specific year could expect to live if they were subject to the current mortality level at each age throughout their life. Life expectancy at a specific age is the number of additional years a person could expect to live if he was subject to the current mortality at each age for the rest of his life.

3.2.   Data collection method and information collected

The objective of the census is to provide, among other indicators, the levels and patterns of mortality among the whole population and among the Children. The following indicators are calculated:

-   The total number of deaths that occur in the population per year;
-   The Crude Death Rate;
-   The Standardized Death Rate;
-   The Age-specific Death Rates;
-   The Life expectancy at each age.
-   The Infant Mortality Rate;
-   The Child Mortality Rate; and
-   The Under-Five Mortality Rate.

In order to compute all these indicators, the 2022 RPHC collected the required data in the households using two different sections of the questionnaire: the Deaths Record and the Fertility Sections.

The Death Record contains information on all deaths that occurred in the household during the last 12 months preceding the census: sex of the deceased; age at death; cause of death; and in case of a female death, whether the death was due to maternal-related causes such as whether the death occurred as a result of pregnancy, during child birth and six weeks post-partum.

The Fertility Section collected data for each woman aged 12 years and above residing in the household, the number of her children ever-born and the number of children born in the last 12 months preceding the census by sex and the number still alive. For each sex, it is therefore possible to compute the number of children dead by subtracting the number still alive from the number of born children.

Questions on the survivorship of the biological parents (father, mother) of each resident of the household aged 0 to 17 were also collected to measure the prevalence of orphanhood. They were not designed to measure the mortality indicators presented above. We will, therefore, not use them in this analysis. However, this information can be utilized to derive estimates for 5q0 and 45q15 to apply to the life table model.

All mortality-related questions were asked to the household head or another member of the household if he or she was not available during the interview: The table below presents the mortality-related questions asked in the census and the variables that are available for the analysis.

Table 3: Summary of questions on mortality

Variables	Questions
Death in the last 12 months	Is there any household member who died during the last 12 months that is between 16/08/2021-15/08/2022? If yes, • What was the sex of the deceased? • What was the age of the deceased at death? • What is the manner of death?
Child survivorship	For each female resident of 12 years and above • How many children in all were born alive? • Among all those born alive, how many are still alive? • How many children were born alive in the past 12 months? • Among those children born alive in the last 12 months how many are still alive?
Deaths of women 12 to 49 years	If the deceased is a woman aged 12 to 49 years at time of his death: • Was she pregnant? • Was she in labour? • Was it within six weeks following the end of pregnancy or childbirth?
Survivorship of the biological parents (father and mother)	For each resident age 0-17 years • Is the biological mother alive? • Is the biological father alive?

3.3. Data Quality Evaluation

There are several reporting and measurement biases that affect the quality of mortality data. Mortality is a sensitive indicator and often people in the household might be reluctant to report the death of a household member; especially if the death occurred recently prior to the census. The reporting bias varies according to the age of the deceased as well as other individual characteristics. The type of response depends on how the questions were asked and the probing of deaths in the reference period. The measurement and reporting biases are inherent in the mortality data collection in the census especially in resource poor settings, which makes it difficult to estimate mortality directly from the census. In such circumstances, the mortality indicators are estimated by applying indirect estimation techniques to adjust the data for inconsistencies and errors. This is often the case in virtually all African censuses.

For these reasons, it is very important to first evaluate the quality of the data in order to: (i) identify the biases that may affect the data; (ii) decide on whether or not some adjustments of the data are needed; and (iii) establish the feasibility of estimating relevant indicators using direct or indirect methods.

3.3.1. Identification of the biases that affect the data

Three main types of bias affect the mortality data of the 2022 PHC: the under-reporting or over-reporting of deaths during the reference period, that is the 12 last months preceding the census night (Type 1), errors in the age declaration of the deceased (Type 2); and wrong identification of the causes of the death (Type 3).

These biases affect the level of mortality among the general population (Type 1), the mortality pattern in the general population (Type 2), the level of childhood mortality (Type 1 and Type 2) and the level of maternal mortality (Type1, Type 2 and Type 3). The following sections elaborate more on the sources of each of these types of error.

Under and over-reporting of deaths: Data on mortality in the census were collected for a specific reference period of 12 months prior to the census night which was August 15th, 2012, except for survivorship of children ever-born that covers all born children irrespective of the period. However, this period of reference is not always well understood by the respondents. It is possible that respondents sometimes misclassify deaths within or outside the reference period which affects the reporting of the actual number of deaths. Moreover, respondents might be reluctant to report the death of a household member for cultural reasons which can lead to underestimation of the number of deaths. This is particularly the case for death of young children. The lack of judgment between a stillbirth and live birth and the tendency to ignore dead children born with genetic malformations can also affect the estimation of infant mortality.

Error in the declaration of age: Errors in classifying the deceased and the population by age may bias the observed age-structure of mortality (mortality pattern). Errors in age declaration seriously affect the childhood mortality indicators, especially the Infant Mortality Rate and the death rates among elderly. More generally, the misreporting of ages survivors at the time of census and significant variations by age of census coverage may substantially affect the levels

of mortality indicators calculated from the deaths occurred in the last 12 months.

Error in reporting the causes of death: It is often difficult to ascertain the exact cause of death, especially if death occurs within the household. This is particularly a concern for sudden premature deaths. Also, in some cases, the respondents might be unwilling to disclose the cause of death especially those related to HIV or other related infections. Moreover, it is possible that a person died due to multiple causes of death. In such circumstances, it is difficult to identify the primary cause of death in the absence of a medical expert. Finally, the deaths within the health institutions are sometimes not properly recorded, disclosed, or audited. These biases can influence the reporting of causes of death and the estimation of mortality.

To identify and measure the magnitude of such biases, an attempt is made to compute different indicators and compare them with other data collected by the census as well as with external sources to check for possible inconsistencies. Other irregularities in the data are examined by plotting the ASDRs curve and where appropriate comparing its shape with expected theoretical distributions confirmed in demographic research.

3.3.2. *Evaluation of the completeness of the overall death reporting*

The basic approach to evaluating the completeness of death reporting is to examine the total number of deaths that occurred in the population by sex and to compute the Crude Death Rate and compare it with the previous census ones.

The crude death rate is calculated by dividing the total number of deaths to the average population in

Table **4** below gives the observed number of deaths by sex and for both sexes and the corresponding Crude Death Rate (CDR). Overall, only 48,537 deaths were reported during the year preceding the 2022 census, corresponding to a CDR of 3.7‰.

This seems to be very low as compared to the 79,465 deaths and CDR of 7.7‰ calculated by the 2012 census. Though both values (total number of deaths

that year (mid-year population) and multiplying by 1,000. The mid-year population is the size of the population in February 2012; it is obtained by projecting the population backward from the census count date by applying the average annual intercensal growth rate.

The

and CDR from the 2022 PHC) are not directly comparable with the 2012 ones because of the decline in mortality and change in the age-sex structure of the population, the differences are rather unreasonably large. This gives an indication that there is an under-reporting of the deaths that occurred in the households during the year preceding the census.

Table 4: Observed total number of deaths and Crude Death Rate (CDR) for both sexes

Indicators	Value of the indicators
Number of deaths for in the 12 months preceding the census	48,537
Mid-year population size	13,089,008
Crude Death Rate (CDR)	3.7‰

Source: Rwanda 5th Population and Housing Census, 2022 (NISR)

3.3.3. Evaluation of the completeness of the death reporting by sex

Table 5 below shows that the differences between the number of male and female deaths. Mortality is known to be higher among males than females however since Rwandan population is predominantly female, we should expect more female than male deaths. Therefore, it is possible to conclude that there was a female under-reporting.

Table 5: Observed total number of deaths and Crude Death Rate (CDR) by sex

Indicators	Sex of the deceased	
	Male	Female
Number of deaths for 12 preceding months	28,228	20,309
Mid-year population size	6,350,784	6,738,224
Crude Death Rate (CDR)	4.4‰	3.0‰

Source: Rwanda 5th Population and Housing Census, 2022 (NISR)

The sex ratio at death by age is yet another indicator to examine potential sex-differences in mortality. It is expected that the sex ratios curve follows a classical well-known pattern that reflects the differences in mortality risk by sex and age-group. For instance, mortality below age 1 is expected to be higher among boys than girls. Mortality risk is generally higher among females during childbearing age especially in countries where maternal mortality is very high.

The observed sex ratios at death plotted in

Figure *3* below shows that female deaths are largely underreported as compared to male deaths. The graph shows that underreporting of deaths is particularly marked in a very large age-group spanning from 15-19 years up to age 70-74 years.

Figure 3: Sex ratio at death of the Rwandan resident population in 2022
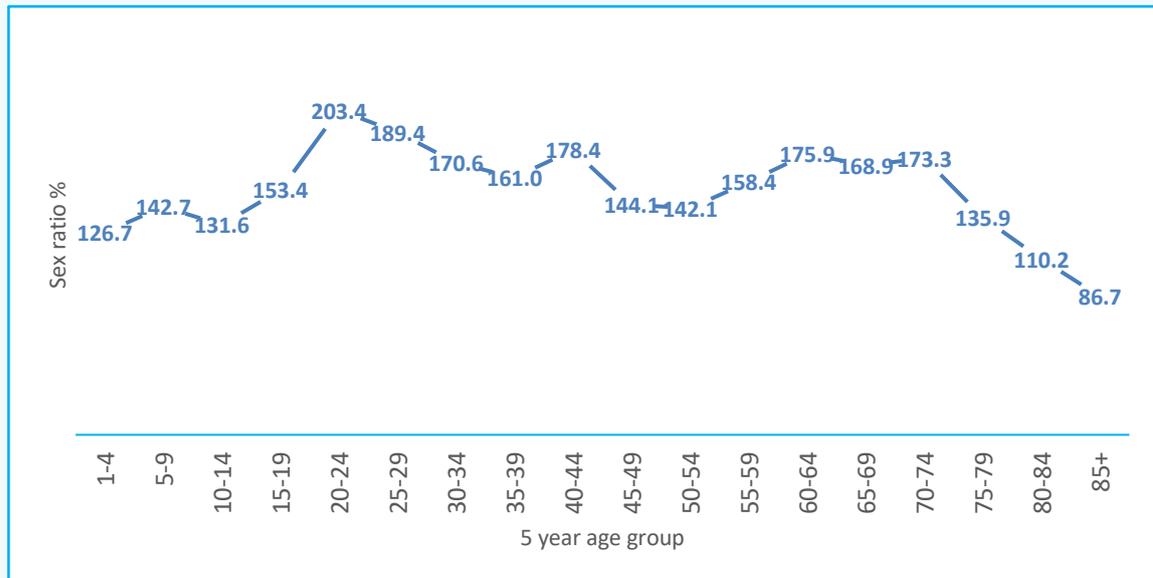
Source: Fifth Rwanda Population an Housing Census, 2022 (NISR)

3.3.4. Assessment of completeness and accuracy of the death reporting by age

ASDR is a type of central death rate i.e. relates to events in a given category during a year to the mid-year population in the category. The curve of the Age-Specific Death Rates (ASDRs) shows the mortality pattern of a population. In standard population, the ASDR curve in a high mortality situation form a U-shaped curve indicating relatively high mortality in early and old ages while at low-levels of mortality, the pattern ASDRs changes to J shaped curve i.e. relatively higher mortality in the early period of life. Any discrepancy from this shape may reflect differences in the completeness in death reporting by age.

Figure 4 below plots the observed ASDR by sex from the 2022 PHC. The curve looks more like a "U" than a "J" shape, irrespective of any difference between males and females. This suggests that the level of childhood mortality is higher than what is expected as compared to the level of mortality in other age-groups. The figure indicates evidence of severe underreporting of the adult deaths as compared to child deaths where underreporting is unevenly distributed by age.

Figure 4: Age-specific death rates by sex of the Rwandan resident population in 2022
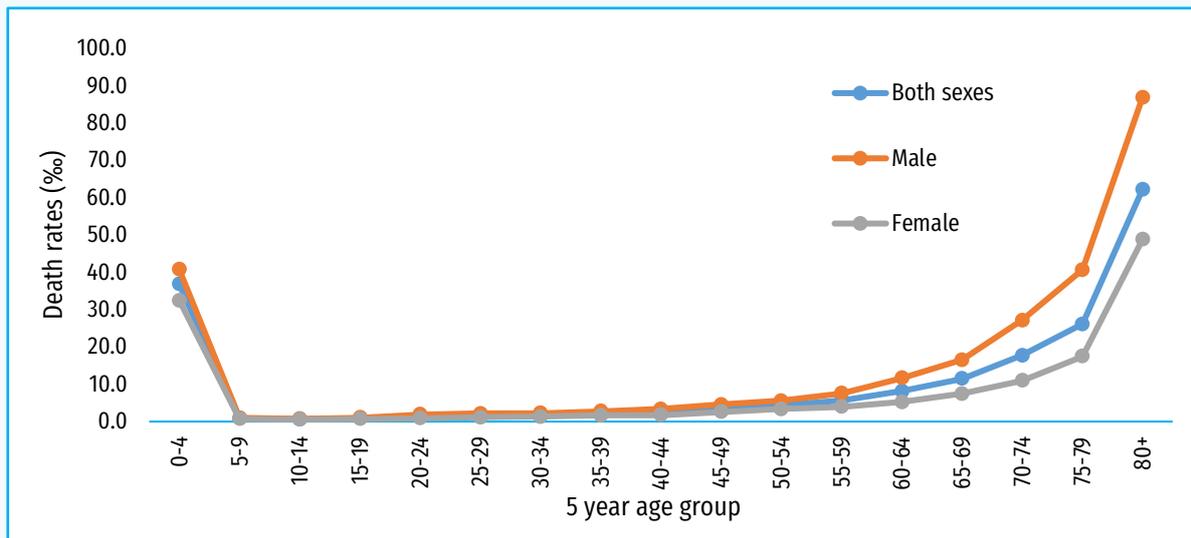
Source: Rwanda 5th Population and Housing Census, 2022 (NISR)

The severe under-reporting of adult mortality is new in the African censuses and can be assessed in different ways with the census data along with external data. This exercise also gives an indication of the quality of the census mortality data. For all these reasons we will conduct an in-depth evaluation of the quality of the infant and adult deaths data in the following section.

3.3.5. Evaluation of the completeness and accuracy of the infant death reporting

To assess the quality of data on infant deaths we will use two indicators: the number of infant deaths and the Infant Mortality Rate (IMR). The number of infant deaths can be obtained from the Deaths Record by extracting the number of household members dead at age 0 and from the Fertility Section by subtracting the survivors from the children born in the last 12 months. Both calculations can be done by sex.

The IMR is obtained by converting the Central Death Rate at Age 0 that is the ASDR at age 0 (1t0) into a probability of death before age 1, that is into the IMR. The Central Death Rate at Age 0 is obtained through two ways. It is obtained from the Death Record by dividing the number of deaths at age 0 by the mid-year population aged 0. From the Fertility section, it is obtained by dividing the number of deaths among the children born in the last 12 months by the number of live births in the 12 months. Then we use the formula below to convert 1t0 into 0q1 (IMR).

where α is the percentage of the infant deaths that occur during the first 6 months after birth. In countries similar to the one recorded in Rwanda, $\alpha=2/3$. Therefore the formula becomes:

$$_0q_1 = \frac{_1t_0}{1 + 0.67\,_0t_1}$$

Table 6 below contains the number of infant deaths by sex obtained through the Deaths Record and the Fertility Section. There is substantial difference in the reported number of deaths at age 0 between the two sources. The total number of deaths from the deaths record is 11,628 vs. 6,865 from the fertility section. In both sources, the number of deaths is higher among boys than among girls. However, the sex difference in reported number of deaths is found much larger when computed from the deaths record than from the fertility section.

$$_0q_1 = \frac{_1t_0}{1 + \alpha\,_0t_1}$$

Table 6: Number of infant deaths during the last 12 months by sex from the deaths record and from the fertility section

Number of deaths at age 0	Sex		
	Both sexes	Male	Female
From the death record	11,628	6,528	5,100
From the fertility section	6,865	3,757	3,108

Source: Rwanda 5th Population and Housing Census, 2022 (NISR)

The Table 7 below compares the IMRs calculated from the deaths record and the one from the fertility section. Clearly the IMR estimated from the fertility section of 18.6‰ seem to underestimate the true values whereas those estimated from the death record of 33.8‰ appear to be close to current levels of infant mortality recorded in recent RDHS which estimated IMR at 33‰ for the five years preceding the survey.

Table 7: Infant mortality rates by sex from the death record and from the fertility section

Mortality indicators	Sex		
	Both sexes	Male	Female
From the deaths record			
Mid-year population aged 0	336,022	168,304	167,718
Number of deaths at age 0 year	11,628	6,528	5,100
Central death rate: $_1t_0$ (‰)	34.6	38.8	30.4
Infant mortality rate, IMR: $_1q_0$ (‰)	33.8	34.2	28.1
From the fertility section			
Number of births during the last 12 months	364,549	186,497	178,052
Number of deaths at age 0 year	6,865	3,757	3,108
Central death rate: $_1t_0$ (‰)	18.8	20.1	17.5
Infant mortality rate, IMR: $_1q_0$ (‰)	18.6	19.9	17.3

Source: Rwanda 5th Population and Housing Census, 2022 (NISR)

In conclusion, there is evidence to suggest that the quality of data on mortality from the fertility section is not good enough to be used to estimate Infant mortality indicators.

3.3.6. *Evaluation of data on the declaration of the causes of deaths*

According to the Death Record 563 maternal deaths occurred in the previous 12 months, equivalent to a Maternal Mortality Ratio (MMR) of 154.4 maternal deaths per 100,000 live births. This seems too low compared to the findings from other sources including the 2019-20 DHS that gives an MMR of 203 deaths per 100,000 live births (NISR, 2021). The estimates from raw data show evidence of underestimation of maternal deaths in the previous 12 months. This means that there is an underestimation of maternal deaths in the previous 12 months.

Table 8: Reported maternal deaths by period of death

Period of death	Number of deaths
During pregnancy	234
During childbirth	156
During the 6 weeks period following the termination of pregnancy	173
Total	563
Maternal Mortality Ratio (per 100,000 live births)	154.4

Source: Rwanda 5th Population and Housing Census, 2022 (NISR)

A closer evaluation of the raw data on reported deaths suggests that direct estimation of mortality indicators is inappropriate and will lead to biased estimates. The alternative approach of indirect estimation is considered for subsequent analysis.

However, for maternal mortality even indirect estimates will not be made owing to the too poor quality of the data. Therefore, maternal mortality estimates are not included in this report.

3.4.   Adjustment of the data and description of the indirect methods

The main limitation of the data on observed number of deaths is high levels of underreporting. Therefore, the data are first adjusted for completeness before generating the life tables using indirect method of estimation. More specifically, the number of reported deaths is corrected by applying the indirect method pioneered by Brass and Coale (1968) and the Growth Balance Method to calculate the sex-specific and both sexes abridged life tables. The procedures followed include two steps:

First step: identification of model

Construction of a Model Lifetable for Rwanda based on the most recent RDHS conducted in 2019-20: fitting a 2-parameter model Lifetable to the 2019-20 RDHS estimates of child mortality (5q0) and adult mortality (35q15) to get an Age-specific central death rates (xmn) for males and females and use the results to construct a Lifetable based on the set of age-specific central death rates derived from the DHS output, using the life table application of Mortpak to derive the model life-table for males and females. Then we will do an identification of the Model life table from the United Nations or Coale-Demeny model life-table

patterns that is the most similar to the Rwandan Model Lifetable derived from the 2019-20 RDHS data; we use COMPAR application of Mortpak and use different model to find best indices of similarity and choose that model to be used during indirect method of estimation of the levels of mortality in Rwanda.

Second Step: Estimation of mortality

Using the model identified as fitting the levels of mortality in Rwanda, we do indirect estimates of childhood mortality (1q0 and 5q0) using RPHC5 fertility data; computation of 1q0 and 5q0 for each sex based on the number of children ever born and the number of surviving children. Followed by an indirect estimates of adulthood mortality (e20) using RPHC5 data on observed death, we estimated the life expectancy at age 20. The computation of the corrected deaths for both sexes by multiplying ASDR by Mid-year Pop for each age and each sex and by adding up the deaths for both sexes to get the corrected death for Male, female and Both sexes was done, then the abridged Lifetables were constructed for Male, female, and both sexes.

CHAPTER 4: FINDINGS

This chapter estimates and interprets the levels, trends and pattern of three types of mortality:

- Mortality among the general population, through the number and frequency of deaths in the population, the distribution of deaths by sex and age (mortality pattern) and the life tables (life expectancy at each age by sex);

- Early childhood mortality through the Infant Mortality Rate (IMR), the Child Mortality Rate (CMR) and the Under-Five Mortality Rate (U5MR); and

- Adult mortality and late-age mortality through respectively the life expectancy at age 20 and at ages 60 and 65.

4.1.   Mortality among the general population

In countries where the civil registration system is not fully functional, like Rwanda where the completeness of death registration is around 30% (NISR,2022), Population and Housing Censuses are the best source of data that provides an accurate overview of the level and pattern of mortality among the general population. The objective of this section is to provide the levels, trends and patterns of mortality in Rwanda. The indicators derived are as follows: Total number of deaths that occur in the population per year, the Crude Death Rate, the Standardized Death Rate, the Age-specific Central Death Rates, the Age-specific Death Rates and the Life expectancy at each age.

All the above-listed indicators are derived obtained from the male, female and both sexes' life tables. As explained in the chapter on methodology, indirect estimation techniques are used to compute the three life tables due to the poor quality of the reported death data in the households in preceding 12 months prior to the census.

4.1.1.   Number of deaths in the population and their trends since 1978

Overall, 82,242 deaths occurred in the population during the year preceding the census comprising of 39,291 males and 42,950 females (Table 9). This equates to approximately 225 deaths every day in Rwanda. The

Table 9: Number of deaths that occurred during the year preceding the census

Age-group (years)	Both sexes			Males			Females		
	ASDR	Mid-year Population	Expected Deaths	ASDR	Mid-year Population	Expected Deaths	ASDR	Mid-year Population	Expected Deaths
	(a)	(b)	(c=f + i)	(d)	(e)	(f=d x e)	(g)	(h)	(i=g x h)
0	0.029851	336,022	10,030	0.035987	168,304	6,057	0.023693	167,718	3,974
1-4	0.003005	1,352,946	4,066	0.003192	678,155	2,165	0.002817	674,790	1,901
5-9	0.00065	1,677,643	1,091	0.000743	839,698	624	0.000558	837,945	467
10-14	0.000524	1,533,647	804	0.000588	766,921	451	0.000460	766,726	353
15-19	0.000887	1,492,120	1,324	0.001021	741,604	758	0.000754	750,516	566
20-24	0.001278	1,161,148	1,484	0.001524	566,011	863	0.001045	595,138	622
25-29	0.001397	995,814	1,391	0.001534	488,951	750	0.001264	506,863	641
30-34	0.001635	939,900	1,537	0.001732	460,430	797	0.001543	479,469	740

Age-group (years)	Both sexes			Males			Females		
	ASDR	Mid-year Population	Expected Deaths	ASDR	Mid-year Population	Expected Deaths	ASDR	Mid-year Population	Expected Deaths
	(a)	(b)	(c=f + i)	(d)	(e)	(f=d x e)	(g)	(h)	(i=g x h)
35-39	0.002125	860,057	1,827	0.002235	420,460	940	0.002018	439,597	887
40-44	0.00304	716,683	2,179	0.003295	342,843	1,130	0.002806	373,840	1,049
45-49	0.004685	473,787	2,220	0.005288	212,857	1,126	0.004193	260,930	1,094
50-54	0.007279	389,295	2,834	0.008482	176,631	1,498	0.006279	212,664	1,335
55-59	0.01144	313,115	3,582	0.013790	140,705	1,940	0.009522	172,410	1,642
60-64	0.018083	307,453	5,560	0.021787	135,232	2,946	0.015174	172,220	2,613
65-69	0.029359	211,559	6,211	0.034514	91,047	3,142	0.025464	120,512	3,069
70-74	0.048416	145,459	7,043	0.055283	59,589	3,294	0.043652	85,870	3,748
75-79	0.079545	76,917	6,118	0.088592	28,151	2,494	0.074323	48,766	3,624
80-84	0.131998	57,337	7,568	0.142593	20,175	2,877	0.126245	37,162	4,692
85-89	0.208659	29,188	6,090	0.224425	9,925	2,228	0.200535	19,263	3,863
90-94	0.312932	16,552	5,180	0.334061	5,658	1,890	0.301959	10,894	3,290
95-99	0.436672	5,266	2,300	0.464480	1,660	771	0.423873	3,606	1,529
100+	0.538271	3,351	1,804	0.573679	962	552	0.524018	2,389	1,252
Total		13,095,262	82,242		6,355,972	39,291		6,739,290	42,950

Source: Rwanda 5th Population and Housing Census, 2022 (NISR)

4.1.2. Crude Death Rates

The Table 10 below presents the Crude Death Rate (CDR) by sex corresponding to the numbers of deaths. The CDR is greater among females (6.4‰) than among males (6.2‰) (Table 10). The table 10 shows that 6.3 deaths occur in Rwanda per year per 1000 individuals.

Table 10: Crude Death Rate by sex

Age-group (years)	Both sexes	Male	Female
Expected Deaths	82,242	39,291	42,950
Mid-year Population	13,095,262	6,355,972	6,739,290
CDR (‰)	6.3	6.2	6.4

Source: Rwanda 5th Population and Housing Census, 2022 (NISR)

4.1.3. Trend in the SDR between 1978 and 2022

As CDRs of different populations or groups are not directly comparable, SDRs were estimated. The following Figure 6 indicates the SDRs and analyses their trends between 1978 and 2022. The results show that mortality has dramatically declined between 1978 and 2022. The SDR has decreased from 17.1‰ to 6.3‰. The decrease however was not uniform over time. Mortality declined between 1978 and 1991 (SDR dropped from 17‰ to 13‰) before increasing during the following decade (the SDR reached 15‰ in 2002) and decreases again but more substantially in the decade 2002-2012 and then decreased slightly in the decade 2012-2022 (SDR dropped from 8‰ to 6‰).The

period 1978-1991 was characterized by improvement in the access to health services, mass immunization campaigns and improvements in the -living conditions of the population (better housing, better access to clean water and modern toilets, etc.). This in turn translated into decline in mortality, especially among children, which explain is the decrease observed in the SDR between 1978 and 1991. The period 1991 to 2002 was characterized by the 1994 genocide that claimed the lives of more than a million people. The direct consequences of the 1994 genocide on mortality and its indirect impact afterward made all improvement in the preceding

decade vanish. This explains why the SDR increased between 1991 and 2002. However, the decade 2002-2012 was characterized by important improvements in the health sector and in the living conditions of the population as a consequence of many vigorous programs and interventions aimed at fighting against the leading causes of death in the country. The

decrease in the death rate is a reflection of the positive impact of these efforts on mortality. The decline was small in the decade 2012 and 2022 as a reflection of the above-mentioned improvements in the health and the living conditions of the population of Rwanda.

Figure 5: Trends in the SDR between 1978 and 2022
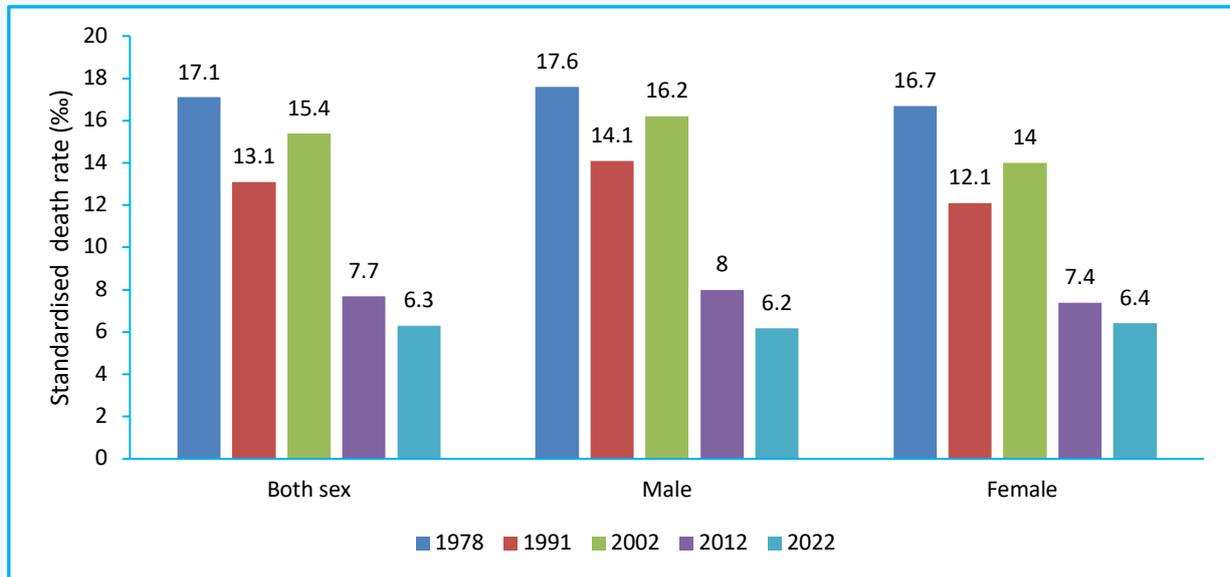
Source: Rwanda 1978,1991,2002,2012 and 2022 PHC's

4.1.4. *Mortality pattern*

The risk of mortality varies substantially by age and these variations are not reflected in the CDR, nor in the SDR. Two populations may have exactly the same CDR or SDR but quite different patterns of mortality.

Therefore, to analyse the morality pattern of a population one should compute and examine the mortality rates by age also known as Age-Specific Death Rates (ASDRs). The figure 7 below shows the ASDRs for each sex separately and both sexes.

The figure shows that Rwanda has a mortality pattern similar to the one prevailing in countries with low levels of mortality during childhood. The mortality rate is around 30‰ during the first year of life and decreases quickly to 12‰ between ages 1 and 4 then the levels remain low until age 70 where, the mortality rates increase very quickly and even reaches a value close to 313‰ at age 90 and above. The mortality pattern does not vary by sex though the level of mortality is systematically higher among males than among females for all age groups**.**

Figure 6: Age Pattern of Mortality (ASDR) by sex in 2022
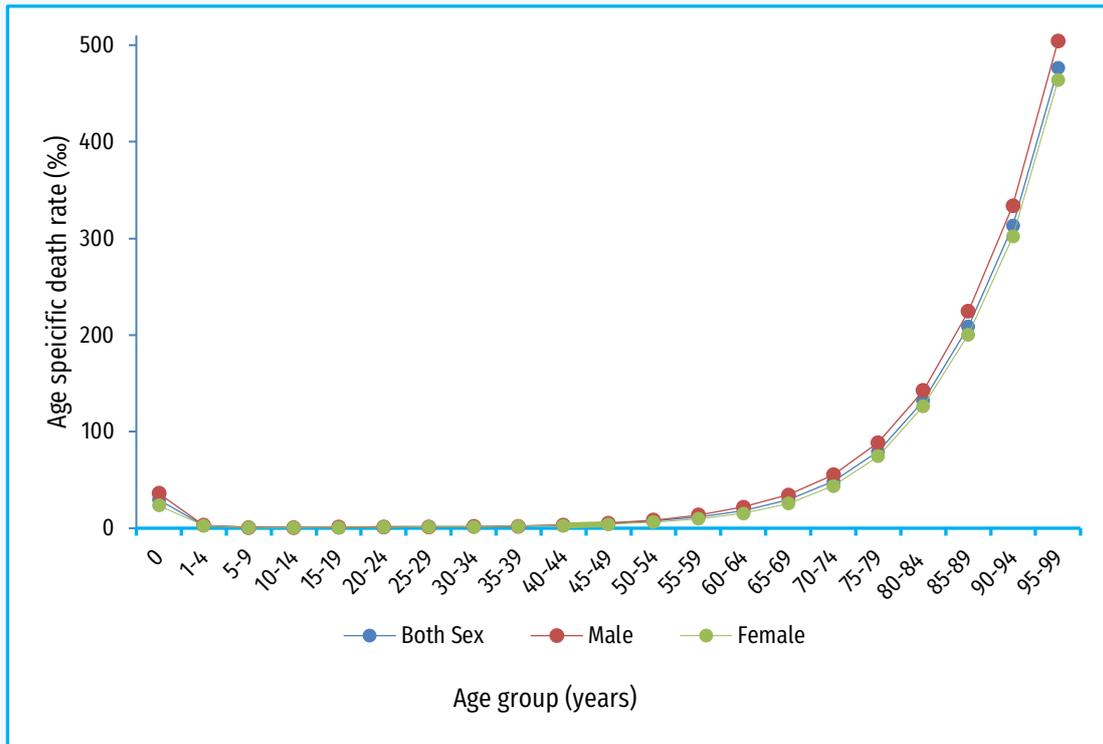
Source: Rwanda 5th Population and Housing Census, 2022 (NISR)

The Figure 7 below compares the mortality pattern for both sexes in 2022 with the one from the 2012 census. It reveals that the mortality pattern has not changed over the past decade. However, it shows a dramatic decline of infant and child mortality during the intercensal period. It also reveals that the mortality level has not changed between age 5 and 75 and decreased slightly for ages 75 and above. This is consistent with the decrease of mortality in Rwanda shown by the DHSs and past Censuses and the fact that adult mortality varies slightly over time in a normal population except when maternal mortality is high and reduces significantly.

Figure 7: Trends in age pattern of Mortality (ASDR) between 2012 and 2022
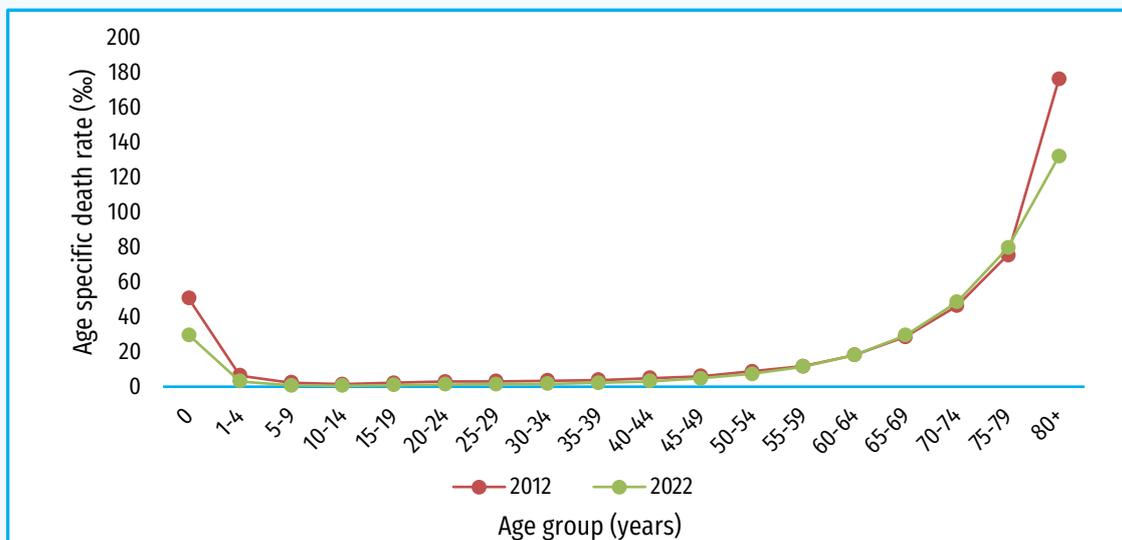
Source: Rwanda 2012 and 2022 PHC's

4.2.   Early childhood mortality

The section looks at indicators of childhood namely infant mortality rate (mortality before reaching the first year of life), child mortality rate (mortality between age 1 and 4 years) and under-five mortality rate (mortality between ages 0 and 5). The analysis focuses on levels and trends disaggregated by sex. These indicators are very sensitive to health interventions thus very useful in terms of monitoring and evaluating the health programs. Moreover, the level of infant mortality has the largest single year contribution to life expectancy at birth and therefore gives an indication of the health status of a population.

The factors that influence childhood mortality vary by age. For example, the survival of infants is primarily determined by both biological and behavioural factors such as breastfeeding status at birth, mother's health status and her health care whereas child survival between age 1 and 4 (child mortality) is determined by a combination of social, health care, family and environmental factors including lack of hygiene, exposure to infections, malnutrition and access to safe drinking water, etc.

4.2.1.   Level of childhood Mortality

The Table 11 below presents the levels of the three childhood mortality disaggregated by sex. The probability of dying before the first birthday is 28.9‰ live births. It is greater for boys (35‰) than for girls (23‰) as is generally the case. The mortality between age 1 and 4 is two times lower than at age 0 (11.8‰ vs. 28.9‰) and the gender gap narrower, 12‰ among boys and 11‰ among girls. This means that in

Rwanda there is no gender-based discrimination in childcare that may have a greater impact on mortality of one sex than another. The under-five mortality is also declining in Rwanda (40.7‰) reflecting the important contribution of mortality at age 0 to the total mortality between 0 and 5. As expected it is higher among boys than girls; mainly due to the boys' higher risk of death before age 1.

Table 11: Infant mortality rate, child mortality rate and under five mortality rate by sex

Childhood mortality	Both sexes	Male	Female
Infant Mortality Rate: 1Q0 (‰)	28.9	34.9	23.2
Child Mortality Rate: 4Q1 (‰)	11.8	12.2	10.9
Under Five Mortality Rate: 5Q0 (‰)	40.7	47.1	34.1

Source: Rwanda 5th Population and Housing Census, 2022 (NISR)

4.2.2.   Trends in childhood Mortality

Childhood mortality has generally declined substantially between 1978 and 2022 (Table 12 below). Infant mortality is five time lower from 1978 to 2022 while under five mortality is 6 times lower. For instance, for both sexes IMR fell from 144‰ to 29‰, and U5MR from 221‰ to 34‰. While the Child mortality rate is seven times lower than in 1978 from 89‰ to 12‰.

In the last Decade (2012-2022) the infant mortality has declined from 49‰ to 20‰ but not as substantially as in the previous decade (2002-2012) which went from 139‰ to 49‰. The same change happened for the child and under5 mortality rates as well as for males and females.

Table 12: Trends between 1978 and 20122 of Infant Mortality Rate, Child Mortality Rate and Under Five Mortality Rate by sex

Childhood mortality by census year	Both sexes	Male	Female
Infant Mortality Rate: $_1q_0$ (‰)			
1978	144	154	134
1991	118	126	114
2002	139	145	133
2012	49	53	44
2022	29	35	23
Child Mortality Rate: $_4q_1$ (‰)			
1978	89	90	89
1991	73	83	67
2002	102	111	93
2012	25	26.3	24
2022	12	12	11
Under Five Mortality Rate: $_5q_0$ (‰)			
1978	221	231	210
1991	182	199	173
2002	227	240	214
2012	72	78	66
2022	41	47	34

Sources: Rwandan 1978, 1991, 2002, 2012 and 2022 Censuses (NISR)

However, the decline was not linear since an increase in childhood mortality was observed between 1991 and 2002. For instance, for both sexes IMR increased from 118‰ to 139‰, CMR from 73‰ to 102‰ and U5MR from 182‰ to 227‰ (Figure 8). This is part of the consequences of the 1994 genocide which were still perceptible in the health indicators, among others, till early 2000.

The steady decline in childhood mortality between 2002 and 2022 is associated with several healthcare interventions implemented to improve the health status of the population. This decline is consistent with findings from the RDHSs.

Figure 8: Levels and Trends in childhood mortality indicators for both sexes between 1978 and 2022
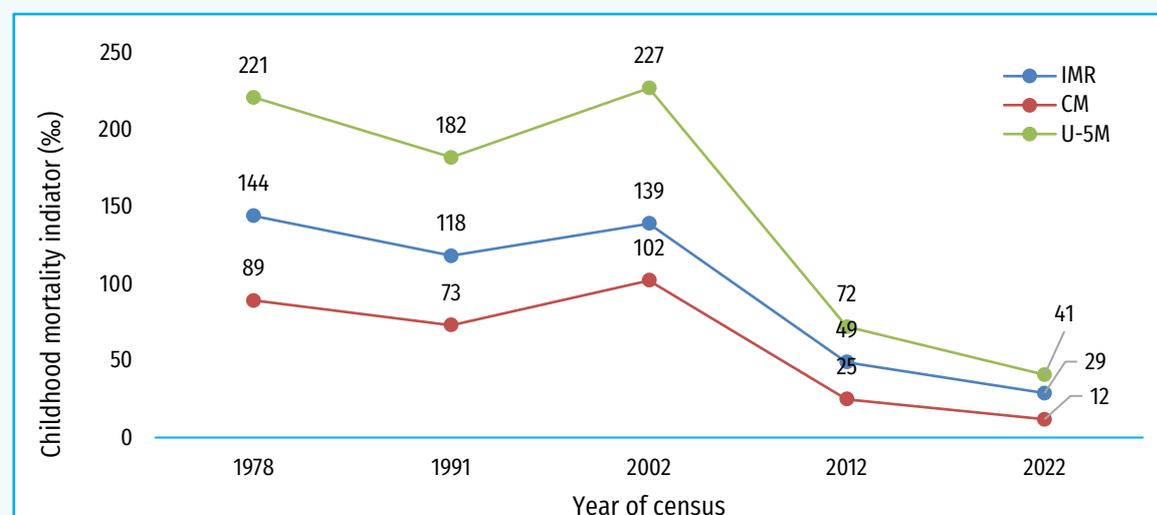
Sources: Rwandan 1978, 1 991, 2002, 2012 and 2022 Censuses (NISR)

4.2.3. *Sex differentials in childhood mortality trends*

The general pattern of the trends in childhood mortality does not vary by sex: decrease between 1978 and 1991 followed by an increase between 1991 and 2002 and finally a steady decrease between 2002 and 2012 and a slow decrease between 2012 and 2022 (Table 12 above). However, this general pattern masks sex differences in infant, child and under-five mortality as shown below.

The results indicate that for infant mortality, there was higher mortality among girls than boys in the in the period 1978 and 1991 with a more noticeable decrease in IMR among boys (18%) than among girls (15%). This trend persisted in the decade 1991 to 2002 where there was a slight excess mortality (17%) among girls than boys (15%). However, the reverse was observed between 2002 and 2012 and during the 2012-2022. The period 2002-2022 witnessed higher Mortality among boys than girls. IMR has decreased greatly in the period 2002 and 2012 (67%), among girls and (63%) among boys from the most recent period (2012-2022) the decrease is not considerable as compared to previous period with 47% decrease among girls and 34% among boys.

Figure 9: Percentage decline of Infant Mortality Rate in the Intercensal periods between 1978, and 2022
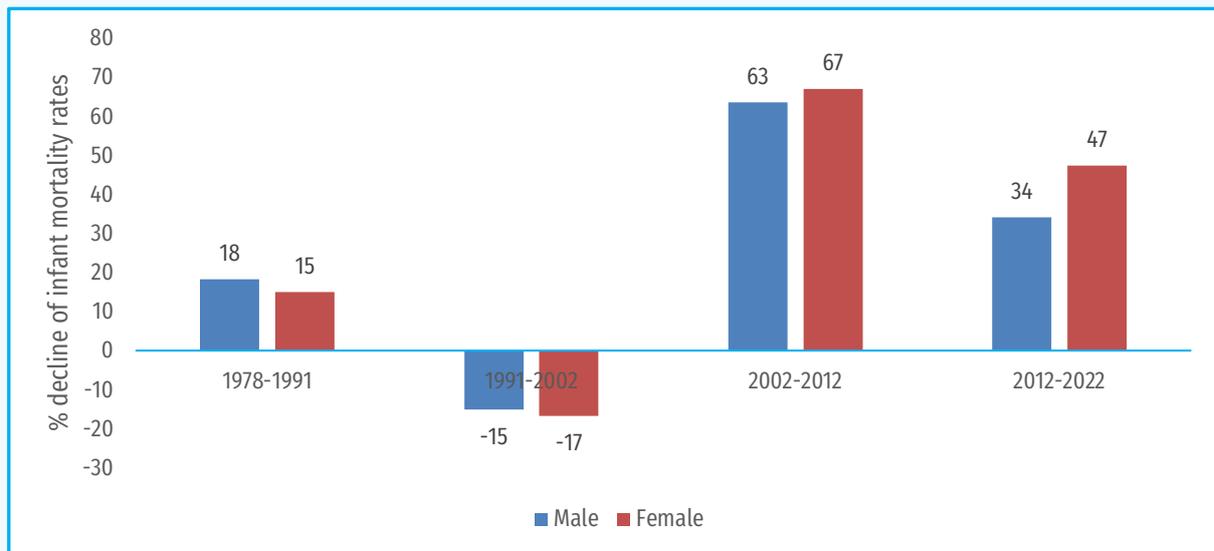
Sources: Rwandan 1978, 1991, 2002, 2012 and 2022 Censuses (NISR)

The reverse was observed in child mortality, as compared to infant mortality: boys had higher child mortality than girls between 1978 and 1991 (increase of the CMR by 8% among boys vs. 25% among girls) and between 1991 and 2002. Between 2002 and 2012 CMR there was a decrease in CM among boys (77%) than among girls (74%). However, there was no variation in the decade 2012 and 2022 with a percentage of 54 and 55 among boys and girls.

Figure 10: Percentage decline of Child Mortality Rate in the intercensal periods between 1978, and 2022
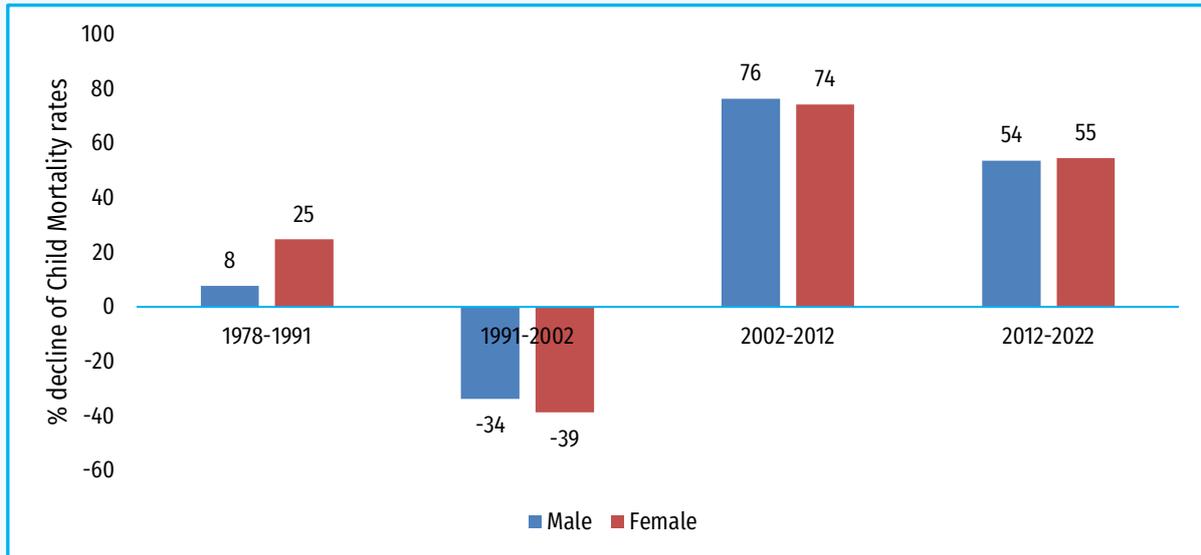
Sources: Rwandan 1978, 1991, 2002, 2012 and 2022 Censuses (NISR)

The sex differentials in the trend of mortality are less visible in the under-five mortality rate due to the compensation observed in IMR and CMR. However, in the recent census the difference between girls and boys was more pronounced with girls having the highest change of 48% and boys 40%.

Figure 11: Percentage decline of Under-five Mortality Rate in the Intercensal period between 1978 and 2022
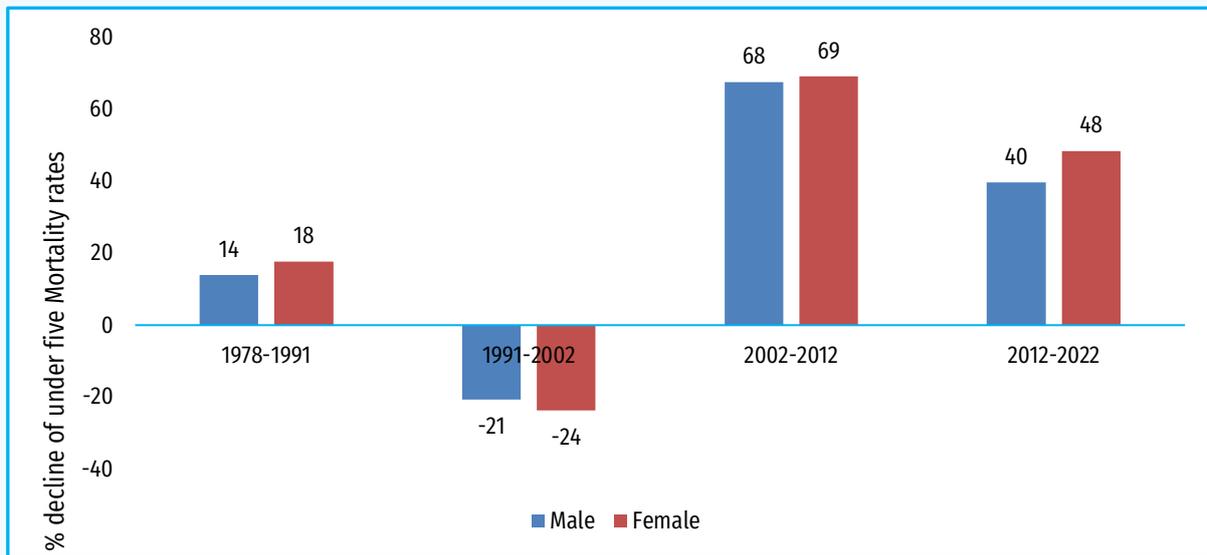
Sources: Rwandan 1978, 1991, 2002, 2012 and 2022 Censuses (NISR)

The above findings are supported by those of the Rwanda Demographic and Health Surveys (RDHS). However due to different sampling procedures and the size of the sample in DHS, there is need for caution when comparing the results from census and RDHS. It is however important to acknowledge that the downwards trends observed in Census is similar as that observed in RDHS.

4.3.   The life tables and the life expectancy: current level and past trends

4.3.1.   Life tables and current life expectancy at birth

The life table gives a summary of the mortality situation in a country and combines measures derived from both childhood and adult mortality whereas life expectancy at birth summarizes the mortality pattern that prevails across all age groups - children and adolescents, adults, and older adults.

Table through Table 12 show the abridged life tables for both sexes, for males and for females.

According to the life tables, the life expectancy at birth in Rwanda is 69.6 years. This means that someone born in Rwanda now and if subjected during his/her entire life to the current levels of mortality at the different ages would expect to live for 69.6 years. As is usually the case, life expectancy at birth is greater among females (71.2 years) than among males (67.7 years), meaning that females live longer than males.

According to the literature, females live longer than males for both biological and behavioural reasons. In

The main output of mortality analysis using census data is the life tables by sex. These tables contain among other indicators, the life expectancy, the mortality rates, and the central death rates for each age (complete life table) and for each age-group (abridged life table).

terms of biological reasons, several studies have proved that women possess genes that expose them to a longer life than men. In terms of behaviours, women's pay more attention than men to their health, seek care when they are sick more frequently than men, are less prone to risky behaviours such as smoking, alcohol drinking, drug consumption and are at lower risk of injuries and violent deaths such as traffic accidents and exposure to occupational risks, etc.

The table shows that life expectancy at age 1 is 1 year is slightly higher than at age 0 for all sexes, meaning that a child who survives the first year would have better chance to live longer than at his/her birth.

Table 13: Abridged Life Table for Males and females combined, Rwanda 2022

Age	nMx	nqx	lx	ndx	nLx	5Px	Tx	ex
0	0.0296	0.0289	100000	2890	97505	0.966044	6956740	69.6
1	0.0030	0.0119	97110	1159	385517	0.991629	6859235	70.6
5	0.0007	0.0032	95951	311	478978	0.997067	6473718	67.5
10	0.0005	0.0026	95640	250	477574	0.996479	5994740	62.7
15	0.0009	0.0044	95390	422	475892	0.994604	5517166	57.8
20	0.0013	0.0064	94967	605	473324	0.993336	5041274	53.1
25	0.0014	0.0070	94362	657	470170	0.992451	4567950	48.4
30	0.0016	0.0081	93706	763	466620	0.990651	4097780	43.7
35	0.0021	0.0106	92943	982	462258	0.987186	3631159	39.1
40	0.0030	0.0151	91961	1387	456334	0.980909	3168902	34.5
45	0.0047	0.0232	90573	2097	447622	0.970621	2712567	29.9
50	0.0073	0.0357	88476	3163	434472	0.954502	2264945	25.6
55	0.0114	0.0556	85313	4744	414704	0.929383	1830474	21.5
60	0.0181	0.0865	80569	6970	385419	0.889504	1415770	17.6
65	0.0294	0.1368	73599	10065	342832	0.826552	1030351	14.0
70	0.0484	0.2160	63534	13720	283368	0.733163	687519	10.8
75	0.0795	0.3317	49813	16525	207755	0.602379	404151	8.1
80	0.1320	0.4962	33289	16518	125147	0.440336	196396	5.9
85	0.2086	0.6856	16770	11498	55107	0.268396	71249	4.2
90	0.3130	0.8779	5272	4629	14790	0.083734	16142	3.1
95	0.4763	1	644	644	1352		1352	2.1

Source: Rwanda 5th Population and Housing Census, 2022 (NISR)

Table 11: Male Abridged Life Table, Rwanda 2012

Age,	nMx	nqx	lx	ndx	nLx	5Px	Tx	ex
0	0.03599	0.03491	100000	3491	97008	0.960091	6767807	67.7
1	0.00319	0.01267	96509	1223	383038	0.990633	6670799	69.1
5	0.00074	0.00371	95286	353	475549	0.996679	6287761	66.0
10	0.00059	0.00293	94933	279	473969	0.995987	5812212	61.2
15	0.00102	0.00509	94655	482	472067	0.99366	5338243	56.4
20	0.00152	0.00759	94172	715	469075	0.992383	4866175	51.7
25	0.00153	0.00764	93457	714	465502	0.99187	4397101	47.0
30	0.00173	0.00862	92743	799	461717	0.990138	3931599	42.4
35	0.00224	0.01111	91944	1022	457164	0.986286	3469882	37.7
40	0.00330	0.01634	90922	1486	450894	0.978821	3012718	33.1
45	0.00529	0.02610	89436	2334	441345	0.966289	2561824	28.6
50	0.00848	0.04153	87102	3617	426467	0.946176	2120479	24.3
55	0.01379	0.06665	83485	5564	403512	0.915653	1694012	20.3
60	0.02179	0.10331	77920	8050	369477	0.870428	1290500	16.6
65	0.03451	0.15886	69871	11100	321603	0.802767	921023	13.2
70	0.05528	0.24285	58771	14272	258173	0.705533	599420	10.2
75	0.08859	0.36264	44498	16137	182149	0.573926	341247	7.7
80	0.14259	0.52560	28361	14907	104540	0.41223	159098	5.6
85	0.22443	0.71882	13455	9672	43095	0.239182	54558	4.1
90	0.33406	0.91017	3783	3443	10307	0.100813	11463	3.0
95	0.29407	1	340	340	1156		1156	3.4

Source: Rwanda 5ᵗʰ Population and Housing Census, 2022 (NISR)

Table 12: Female Abridged Life Table, Rwanda 2012

Age	nMx	nqx	lx	ndx	nLx	5Px	Tx	ex
0	0.0237	0.0232	100000	2321	97957	0.971851	7123535	71.2
1	0.0028	0.0112	97679	1093	387969	0.992452	7025578	71.9
5	0.0006	0.0028	96586	269	482258	0.997458	6637609	68.7
10	0.0005	0.0023	96317	221	481032	0.996970	6155351	63.9
15	0.0008	0.0038	96096	362	479575	0.995515	5674319	59.0
20	0.0010	0.0052	95734	499	477424	0.994247	5194744	54.3
25	0.0013	0.0063	95235	600	474677	0.993010	4717320	49.5
30	0.0015	0.0077	94635	727	471359	0.991141	4242644	44.8
35	0.0020	0.0100	93908	943	467183	0.988022	3771285	40.2
40	0.0028	0.0139	92965	1295	461587	0.982684	3304102	35.5
45	0.0042	0.0207	91670	1902	453594	0.974225	2842515	31.0
50	0.0063	0.0309	89768	2775	441903	0.961415	2388921	26.6
55	0.0095	0.0465	86993	4046	424852	0.940515	1947018	22.4
60	0.0152	0.0731	82948	6063	399580	0.904484	1522166	18.4
65	0.0255	0.1197	76884	9203	361413	0.844212	1122587	14.6
70	0.0437	0.1968	67681	13319	305110	0.751277	761173	11.2
75	0.0743	0.3134	54363	17037	229222	0.618868	456064	8.4
80	0.1262	0.4798	37326	17909	141858	0.455851	226842	6.1
85	0.2005	0.6679	19417	12968	64666	0.284155	84984	4.4
90	0.3020	0.8603	6449	5549	18375	0.095593	20317	3.2
95	0.4638	1	901	901	1942		1942	.2

4.3.2. Trends in life expectancy at birth

Life expectancy at birth is the best summary health indicator of a population, which can be used to track improvements of the socioeconomic and health status of the population. The trend analysis of the life expectancy shows that Rwanda has experienced a significant socioeconomic and health transformation over the past 45 years, as clearly illustrated in the trends of the life expectancy at birth. Figure 13 below shows the trends in life expectancy at birth over time. It increases between 1978 and 1991 (from 46 to 54 years), then decreased between 1991 and 2002 (from 54 to 51 years) before increasing again and rapidly up to 64 in 2012 and then to 69.6 in 2022.

The increase between 1978 and 1991 corresponds to a period where population access to health services as well as their living conditions was improved by different interventions: more heaths facilities built and evenly distributed across the country, improvement of immunization coverage (82% in 1991), more access to safe drinking water, improved housing units.

The decrease of life expectancy at birth between 1991 and 2002 is explained by the 1994 genocide with its direct impacts (a death toll exceeding one million) and indirect impact (impoverishment of the population, social disruption, and disruption of the health system...).

The post 1994 genocide era marked by substantial investments in social restructuring and health infrastructure was in the right direction although it was difficult to maintain environmental and personal hygiene and provide clean potable drinking water to such large number of people. This led to an increase in food and water borne diseases like cholera, typhoid, worm infestation, amoebiasis, etc.

The increase of life expectancy at birth over the last two decade (2002-2022) reflects both the impact of social welfare and health intervention as well as the long-term impact of past interventions to mitigate the consequences of the genocide and more generally to improve the quality of life of the Rwandan population as discussed in Chapter 2.

Figure 12: Trends in life expectancy at birth between 1978 and 2022 by sex
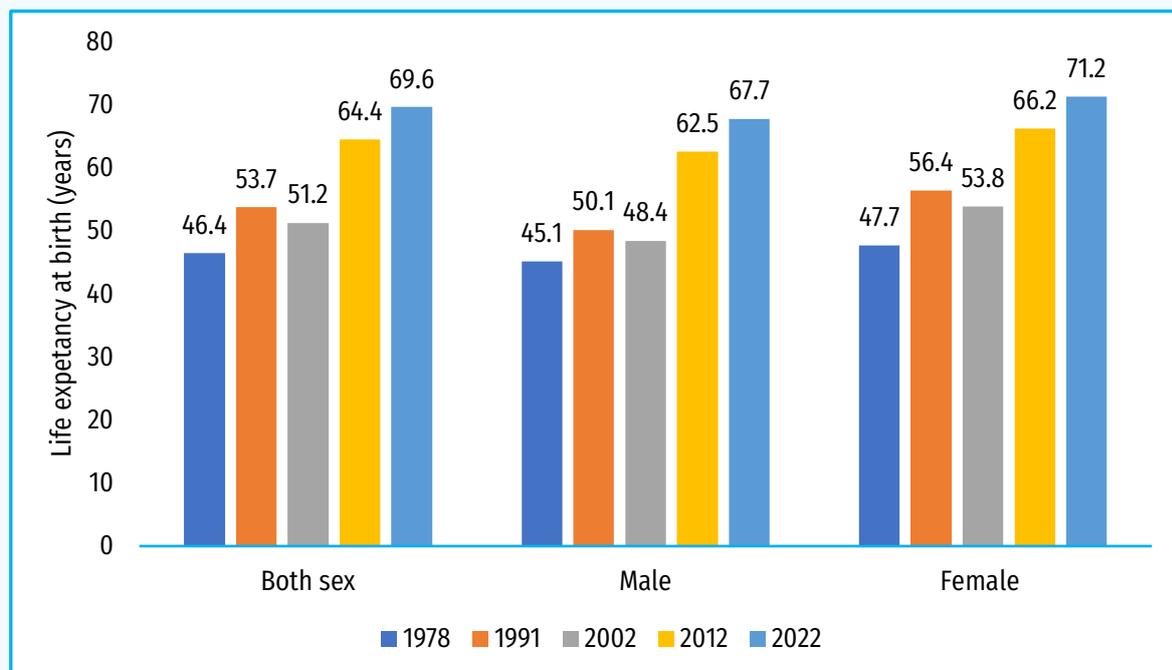
Source: Rwanda 1978,1991,2002,2012 and 2022 PHC's

4.3.3.   Sex differentials in the Trends in life expectancy at birth

The trends in life expectancy at birth show a slight difference by sex. As expected, female life expectancy at birth is higher than male life expectancy at birth below. During 1978-1991 period, female life expectancy increased by 18% whereas male life expectancy increased by only 11%. The reverse trend was observed between 2002 and 2012 in favour of males for whom the life expectancy at birth increased

throughout the period. However, the difference in magnitude varies over time by sex as shown in .

by 29% against 23% for females while between 2012 and 2022 the increase is almost the same 8%. The decrease in life expectancy between 1991 and 2002 did not show any marked difference by sex .

Figure 13: Percentage change in life expectancy at birth in intercensal period 1978-1991, 1991-2002, 2002-2012 and 2012-2022
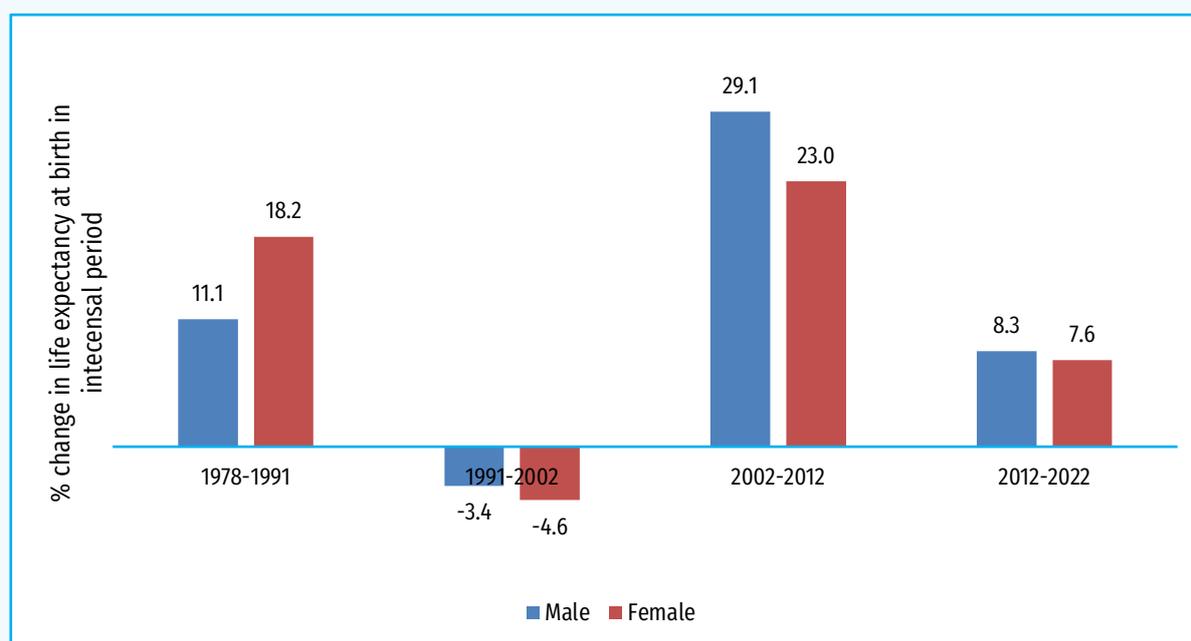
4.4.   Mortality among the Adult and the Elderly

The census allows us to analyse the level and trends of adult mortality and mortality among the elderly through two indicators respectively: life expectancy at age 20 (e20) that provides a good summary of adult

mortality in a population and life expectancy at age 60 (e60), the official lower boundary age for the elderly in Rwanda.

4.4.1.   Adult mortality: current level

Table 13 shows the life expectancy at age 20 (e20) by sex compared to life expectancy at birth. It shows that in Rwanda an adult aged 20 may expect to live an additional 53.1 years in the period. This is slightly higher among females (4.3 years) than among males (51.7 years). Table 13 also reveals that a Rwandan who manages to survive to under 20 years would expect to live 3 years and a half more than at his/her birth.

Three years and a half are therefore a measure of the cost in life expectancy of the risk the Rwanda population are subjected to during their first 20 years of life. The gain is greater among females (4.0 years) than among males (3.0 years) reflecting the higher risk of mortality males run during the first 20 years of life.

Table 13: Life expectancy at age 20 (e20) by sex and number of years in life expectancy gained at age 20 as compared to age 0

Indicator (Years)	Both sexes	Male	Female
Life expectancy at age 0 (e_0)	69.6	67.7	71.2
Life expectancy at age 20 (e_{20})	53.1	51.7	54.3
Number of years in life expectancy gained at age 20 as compared to age 0	3.5	4.0	3.0

Source: Rwanda 5th Population and Housing Census, 2022 (NISR)

4.4.2.   Mortality in older ages

The official definition of older adults in Rwanda is people aged 60 years and above. Therefore, in this analysis we will capture mortality among the older adults through life expectancy at age 60 (e60). The trends of e60 by sex are displayed in Table 17 below.

Under the current level of mortality, a person who reaches age 60 in Rwanda would expect to live around 18 more years. This would be 17 years for males and 18 for females. This corresponds to an additional 8 years when compared to life expectancy at birth. The gain in life expectancy is higher among females (8.9 years) than among males (7.1 years). This means that the cost in terms of life expectancy of the different risks a Rwandan must go through between birth and age 60 is high (8 years), especially among men (8.9), reflecting the greater death risk run by males.

Table 14: Life expectancy at age 60 (e60) by sex and Number of years in life expectancy gained at age 60 as compared to age 0

Indicator (Years)	Both sexes	Male	Female
Life expectancy at age 0 (e_0)	69.6	67.7	71.2
Life expectancy at age 60 (e_{60})	17.6	16.6	18.4
Number of years in life expectancy gained at age 60 as compared to age 0	8.0	8.9	7.1

Source: Rwanda 5th Population and Housing Census, 2022 (NISR)

CONCLUSION

The results of the fifth RPHC held August 2022 fill in a gap in the knowledge of the demographic situation in Rwanda. Regarding mortality in particular, the analysis of the PHC data allowed to estimate the levels, trends and pattern of mortality among the general population, the children, the adult population and elderly. Given the death under-reporting issue, it was necessary to adjust the data and to use indirect methods to estimate the mortality indicators.

The fifth RPHC indicates that mortality in Rwanda has declined substantially in the past two decades. Regarding the general population, the fifth RPHC indicates that 82,242 deaths occurred in the Rwanda population during the year preceding the 2022 census. Among them there were slightly more females (42,950) than males (39,291). In other words, 225 persons die every day in Rwanda. This is equivalent to a Crude Death Rate (CDR) of 6.3‰ (6.2‰ among males and 6.4‰ among females). The life expectancy at birth (e0) is 69.65 years for both sexes and it is higher among females (71.2 years) than males (67.7 years). It has increased over the period from 2012 to 2022: In 2012 it was 62.5 years for males and 66.2 years for females.

The fifth RPHC indicates that Infant Mortality Rate (IMR) is 28.9 ‰ and is higher among boys (35‰) than girls (23%). Compared to IMR in previous RPHC, the IMR has decreased from 2012: from 48.6‰ in 2012 to 28.9 ‰. The decrease from 2012 to 2022 is more important among girls (47% change) than among boys (34% change). The Child Mortality Rate (4q1) in 2022 is 12‰ with slight difference by sex: 12‰ for boys and 11‰ for girls. Regarding Under-Five Mortality Rate (U5MR), it has also reduced with only 41‰ of the new-born likely to die before their 5th anniversary. It is higher among boys (47‰) than among girls 34‰). As like other childhood mortality rates, U5MR has decreased a lot between 2012 and 2022, with difference by sex: 40% change among boys and 48% change among girls.

The 2022 census revealed that in Rwanda an adult person aged 20 may expect to live an additional 53.1 year period. This is greater among females (54.3 years) than among males (51.7 years). Compared to life expectancy at birth this means that a Rwandan who escapes from all mortality risks before age 20 would expect to live 3 years and a half more than at his/her birth. Three years and a half is therefore a measure of the cost in life expectancy of the risk the Rwandans are submitted to during their first 20 years of life. The gain is greater among males (4 years) than among females (3 years) reflecting the higher risk of mortality males run during the first 20 years of life.

The official definition of elderly in Rwanda is people aged 60 years and above. The analysis of mortality among the elderly through life expectancy at age 60 (e60) indicated that under the current level of mortality, a person who reaches age 60 in Rwanda would expect to live around 17.6 more years (16.6 years for males and 18.4 for females). This corresponds to a gain in life expectancy of 8 years as compared to life expectancy at birth. The gain is even higher among males (8.9 years) than among females (7.1 years). This means that the cost in terms of life expectancy of the different risk a Rwandan has to go through between birth and age 60 is high (8 years), especially among men (8.6), reflecting the greater death risk run by males.

The mortality pattern in Rwanda is changing with rapid reduction in childhood mortality. The mortality pattern does not vary by sex though the level of mortality is systematically higher among females than among males in all age-group. The continued decline in all types of mortality presented above seems to reflect the direct impact of the vigorous and multidimensional interventions implemented over the past two decade to fight against the leading causes of death in Rwanda (Malaria, Tuberculosis, HIV/AIDS, childhood diseases, and other non-communicable disease etc.). It seems also to reflect the long-term impact of earlier interventions aimed at recovering from the 1994 genocide that had increased tremendously mortality. These actions resulted into a better access to health care and an improvement in living conditions of the population.

More health facilities were built and evenly distributed throughout the territory, mosquito nets widely distributed to households, immunization campaigns conducted, universal access to medical insurance established, hygiene promoted, etc. According to the MoH the number of all health facilities public and private in Rwanda increased from 1,285 in 2016 to 2,088 in 2022. There was 1 doctor per 10,055 inhabitants in 2017 compared to 1 doctor per 8,247 in 2021, and 1 nurse per 1,094 inhabitants compared to 1 nurse per 6250 inhabitants in 2000. According to the 2019-20 DHS nearly all the mothers (98 %) received antenatal care from trained personnel. The contraceptive prevalence rate was 58% in 2019-20. Ninety six percent of children have received all basic vaccination services while only less than 1 percent had received no single dose of vaccine. On average, 87% of the population have health insurance, an increase from 74 in 2014 according to MoH.

Way forward

Mortality indicators disaggregated by regions is one of the exclusive contributions of PHC to mortality analysis as compared to other existing sources of mortality data like DHS. However, there was limitation of computing all mortality indicators disaggregated by area of residence due to the questionable quality of death data in the census disaggregated by province. Therefore, a better attention should be paid to mortality data collection during the next censuses.

Further analysis is needed to investigate some unexpected and uncommon findings of the present analysis. For instance, the differential analysis of male and female death has shown that women died more than men while the data from CRVS though still not fully covers all death happening in the country says otherwise. The strengthening of vital statistics would be a very tremendous addition to understanding levels and patterns of mortality in Rwanda.

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ANNEX 1: 2022 CENSUS QUESTIONNAIRES

A. Private Household Questionnaire

REPUBLIC OF RWANDA

MINISTRY OF FINANCE AND ECONOMIC PLANNING		NATIONAL INSTITUTE OF STATISTICS OF RWANDA

P.O. Box 6139 Kigali   Tel: +250-788383103
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GENERAL POPULATION AND HOUSING CENSUS
16 – 30 AUGUST 2022

Legal Basis: Law n° 45/2013 of 16/06/2013 on the organisation of statistical activities in Rwanda.

CENSUS QUESTIONNAIRE (PRIVATE HOUSEHOLD)

SECTION ML: LOCALISATION AND IDENTIFICATION OF HOUSEHOLD

ML01.	PROVINCE/KIGALI CITY:	|__|
ML02.	DISTRICT:	|__||__|
ML03.	SECTOR:	|__|__|
ML04.	CELL:	|__|__|
ML05.	VILLAGE:	|__|__|
ML06.	ENUMERATION AREA (N0 EA):	|__|__|
ML07.	AREA OF RESIDENCE (1.URBAN 2.RURAL) :...	|__|
ML08.	BUILDING NUMBER:	|__|__|__|
ML09.	HOUSEHOLD NUMBER:	|__|__|__|
ML10.	FOOT PRINT NUMBER (as it is shown on the map) :..	|__|__|__|
ML11.	GPS COORDINATES: Latitude: |__|__|__|__|__|__|__|__| Longitude: |__|__|__|__|__|__|__|__|	
ML12.	DISTANCE:	|__|__|__|
ML13.	HOUSEHOLD TYPE: 1. Private HH 2. Institutional HH |___|	

My names is ………………, I work for the National Institute of Statistics of Rwanda as the enumerator of the General Population and housing census. The objective of the general population census is to have the full enumeration of all Rwandan residents as well as their key characteristics; for the planning of the well-being of Rwandan residents. I wish to talk with the head of the household. In general, the interview will last 30 min. All provided answers will be kept confidential. I hope that you accept the interview, as your responses are very important for the country.

ML14	CONSENT: 1. Interview accepted => **P01A (Start by making a list of HH members)** 2. Interview is not done	|___|

ML15.	THE REASON OF NO INTERVIEW: 1.Uninhabited dwelling
	                                    2. Dwelling turned into business building
	                                    3.Dwelling destroyed
	                                    4.Refused
	                                    5.All residents are absents during the whole period of enumeration
	                                    6. The house is still inhabited by some members of HH
		|___|

N°	**HOUSEHOLD SCHEDULE (List of household members and visitors)**
	Name(s) of household members and visitors

1. Resident household members

INSTRUCTION: WRITE THE NAMES OF ALL RESIDENT MEMBERS WHO WERE PRESENT OR ABSENT IN THE REFERENCE CENSUS NIGHT: (15-16/08/2022) ACCORDING TO THE FOLLOWING ORDER:

1. Household head
2. Spouse
3. Household head son or daughter
4. Household adoptive child
5. Father/ Mother
6. Father-in-law/Mother-in-law
7. Brother-in-law/Sister-in-law
8. Brother/Sister
9. Grand Child
10. Son/Daughter-in-law
11. Other relative
12. House help
13. Non- relative
14. Unknown relationship to household head

2. Visitors
RECORD THE NAMES OF ALL VISITORS WHO SPENT THE CENSUS NIGHT WITHIN THE HOUSEHOLD (IF ANY).
(Please remember that visitors should be recorded after recording resident members)

(Serial Number — column label written vertically)

Serial Number	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
17	
19	
20	

SECTION P: CHARACTERISTICS OF THE POPULATION

FOR ALL MEMBERS OF HOUSEHOLD

P01A: Serial Number of the person

P01B: Surname of the person:..

P01C: Other names of the person...

P02: What is [NAME]'s relationship to the Head of Household?

01.Household head	08. Brother/Sister
02.Spouse	09. Grand Child
03.Son or daughter	10. Son/Daughter-in-law
04.Adoptive child	11. Other relative
05.Father/ Mother	12. House help
06.Father-in-law/Mother-in-law	13. Non-relative
07.Bother-in-law/Sister-in-law	14. Unknown relationship

P03: What is [NAME]'s Sex?   1.Male
2.Female

P04: How old was [NAME] at his/her Last Birthday?
NOTE: RECORD AGE IN COMPLETED YEARS

P05A: In which month was [NAME] born?

P05B: In which year was [NAME] born?
NOTE: RECORD 9999, IF THE YEAR IS UNKNOWN

P06: What is [NAME]'s marital status?
ALL PERSONS AGED 12 YEARS AND ABOVE
1.Married to one wife/husband officially
2.Married to one wife/husband not officially
3.Live in a polygamous union
4.Divorced
5. Separated
6. Never married
7. Widowed

P07A: Is [NAME] usual resident or was a visitor on census night?
1.   **Usual resident**
2.   **Visitor => GO TO THE NEXT PERSON**

P07B: Did [NAME] sleep in this household on census night?
1.   Yes, slept in this HH (PR)
2.   No, did not sleep in this HH (AR)

SECTION S: HOUSEHOLD SUMMARY TABLE

Residence status	Both sexes	Male	Female
Present Resident (PR)			
Absent Resident (AR)			
Total Resident (PR+AR)			
Visitors(VIS)			
Total Enumerated			

ALL RESIDENT(P07A=1) AGED 12 YEARS AND AB0VE

P08A: How many spouses does [NAME] have?   => P08C
(FOR MEN IN POLYGAMOUS UNION ONLY)
IF THE NUMBER OF SPOUSES IS 8 OR ABOVE, WRITE 8
IF THE NUMBER OF SPOUSES IS UKNOWN WRITE 9

P08B: What is the rank of [NAME] to His Husband?
(FOR FEMALE IN POLYGAMOUS UNION ONLY)
IF THE RANK IS 8 OR ABOVE, WRITE 8. IF THE RANK IS UKNOWN WRITE 9

P08C: How old was [NAME] when he/she first got married or lived together with his/her partner (AGE AT FIRST MARRIAGE)?
RESERVED FOR ALL PERSONS WHO RESPOND 1,2,3,4,5, AND 7 ON QUESTION P06   IF THE AGE AT THE FIRST MARRIAGE IS NOT KNOWN, WRITE 99

FOR RESIDENTS ONLY (P07=1)

P09A: was [NAME] born in Rwanda or abroad?
1.In Rwanda
2. Abroad   =>P09C

P09B: In which District was [NAME] born? =>P10A
SELECT ONE DISTRICT FROM THE LIST OF ALL DISTRICTS

P09C: In which Country was [NAME] born?
(SELECT THE COUNTRY FROM WORLD COUNTRIES LIST)

P10A: How many years has [NAME] been living continuously in [District]?
- Record 000 if less than 1 year
- Record 888 if the residence has not changed since birth
- If the residence has not changed since birth =>P12A

P10B: Prior to come living in [district], was [NAME] residing in Rwanda or abroad
1.In Rwanda
2.Abroad   =>P11B

P11A: In which District was [NAME] residing previously?
(SELECT THE DISTRICT FROM THE LIST OF ALL DISTRICTS)
=>P12A

P11B: In which Country was [NAME] residing previously?
(Select the country among the world countries List)

P12A: Is there any member of this household who does not have Rwandan Nationality?
1.Yes (Choose all non-Rwandans from the list of Household members
2.No   (Make all Rwandans) => **P13**

P12B: What is [NAME]'s nationality?
 CHOOSE THE NATIONALITY FROM WORLD COUNTRIES LIST

P13 What is [NAME's] Religious affiliation?

01.Catholic	
02.ADEPR	08.Traditional/Animist
03.Protestant	09. Other religion
04.Adventist	10. No Religion
05.Other Christians	11. Not stated
06.Muslim	99. Do not Know
07. Jehovah witness	

P14: What is [NAME]'s Medical insurance?

1.Mutuelle	5. Employer
2.RSSB (former RAMA)	6. Private insurance companies
3.MMI	7. NGOs
4.Schools	8. None 9. Do not know

DISABILITY: FOR RESIDENT AGED 5 YEARS AND ABOVE

P15: In this household, does any member have difficulty seeing?
1.Yes
2.None of the Household members has the difficulty =>**P16**

P15A: Who has difficulty seeing?
CHOOSE FROM THE LIST OF HOUSEHOLD MEMBERS

P15AA: Does [NAME] wear glasses?
1. Yes   2. No =>**P15B**

P15AB: Does [NAME] continue to have difficulties even when wearing glasses?
1. Yes   2. No =>**P16**

P15B: Would you say [NAME] has Some difficulty seeing, a lot of difficulty or cannot do at all?
0. No difficulty (To be filled by CAPI if P15AA==2 OR P15AB==2)
1.Some difficulty   2.A lot of difficulty   3.Cannot see at all

SECTION P: CHARACTERISTICS OF THE POPULATION

DISABILITY: FOR RESIDENT AGED 5 YEARS AND ABOVE

P16: In this household, does any member have difficulty hearing?
1.Yes
2.None of Household member has the difficulty =>P17

P16A: Who has difficulty hearing?
CHOOSE FROM THE LIST OF HOUSEHOLD MEMBERS

P16AA: Does [NAME] use hearing aid?
1. Yes   2. No =>P16B

P16AB: Does [NAME] continue to have hearing difficulties even if using hearing aid?
1. Yes
2. No =>P17 (After the automatic fill in of modality "No difficulty" by CAPI on P16B)

P16B: Would you say [NAME] has Some hearing difficulty, a lot of difficulty or cannot do at all
0. No difficulty   1.Some difficulty
2.A lot of difficulty   3.Cannot hear at all

P17: In this household, does any member have difficulty walking or Climbing steps?
1.Yes   2.None of Household member has the difficulty =>P18

P17A: Who has difficulty walking or climbing steps?
CHOOSE FROM THE LIST OF HOUSEHOLD MEMBERS

P17B: Would you say Some difficulty, a lot of difficulty or cannot do at all?
0. No difficulty   1.Some difficulty
2. A lot of difficulty   3. Cannot walk or climbing steps at all

P18: In this household, does any member has difficulty communicating, for example being understood by others?
1.Yes
2.None of Household member has the difficulty =>P19

P18A: Who has difficulty communicating, for example being understood?
CHOOSE FROM THE LIST OF HOUSEHOLD MEMBERS

P18B: Would you say Some difficulty, a lot of difficulty or Cannot do at all?
0. No difficulty   1.Some difficulty
2.A lot of difficulty   3.Cannot communicate at all

P19: In this household, does any member have difficulty remembering or concentrating?
1.Yes
2.None of Household member has the difficulty =>P20

P19A: Who has difficulty remembering or concentrating?
CHOOSE FROM THE LIST OF HOUSEHOLD MEMBERS

P19B: Would you say Some difficulty, a lot of difficulty or Cannot do at all?
0. No difficulty
1.Some difficulty
2.A lot of difficulty
3.Cannot remember or concentrate at all

P20: In this household, does any member have difficulty with self-care such as washing all over or dressing?
1.Yes
2.None of Household member has the difficulty =>P21

P20A: Who has difficulty with self-care such as washing all over or dressing?
CHOOSE FROM THE LIST OF HOUSEHOLD MEMBERS

P20B: Would you say Some difficulty, a lot of difficulty or cannot do at all
0. No difficulty
1. Some difficulty
2. A lot of difficulty
3. Cannot do at all

P21: In this household, Does any member have short stature?
1.Yes
2.None of Household member has the difficulty =>P22

P21A: Who has a problem of short stature?
CHOOSE FROM THE LIST OF HOUSEHOLD MEMBERS

P22: In this household, does any member have albinism?
1.Yes   2.None of Household member has the difficulty =>P23A

P22A: Who has a difficulty with albinism?
CHOOSE FROM THE LIST OF HOUSEHOLD MEMBERS

ALL RESIDENT AGED LESS THAN 18 YEAS OLD

P23A: Is [NAME]'s biological mother alive?
1.Yes
2.No
9.Don't know   =>P23C

P23B: Does [NAME]'s biological mother live in this household?
1.Yes   2.No => P23C

P23BB: Who is [NAME]'s biological mother?

FROM THE LIST OF ALL FEMALES AGED [THE AGE OF CHILD +10] YRS OR ABOVE CHOOSE THE MOTHER

P23C: Is [NAME]'s biological father alive?
1.Yes
2.No
9.Don't know   =>P24

P23D: Does [NAME]'s biological father live in this household?
1.Yes 2.No =>P24

P23DD: Who is [NAME]'s biological father?

FROM THE LIST OF ALL MALES AGED [THE AGE OF CHILD +15] YRS OR ABOVE CHOOSE THE FATHER

P24: Was [NAME]'s birth registered in the Civil Registration books?
1.Yes => P29
2.No
9.Don't know

QUESTION P25 IS FOR THOSE WHO HAVE 18 YEARS OLD AND ABOVE AND THOSE WITH LESS THAN 18 YEARS BUT RESPONDED 2 AND 9 IN QUESTION P24

P25: What is the type of official identification document does [NAME] have?
01.Rwandan Identity Card   09. Refugee ID
02.Foreign Identity Card   10. Rwanda Birth Certificate
03.Rwandan Passport   11. Foreign Birth Certificate
04.Foreign Passport   12. Embassy/ Consular issued Documents
05.Rwandan Nationality Certificate   13. No document
06.Foreign Nationality Certificate   14. Other (specify)
07.Refugee travel document   99. Don't know
08. Proof of registration for refugees

QUESTION P25A-P28 ARE FOR THOSE WHO ANSWERED 13 ON P25

P25A: Why does [NAME] not have any official identification document?
1. In process looking for it   4. Personal reasons
2. The request got rejected   5. Other reason(specify)
3. Under required age   9. Do not know

P26: What is the Nationality of [NAME]'s Parents?

1. Both are Rwandan
2. One is Rwandan
3. Both are non-Rwandan
9. Don't know
IF P25A=1 or 3 AND P26=1 =>P29

P27: Are [NAME]'s Parents still alive?
FOR RESIDENT AGED 18 YEAS OLD OR MORE
1. Yes Both   3. No
2. Yes, one of them   9. Don't know

SECTION P: CHARACTERISTICS OF THE POPULATION

P28: Do Parents of [NAME] have or had legal Residence in Rwanda?
1. Yes Both   3. No
2. Yes, one of them   9. Don't know

EDUCATION: ALL HOUSEHOLD RESIDENTS

P29: Has [NAME], previously attended or is currently attending school /
          ECD?
1. Has previously attended
2. Is currently attending
3. Has never attended **=>P32**

P30A: What is the highest level of education did [NAME] attend or is currently attending?

1. ECD **=>P32**
2. Nursery
3. Primary
4. INGOBOKA /Vocational training
5. Lower secondary   6. Upper secondary   7. Tertiary

P30B: How many years of school did [NAME] complete successfully at that level?   YEARS

WRITE 99 IF THE NUMBER OF COMLETED YEAR IS UNKOWN

P31: What is the highest certificate/degree [NAME] obtained?

THE QUESTION IS ASKED IF P30A IS 3,4,5,6 ,7

1. Primary school certificate
2. Post primary certificate (CE/FM/TVET I/TVET II)
3. EMA/ENTA
4. O' level Certificate
5. A3/D4/D5
6. A2/D6/D7
7. TVET certificate III
8. TVET certificate IV
9. TVET certificate V
10. TVET advanced diploma (A1)
11. Diploma(A1): D6+2-3yrs
12. Bachelor(A0): D6+3-6yrs
13. Post Graduate Diploma
14. Masters: Bachelor+1-2yrs
15. Doctorate(PhD)
16. None   99. Do not know

QUESTIONS P32 -P36 ARE RESERVED FOR PERSONS AGED 10 YEARS OLD AND ABOVE

P32: Can [NAME] read, write and understand the following languages? MORE THAN ONE LANGUAGE IS ALLOWED READ MODALITIES STARTING BY KINYARWANDA
1. Kinyarwanda   8. Swahili
2. English   16. Other
4. French   0. None

P33: Has [NAME] ever attended or currently attending Informal adult literacy Program?
(RESERVED FOR THOSE WHO ANSWERED P29=3 OR P30A<4 AND P30B<4)
1. Yes, Still Attending
2. Yes, Completed
3. Never attended

INTERNET ACCESS

P34: Did [NAME] use internet in the last 12 months?
1. Yes
2. No =>P36A
9. Don't know =>P36A

P35: Where does [NAME] often access Internet?
1. From Home
2. From work place
3. From School/Place of Education
4. From Another Person's home
5. From Community Internet access facility
6. From cyber café/From Commercial Internet Access facility
7. Other

MOBILE PHONE OWNERSHIP

P36A: Does any member of this household own the mobile phone?
    1. Yes   2. =>P37

P36B: Who own the mobile phone among members of the household? CHOOSE FROM THE LIST OF HH MEMBERS

P36C: What type of mobile phone does [NAME] have?
    1. Smart phone
    2. Ordinary phone with radio
    3. Ordinary phone without radio

IF ONE HAS BOTH TYPE, CHOOSE SMART PHONE

EMPLOYMENT: FOR RESIDENTS AGED 16 YEARS OLD AND ABOVE

P37: During the last 7 days, did [NAME] do at least one of the following even if only for one hour?
-Work for wage or salary, commission or tips
-Work for pay in kind
-Work in own business
-Helped unpaid in a family business or a job of a family member
-Farming for pay in cash or in Kind
-Self-employed in farming/fishing/forestry mainly for market
-As paid internees
    1. Yes **=>P46**   2. No

P38: During the last 7 days, did [NAME] have a paid job or a business from which he/she was temporarily absent and for which he/she expects to return?
    1. Yes   2. No **=>P42**

P39: What was the main reason for which [NAME] was absent from work during the last 7 days?
1. Sick leave due to own illness or injury   **=>P46**
2. Annual leave/ maternity leave
3. Seasonal worker   **=>P42**
4. Business closed due to COVID-19
5. Self or Family in Quarantine
6. Laid off because of COVID-19 while business continued
7. Not able to go to work due to COVID-19 movement restrictions
8. Other

P40: Does [NAME] continue receiving an income from his/her job during absence?
    1. Yes **=>P46**
    2. No   9. Don't know

P41: Was [NAME] planning to go to work for a period less than 3 months?
    1. Yes **=>P46**
    2. No
    9. Don't know

P42: During the last four weeks did [NAME] work in farming, fishing or hunting mainly for own consumption
    1. Yes
    2. No

SECTION P: CHARACTERISTICS OF THE POPULATION

ONLY FOR THOSE AGED 16 YEARS AND ABOVE

P43: During the last four weeks did [NAME] look for a paid job or tried to start a profit job?
    1.Yes **=>P45**
    2.No

P44: In the last 4 weeks, did [NAME] find a profit job or was planning to start his/her own business?
    1. Yes
    2. No

P45: If a paid job or business opportunity become available, could [NAME] have started work during the last 7 days or within the next two weeks?
    1.Yes
    2.No **=>P50A**

P46: What is [NAME]'s institutional sector of employment?
    READ ANSWERS FOR RESPONDENT
1.Public institution/enterprise
2.Mixed public and private enterprise
3.Private in non-agriculture activities
4.Private in agriculture activities
5.VUP
6.International NGO/International organization"
7.Local NGO/Religious organization
8.Cooperative
9.Household(Domestic workers)

P47: What is the main product, service or activity of [NAME]' place of work? (Explain):
....
                      P47A. ISIC

P48: What was [NAME]'s main occupation (main duty) during the last 7 days?
Main occupation:...
Example: Teacher in primary school, Vegetable seller, House help, Taxi Driver   **P48A. ISCO**

P49: In this job, is [NAME]' working as…?
    (What is [NAME]'s status in employment?)
        READ ANSWERS FOR RESPONDENT
1.Employee
2.Paid apprentice/Internee
3.Employer (with regular employees)
4.Own account worker (without regular employees)
5.Member of cooperative
6.Contributing family worker
7.Other

FOR RESIDENT WOMEN AGED 10 YEARS AND ABOVE

P50A: Has [NAME] ever given a live birth?
    1.Yes
    2.No **=>Next Person**

P50B_Boys: How many live boys has [NAME] ever had?

P50B_Girls: How many live girls has [NAME] ever had?

P50C_Boys: Among those boys how many are still alive?
    TO BE ASKED IF P50B_BOYS>0

P50C_Girls: Among those girls how many are still alive?
    TO BE ASKED IF P50B_GIRLS>0

P51A: During the 12 months prior to the census night (From 16/08/2021-15/08/2022) Did [NAME] give a live birth?
    1.Yes
    2.No **=>Next Person**

P51B_Boys: How many live boys did [NAME] have during the 12 Months prior to the census night (From 16/08/2021-15/08/202

P51B_Girls: How many live girls did [NAME] have during the 12 Months prior to the census night (From 16/08/2021-15/08/2022)?

P51C_Boys: Among those boys how many are still alive?
TO BE ASKED IF P51B_BOYS>0

P51C_Girls: Among those girls how many are still alive?
TO BE ASKED IF P51B_GIRLS>0

    =>GO TO NEXT PERSON/SECTION H

SECTION H: HOUSING CHARACTERISTICS

H22B: "How many (Type of livestock) do you have now and in which district are they located?"

Livestock type	Number	Location/District
01. Local breed cows		
02. Exotic breed cows		
03. Cross breed cows		
04. Local goats		
05. Exotic goats		
06. Cross goats		
07. Local sheep		
08. Exotic sheep		
09. Local pigs		
10. Exotic pig		
11. Cross pig		
12. Rabbits		
13. Broiler chicken		
14. Layers chicken		
15. Dual purpose chicken		
16. Local chicken		
17. Duck		
18. Turkey		
19. Other poultry		
20. Camel		
21. Bees hive		
22. Dogs		
23. Others		

AGRICULTURAL ACTIVITIES

H23: During the last 12 months did any member of this household grow crop?
(DO NOT INCLUDE AGRICULTURAL ACTIVITIES DONE IN KITCHEN GARDEN)

1. Yes
2. NO →H28A

H23A: Where were agricultural activities done?

1. In household owned land
2. In rented land (in cash or in kind payment or for free)
3. In both households owned land and in rented land

H24: " What types of crops did your household grow in last 12 months?

01. Maize		12. Yams& Taro	
02. Rice		13. Cooking Banana	
03. Sorghum		14. Dessert Banana	
04. Wheat		15. Banana for Beer	
05. Bean		16. Vegetables	
06. Pea		17. Tea	
07. Groundnut		18. Coffee	
08. Soybean		19. Sugarcane	
09. Cassava		20. Pyrethrum	
10. Sweet potato		21. Flowers	
11. Irish potato		22. Others, specify…	

H25: What type of vegetables that household grew in last 12 months? Ask this question if on question H24 vegetables is in selected crops"

ASK THIS QUESTION IF H24=16

01. Amaranths		13. Garlic	
02. Tomato		14. Lettuce	
03. Cabbage		15. Broccoli	
04. Onion		16. Spinach	
05. Carrot		17. Celery	
06. Eggplant		18. Leeks	
07. Black eggplant		19. Pumpkin	
08. Sweet pepper		20. Cocumber	
09. Pepper		21. Mushroom	
10. Cauliflower		22. Chayote	
11. French beans		23. Cassava Leaves	
12. beetroot		24. Other vegetables	

H26: "How many tea trees does your households has? Ask this question if on question H24 tea tree is in selected crops

H27: How many coffee trees does your households has? Ask this question if on question H24 Coffee tree is in selected crops

H28A: Does your household has any fruit tree?
1. Yes   2. No => Go to Section M

H28B: What Type and How many (fruit trees) does your household grow?

	28BA: Type	28BB: How many trees do you have?
1. Avocado		
2. Orange		
3. Papaya		
4. Guava		
5. Lemon		
6. Mango		
7. Mandarin		
8. Jack fruits		
9. Beefheart		
10. Passion fruits		
11. Pineapple		
12. Tree tomato		
13. Watermelon		
14. Strawberry		
15. Other fruit		

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colspan across: **SECTION M: MORTALITY**

M1: Is there any member of the household who died 12 months prior to the census night (16/08/2021-15/08/2022)?
                      1.Yes   2.No   => End of the interview

If there was a death in the HH during the 12 months prior to the census night ,Write their Names and ask the following questions

S/N	M2: Names	M3: SEX	M4: AGE at Death	M4A: Age at death for infants	M5: Place of death	M6: Manner of Death	M7: "Did [NAME] death occur while Pregnant?	M8: "Did the death Occur during the childbirth?	M9: "Did the death occur during the 6 weeks' period following the termination of pregnancy?
	Write the names of those who died during the last 12 months	1.Male 2.Female	How old was [NAME] when (he/she) died? IF THE AGE IS 1 YEAR OR ABOVE => M5 (Record 000 if less than 1 year)	How many months or days [NAME] had before dying? RECORD THE ANSWER IN MONTHS IF THE AGE WAS FROM 1 TO 11 MONTHS. RECORD THE ANSWER IN DAYS IF THE AGE WAS FROM 0 TO 29 DAYS	where the death for the [NAME] took place? 1. At community 2. At health facilities	"What is the manner of death of [NAME]? 1.Natural cause/disease 2.Accident 3.Suicide 4. Homicide 9. Don't know IF THE ANSWER IS 2-9 =>Next Person End if no other died person	1.Yes => Next Person 2.No	1.Yes =>Next Person 2.No	1: Yes =>Next Person 2: No=>Next Person =>Next Person End if no other died person
1	……….	☐	☐☐☐	☐☐ 1:days ☐ 2:months ☐	☐	☐	☐	☐	☐
2	……….	☐	☐☐☐	☐☐ 1:days ☐ 2:months ☐	☐	☐	☐	☐	☐
3	……….	☐	☐☐☐	☐☐ 1:days ☐ 2:months ☐	☐	☐	☐	☐	☐

Note: Columns M7, M8, M9 fall under the heading "If the Deceased Person was a female aged 10-49 years, we ask the following questions:"

SECTION H: HOUSING CHARACTERISTICS

TYPE OF HABITAT

H01: What the type of Habitat?

1. Planned rural settlement
2. Integrated Model Village
3. Old settlement
4. Unplanned clustered rural housing (Dispersed/Isolated housing)"
5. Modern planned urban area
6. Spontaneous/Squatter housing
6. Spontaneous/Squatter housing in Rural area
8. Other type of housing

TYPE OF BUILDING

H02: What is the Type of Building?

1. House occupied by one household
2. House occupied by several households
3. Storey building occupied by one household
4. Storey building occupied by many households
5. Several buildings in a compound occupied by one household
6. Several buildings in a compound occupied by several households"
7. Other

TENURE STATUS

H03: What is the tenure status of the housing Unit?

1. Owner (Even when he/she is still paying the bank loan) => **H05**
2. Tenant
3. Hire purchase(Having payment contract with the owner) => **H05**
4. Free lodging
5. Staff housing
6. Temporary camp or settlement
7. Other

H04: Is this Household has its own housing unit in this village or elsewhere?

1. Yes   2. No

MAIN MATERIAL OF THE ROOF

H05: What is the main material used for the roof?
(In case of a store building, consider the roof of the last floor)

1. Iron Sheets
2. Local tiles
3. Industrial tiles
4. Asbestos
5. Concrete
6. Cartoons/Sheeting/ all non-durable roofing materials
7. Grass
8. Other

MAIN MATERIAL OF THE WALLS

H06: What is the main material used for the exterior walls?

1. Wood with mud and cement
2. Wood with mud without cement
3. Sun dried bricks with cement
4. Sun dried bricks without cement
5. All non-durable wall materials (Cartoons/Sheathing)
6. Cement blocks
7. Concrete
8. Stones with cement
9. Stones without cement
10. Timber
11. Burnt bricks with cement
12. Burnt bricks without cement
13. Other

MAIN MATERIAL OF THE FLOOR

H07: What is the main material used for the floor?

1. Earth	6. Wooden floor
2. Dung hardened	7. Ceramic/clays/Granite tiles
3. Concrete	8. Cement
4. Stones	9. Other
5. Burnt bricks	

NUMBER OF ROOMS

H08: How many rooms do the housing units have, including bathrooms, toilets, kitchen, store rooms?

NUMBER OF ROOMS FOR SLEEPING

H09: How many   rooms are used for sleeping?

H10: Are Sleeping rooms for Boys separated from those for Girls?

1. Yes
2. No
3. NA

MAIN SOURCE OF WATER

H11: What is the main source of water used by your household for general purposes such as cooking and handwashing?

1. Internal pipe-born water
2. Pipe-born water in the compound
3. Pipe-born water from the neighbor HH
4. Public tap out of the compound
5. Tube Well /Borehole
6. Protected Spring/Well
7. Unprotected Spring/Well
8. Rain water
9. Tanker Truck
10. River/Lake/Pond/Stream/Irrigation Channel "
11. Lake/Stream/Pond/Surface water
12. Other

SOURCE OF DRINKING WATER

H12: What is the main source of drinking water for members of your household?

1. Internal pipe-born water
2. Pipe-born water in the compound
3. Pipe-born water from the neighbor HH
4. Public tap out of the compound
5. Tube Well /Borehole
6. Protected Spring/Well
7. Unprotected Spring/Well
8. Rain water
9. Tanker Truck
10. River/Lake/Pond/Stream/Irrigation Channel
11. Lake/Stream/Pond/Surface water
12. Mineral water
13. Other

SECTION H: HOUSING CHARACTERISTICS

TYPE OF TOILET FACILITY

H13: "What is the main type of toilet facility used by the members of the household?"
1. Flush toilet used by one Household
2. Flush toilet used by several Households
3. Pit Latrine with constructed floor slab used by one HH
4. Pit Latrine with constructed floor slab used by several HH
5. Pit Latrine without constructed floor slab used by one HH
6. Pit Latrine without constructed floor slab used by several HH
7. Bush
8. Other

MAIN SOURCE OF ENERGY FOR LIGHTING

H14: Is this HH connected to the REG grid line or to other electric lines?
    1.Yes   2.No

H15: What is the main source of energy that the household uses for lighting?

01. Electricity from REG	08. Candles
02. Private Hydro Mini grid	09. Firewood
03. Standalone solar system	10. Batteries
04. Private Solar Mini Grid	11. flashlight /phone flashlight
05. Generator	12. Rechargeable battery
06. Kerosene/ Paraffin lamp	13. Lantern
07. Biogas	14. Other

ENERGY FOR COOKING

H16: "What is the main source of energy the household uses for cooking?"
01. Firewood
02. Charcoal
03. Gas
04. Electricity   11. Peat
05. Kerosene/Parafine   12. sawdust
06. Biogas   13. Straw/shrub/grass
07. Solar power   14. Other(specify)
8. Crop waste   15. Do not cook =>H19
09. Animal dung
10. Briquette

H17: "Is there any additional source of energy the household uses for cooking?" If Yes; which?
01. Firewood
02. Charcoal
03. Gas
04. Electricity
05. Kerosene/Parafine
06. Biogas
07. Solar power
8. Crop waste
09. Animal dung
10. Briquette
11. Peat
12. sawdust
13. Straw/shrub/grass
14. Other(specify)
15. None

ENERGY SAVING STOVE

H18: Does your HH use a cooking energy saving stove? (Do not ask if H16 and H17 responded 3,4,5,6,7)

1. Yes

2. No

MODE OF WASTE DISPOSAL

H19: "What is the main mode of household waste disposal used?"

1. Public Composit dumping
2. Household ompost dumping
3. Waste collection companies
4. Thrown in the household's fields or bushes "
5. Burnt
6. In a River/Stream/Drain/Gutter/lacs
7. Other

MODE OF SEWAGE DISPOSAL

H20: What is the main mode of sewage disposal used by the household?

1. Sump	5. Main sewer
2. In the courtyard	6. Cesspool
3. Rivulet/Trench/Channels	7. Bush
4. In the street	8. Other

HH ASSETS

H21: Does your household has the following assets in functioning Condition ?   1. Yes   2. No

1. Radio		9. Bed	
2. Television		10. Tables	
3. Refrigerator/ Freezer for HH use only		11. Sofa	
		12. Computers	
4. Gas/Electrical Cooker		13. Vehicles for household use only	
5. Washing machine		14. Motorcycles for household use only	
6. Microwave		15. Bicycles for household use only	
7. Mattress		16. Electrical/Charcoal Iron	
8. Bench/Chair			

LIVESTOCK

H22: Does your household has any big /small livestock, beehive or dog?
    1.Yes   2.No   =>H23

H22A: What type of livestock do you have?

Livestock type	SELECT
01. Local breed cows	
02. Exotic breed cows	
03. Cross breed cows	
04. Local goats	
05. Exotic goats	
06. Cross goats	
07. Local sheep	
08. Exotic sheep	
09. Local pigs	
10. Exotic pig	
11. Cross pig	
12. Rabbits	
13. Broiler chicken	
14. Layers chicken	
15. Dual purpose chicken	
16. Local chicken	
17. Duck	
18. Turkey	
19. Other poultry	
20. Camel	
21. Bees hive	
22. Dogs	
23. Others	

B. Institutional Household Questionnaire

REPUBLIC OF RWANDA

MINISTRY OF FINANCE AND ECONOMIC PLANNING		NATIONAL INSTITUTE OF STATISTICS OF RWANDA

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GENERAL POPULATION AND HOUSING CENSUS
16 – 30 AUGUST 2022

Legal Basis: Law n° 45/2013 of 16/06/2013 on the organisation of statistical activities in Rwanda.

CENSUS QUESTIONNAIRE (INSTITUTIONAL HOUSEHOLD)

SECTION IL: LOCALISATION AND IDENTIFICATION OF INSTITUTIONAL HOUSEHOLD

IL01.	PROVINCE/KIGALI CITY :	|__|
IL02.	DISTRICT:	|__|
IL03.	SECTOR:	|__|__|
IL04 .	CELL:	|__|__|
IL05.	VILLAGE:	|__|__|
IL06 .	ENUMERATION AREA (N0 EA) :	|__|__|
IL07.	AREA OF RESIDENCE(1.URBAN 2.RURAL) :	|__|
IL08.	BUILDING NUMBER:	|__|__|__|
IL09.	INSTITUTIONAL HOUSEHOLD NUMBER:	|__|__|__|
IL10.	FOOT PRINT NUMBER (as it is shown on the map) :...	|__|__|__|
IL11.	GPS COORDINATES: Latitude: .... |__|__|__|__|__|__|__| Longitude: .... |__|__|__|__|__|__|__|	
IL12.	DISTANCE:	|__|__|__|
IL13.	HOUSEHOLD TYPE: 1. Private HH 2. Institutional	|___|
IL13A.	ENUMERATION GROUP NUMBER	|___|___|

My names is ...., I work for the National Institute of Statistics of Rwanda as the enumerator of the General Population and housing census. The objective of the general population census is to have the full enumeration of all Rwandan residents as well as their key characteristics; for the planning of the well-being of Rwandan residents. I wish to have an interview that will last 10 min with you. All provided answers will be kept confidential. I hope that you accept the interview as your responses are very important for the country.

| IL14 | CONSENT: 1. Interview accepted =>**P01A**
 2. Interview is not done | \|___\| |
| IL15. | THE REASON OF NO INTERVIEW: 1. Uninhabited dwelling
 2. Dwelling turned into business building
 3. Dwelling destroyed
 4. Refused
 5. All residents are absents during the whole period of enumeration | \|___\| |

SECTION P: CHARACTERISTICS OF THE POPULATION

FOR ALL RESIDENT IN THE INSTITUTIONAL HOUSEHOLD

P01A: Serial Number of the person

P01B : Surname of the person: ……………………………………

P01C: Other names of the Person: ………………………………..

P03 : What is [NAME]'s Sex?   1.Male
2.Female

P04: How old was [NAME] at his/her Last Birthday?
Note: Record age in completed years

P05A: In which month [NAME] was born?

P05B: In which year [NAME] was born?
Note: RECORD 9999, IF THE YEAR IS UNKNOWN

P06 What is [NAME]'s marital status?
ALL RESIDENTS AGED 12 YEARS AND ABOVE

1.Married to one wife/husband officially
2.Married to one wife/husband not officially
3.Live in a polygamous union
4.Divorced
5.Separated
6.Never married
7.Widowed

P07A Is [NAME] usual resident or was a visitor on census night?

1.Usual resident
2. Visitor   => GO TO NEXT PERSON

P07B: Did [NAME] sleep in this household on census night?

1. Yes, slept in this HH (PR)
2. No, did not slip in this HH (AR)

P09A Was [NAME] born in Rwanda or Abroad?
1. Rwanda
2. Abroad   =>P09C

P09B In which District [NAME] was born? => P10A

(SELECT ONE DISTRICT FROM THE LIST OF ALL DISTRICT)

P09C: In which Country [NAME] was born?
(SELECT ONE COUNTRY FROM WORLD COUNTRIES LIST)

P10A: How many years has [NAME] been living continuously
in [District]?
- RECORD 0 IF LESS THAN 1 YEAR
- RECORD 888 IF THE RESIDENCE HAS NOT CHANGED SINCE BIRTH
- IF THE RESIDENCE HAS NOT CHANGED SINCE BIRTH
=>P12B

P10B: Prior to come living in [district], was [NAME] residing in
Rwanda or abroad?
1.Rwanda
2.Foreign Country   =>P11B

P11A In which District [NAME] was residing prior to come living
Here?   =>P12B
(SELECT THE DISTRICT FROM THE LIST)

P11B: In which Country [NAME] was residing previously?
(SELECT ONE COUNTRY FROM OF WORLD COUNTRIES LIST)

P12B: What is [NAME's] Nationality ?

CHOOSE THE NATIONALITY FROM WORLD COUNTRIES LIST

P13 What is [NAME's] Religious affiliation?

01.Catholic
02.Protestant /Pentecost
03. Adventist
04. Other Christians
05.Muslim
06. Jehovah witness
07. Traditional/Animist
08. Other religion
09. No Religion
10. Not stated
99.Do not know

P14: What is [NAME]'s Medical insurance?

1.Mutuelle   5. Employer
2.RSSB (Ex: RAMA)   6. Private insurance companies
3.MMI   7. NGOs
4.Schools   8. None
9. Do not know

DISABILITY: FOR RESIDENT AGED 5 YEARS AND ABOVE

P15A: Does [NAME] have difficulty seeing?
1.Yes
2. No   => P16A

P15AA: Does [NAME] wear glasses?
1.Yes
2. No   => P15B

P15AB: Does [NAME] continue to have difficulties even when wearing glasses?
1.Yes
2. No   => P16A

P15B: Would you say [NAME] has some difficulty seeing, a lot of difficulty or cannot do at all?
0. No, no difficulty   1.Yes   some difficulty
2.Yes – a lot of difficulty   3.Cannot see at all

P16A: Does [NAME] have difficulty hearing ?
1.Yes
2. No   => P17A

P16AA: Does [NAME] use hearing aid?
1.Yes
2. No   => P16B

P16AB: Does [NAME] continue to have hearing difficulties even if
using hearing aid?
1. Yes
2. No   => P17A

P16B: Would you say [NAME] has some hearing difficulty, a lot of difficulty or Cannot do at all?

0. No, No difficulty   1.Yes – some difficulty
2.Yes – a lot of difficulty   3.Cannot hear at all

DISABILITY: FOR RESIDENT AGED 5 YEARS AND ABOVE

EDUCATION: ALL HOUSEHOLD RESIDENTS

SECTION P: CHARACTERISTICS OF THE POPULATION

P17A: Does [NAME] have difficulty walking or climbing steps?

1.Yes
2. No   => P18A

P17B: Would you say some difficulty, a lot of difficulty or cannot do at all?

0. No, No difficulty   1.Yes – some difficulty
2.Yes – a lot of difficulty   3.Cannot walk or climb steps at all

P18A: Using his/her usual (customary) language, does [NAME] have difficulty communicating, for example being understood?

1.Yes
2. No   => P19A

P18B: Would you say some difficulty, a lot of difficulty or Cannot do at all?

0. No, No difficulty   1.Yes – some difficulty
2.Yes – a lot of difficulty   3.Cannot communicate at all

P19A: Does [NAME] has difficulty remembering or concentrating?
1.Yes
2.No   => P20A

P19B: Would you say some difficulty, a lot of difficulty or Cannot do at all?

0. No difficulty   1.Yes – some difficulty
2.Yes – a lot of difficulty   3.Cannot do at all

P20A: Does [NAME] have difficulty with self-care such as washing all over or dressing?

1.Yes
2. No   => P21A

P20B: Would you say some difficulty, a lot of difficulty or Cannot do at all?

0. No, no difficulty
1.Yes – some difficulty
2.Yes – a lot of difficulty
3.Cannot do at all

P21A: Does [NAME] have a short stature?
1.Yes
2.No

P22A: Does [NAME] have a problem with albinism?
1.Yes
2.No

P29: Has [NAME] ever attended or is currently attending school /ECD?
1.Has ever attended
2.Is currently attending
3.Has never attended =>P32

P30A: What is the highest level of education did [NAME] attend or is currently attending?
1.ECD   =>P32
2.Nursery
3.Primary
4.INGOBOKA /Vocational training
5. Lower secondary
6. Upper secondary
7. Tertiary

P30B: How many years of school did [NAME] complete successfully at that level?
WRITTE 99 IF THE NUMBER OF COMPLETED YEARS IS UNKNOWN

P31: What is the highest certificate/degree [NAME] obtained?

1. Primary school certificate
2. Post primary certificate (CE/FM/TVET I/TVET II
3. EMA/ENTA
4. O'level Certificate
5. A3/D4/D5
6. A2/D6/D7
7. TVET certificate III
8. TVET certificate IV
9. TVET certificate V
10. TVET advanced diploma (A1)
11. Diploma(A1): D6+2-3yrs
12. Bachelor(A0): D6+3-6yrs
13. Post Graduate Diploma
14. Masters: Bachelor+1-2yrs
15. Doctorate (PhD)
16. None   99. Do not know

QUESTIONS (P32-P36C) ARE RESERVED FOR PERSONS AGED 10 YEARS OLD AND ABOVE

P32: Can [NAME] read, write and understand the following languages?

MORE THAN ONE LANGUAGE IS ALLOWED READ MODALITIES STARTING BY KINYARWANDA

1. Kinyarwanda   8. Swahili
2. English   16. Other
4. French   0. None

P33: Has [NAME] ever attended or currently attending Informal adult literacy Program?
(RESERVED FOR THOSE WHO ANSWERED P29=3 OR P30A<4 AND P30B<4)
1.Yes, Still Attending
2.Yes, Completed
3.Never attended

EDUCATION: ALL HOUSEHOLD RESIDENTS	FOR RESIDENT WOMEN AGED 10 YEARS AND ABOVE

SECTION P: CHARACTERISTICS OF THE POPULATION

	NOT APPLICABLE FOR RELIGIOUS ORGANISATIONS

P34: Did [NAME] use internet in the last 12 months?
NOT TO BE ASKED FOR PRISONS

1.Yes
2.No =>P36A
9. Do not know=>P36A

P50A: Has [NAME] ever given a live birth?

1.Yes
2.No   => Next Person

P50B_Boys: How many live boys has [NAME] ever had?

P50B_Girls: How many live girls has [NAME] ever had?

P35: Where does [NAME] often access Internet?
1.From Home
2.From work place
3.From School/Place of Education
4.From Another Person's home
5.From Community Internet access facility
6.From cyber café/From Commercial Internet Access facility
7.Other

P50C_Boys: Among those boys how many are still alive?
TO BE ASKED IF P50B_BOYS>0

P50C_Girls: Among those girls how many are still alive?
TO BE ASKED IF P50B_GIRLS>0

P51A: During the 12 months prior to the census night (From 16/08/2021- 15/08/2022) Did [NAME] give a live birth?

1.Yes
2.No   => Next Person

P36A: Does [NAME] own a mobile phone?
1. Yes
2. No => P50A IF SHE IS A FEMALE AGED 10YEARS AND ABOVE.
        OTHERWISE GO TO NEXT PERSON
NOT TO BE ASKED FOR PRISONS

P36 C: What type of mobile phone does [NAME] have?

1.Smart phone
2.Ordinary phone with radio
3.Ordinary phone without radio

IF ONE OWNS BOTH TYPES CHOOSE SMART PHONE

P51B_Boys: How many live boys did [NAME] have during the 12 Months prior to the census night (From 16/08/2021-15/08/2022)?

P51B_Girls: How many live girls did [NAME] have during the 12 Months prior to the census night (From 16/08/2021-15/08/2022)?

P51C_Boys: Among those boys how many are still alive?
TO BE ASKED IF P51B_BOYS>0

P51C_Girls: Among those girls how many are still alive?
TO BE ASKED IF P51B_GIRLS>0
        => GO TO NEXT PERSON

ANNEX 3: GLOSSARY OF KEY TERMS AND DEFINITIONS

This Glossary provides definitions of key concepts and indicators used in the thematic reports of the Fourth Rwanda Population and Housing Census (RPHC4). Readers are referred to the methodological sections of the respective reports for a more detailed technical explanation of indicators.

A3.1. Population and demographic characteristics

Residents: persons who have lived for more than six months in the place where they were enumerated or who intended to live for more than six months in that place. They represent the population usually living in a place. Residents could be:

- **Present residents:** present in their place of usual residence on the reference night; or
- **Absent residents:** not present in their place of usual residence on the reference night. The person must be absent for a period shorter than or equal to six months.

Visitors: persons who were not usual residents of the household. They might be residents in another place in Rwanda, and thus absent residents in that place, or non-residents of the country, for example tourists present at the moment of the Census.

De facto population (present residents + visitors): includes all persons physically present in the country or area at the reference date.

De jure population (present residents + absent residents): includes all usual residents of the given country or area, whether or not they were physically present in the area at the reference date. The de jure population is also referred to as the (usual) resident population. Most of the analysis presented in these thematic reports is based on the de jure population.

Age-dependency ratio: is measured as the ratio between those typically not in the labour force and the age group typically in the labour force. Using the national definition of working age, it is defined as the sum of persons aged 0 to 15 and elderly people aged 60 and above, divided by the population in the 16 to 59 age group, multiplied by 100. For international comparisons, age groups 0 to 14 and 65 and above are used to identify dependents.

Population pyramid: graphically displays a population's age and sex composition. Horizontal bars present the numbers (or percentages) of males and females in each age group or at each individual age. The sum of all the age/sex groups in the population pyramid equals the total population.

Sex: refers to the classification of people as male or female, based on biological and physiological characteristics such as chromosomes, hormones, and reproductive organs.

Sex ratio: the number of males per 100 females in the population. A sex ratio of 100 would imply that there are as many males as females.

Disability status: characterises the population into those with and without a disability. The 'International Classification of Functioning, Disability and Health' defines disability as 'an umbrella term for impairments, activity limitations and participation restrictions. It denotes the negative aspects of the interaction between an individual (with a health condition) and that individual's contextual factors (environmental and personal factors).' The following limitations in activity functioning are considered in the RPHC4: seeing, hearing, speaking, walking/climbing, learning/concentrating and another type of difficulty/disability.

Total fertility rate (TFR): refers to the average number of children a hypothetical cohort of women would have at the end of their reproductive period during their lifetime if they were subject to experiencing the ASFRs of a given period. It is calculated by summing the ASFRs and multiplying the sum by the width of the age interval. The indirect estimate of TFR for Rwanda is obtained by applying the Arriaga (ARFE2) method after adjusting the ASFRs using the El Badry correction procedure.

Age-specific fertility rate (ASFR): refers to the number of births to women in a specific age group, divided by the number of women in that age group.

The ASFR is expressed as number of births per 1,000 women.

Mean age at childbearing: the mean age of mothers at the time of the birth of their children if women were subject throughout their lives to the ASFRs observed in a given year.

Parity: the number of children born alive to a woman. Zero parity women are those with no live births and single parity refers to those women who have one child and so on.

Nuptiality: refers to marriage as a population phenomenon, including the rate at which it occurs, the characteristics of people united in marriage, and the dissolution of such unions (through divorce, separation, widowhood, and annulment). The question on marital status was formulated as follows: 'what is [name]'s marital status?' Men in marital union were further asked the type of union, whether it is a monogamous or a polygamous union, and the age at first union. Women in union were asked about their rank as spouse and their age at first union.

Marital status: personal status of each individual in relation to the marriage laws or customs of the country and defined in the Census in five categories: *Never married*: an individual who has never been in a union; *Married*: an individual who was in marital union at the moment of the Census, legally or not; *Divorced*: an individual who has been separated from his or her spouse through a court decision, according to legislation; *Separated*: an individual who has separated temporarily from his/her spouse and is awaiting the court decision; *Widowed*: a man or a woman who has lost his or her spouse by death, not yet remarried. The marital status of all usual residents aged 12 and above is enquired about in the Census questionnaire.

Monogamous: is defined as having one spouse. This indicator is only calculated for currently married or separated males aged 12 and above living in private households.

Polygamous: is defined as having more than one spouse. This indicator is only calculated for currently married or separated males aged 12 and above living in private households.

A3.2. Housing and household characteristics

Housing unit: a separate and independent place of abode intended for habitation by a single household or one not intended for habitation but occupied by a household at the time of the Census. The essential features of housing units are separateness and independence.

Household: the concept of the household is based on the arrangements in regard to food or other essentials for living. One household occupies a single housing unit.

Private household: consists of one or more persons living together and sharing at least one daily meal. Persons in a private household may or may not be related, or may constitute a combination of persons both related and unrelated. In order to facilitate analysis of the de jure population (usual residents) across thematic reports, private households were further categorised as follows:

a) Households where there is at least one usual resident in the household (present or absent resident); and
b) Households consisting only of visitors (e.g. households found during the Census in their holiday homes, etc.)

Subsequently, and across all thematic reports, any analysis of the characteristics of 'private households' will refer to the definition in (a) above, whereas analysis of 'private housing units' will refer to households under both (a) and (b).

Institutional household: comprises a group of persons who are being provided with institutionalised care, and includes educational institutions, health care institutions, military institutions, religious institutions, or institutions for the elderly or persons with disabilities. In the RPHC4, persons who were homeless on the night of the Census were also classified as belonging to an institutional household.

Head of household: refers to a person recognised as such by the respondent. Every private household has one and only one household head.

Sources of drinking water: have been split into improved and unimproved sources. Improved sources include internal pipe-borne water, pipe-borne water in the compound, public tap outside the compound, protected spring/well, and rain water. These categorisations are based on the definition developed by the World Health Organization (WHO)

and the United Nations Children's Fund (UNICEF) Joint Monitoring Programme (NISR, n.d.) in 2010. Unimproved sources include unprotected springs/wells, rivers and lakes/streams/ponds/surface water.

Housing tenure: refers to legal occupation of the dwelling. Usually, occupancy here is defined as owner, tenant, hire purchase, free lodging, staff housing or refugee/temporary camp settlement.

A3.3. Education

Education system (Rwanda) and degrees/certificates: the education system in Rwanda is organised in four levels:

- **Pre-primary education:** is organised in nursery schools for a period of three years for children between the ages of three and six.
- **Primary education:** lasts for six years and the official age at this level is seven to 12.
- **Secondary education:** lasts for six years and the official age for this level is 13 to 18. It is composed of lower secondary (the first three years – often referred to as Tronc Commun) and upper secondary (the second three years). The following certificates and/or diplomas were or are currently awarded at this level of education:
    - i) **ENTA:** (*Ecole Normale Technique Auxiliaire*) – a certificate awarded upon successful completion of five years of secondary school. This type of certificate is no longer available.
    - ii) **A3/D4/D5**: certificates awarded upon successful completion of three, four or five years of secondary school. This type of certificate is no longer available.
    - iii) **A2/D6/D7**: certificates awarded upon successful completion of six or seven years of secondary school.
    Previously, **post-primary education** constituted an alternative to lower secondary school that targeted specialised fields of study and allowed students, after

successfully completing three years of study, to either: i) enter upper secondary level or ii) enter the labour market. Some disaggregations by highest level attended may group post-primary and secondary education. The following certificates and/or diplomas were awarded at this level of education:
- i) **EMA** (*Ecole des Moniteurs Auxiliaire*): a certificate awarded upon successful completion of two years of post-primary education, when this level existed in the education system.
- ii) **CE/FM** (*Centre d'Enseignement Rural Artisanal Integré/Certificat d'Etude Familiale*): a certificate awarded upon successful completion of three years of post-primary education.
- **Tertiary education:** the duration of tertiary education varies between three and six years according to the institution and the field of study. The following certificates and/or diplomas were or are currently awarded at this level of education:
    - i) **Bacc/diploma**: a degree previously awarded upon successful completion of two years of university. It is no longer available.
    - ii) **Bachelor's**: a degree awarded upon successful completion of four years of university.
    - iii) **Master's**: a degree awarded to a university graduate upon his/her

iv) **PhD**: a degree awarded to a university graduate upon his/her successful completion of a doctoral programme, usually lasting between three and four years.

Highest level of education attended: current or previous attendance at any regular accredited educational institution or programme, public or private, for organised learning at pre-school, primary, post-primary, secondary, university level – or none.

Net Attendance Ratio (NAR): attendance of the official age group for a given level of education expressed as a percentage of the corresponding school-age population.

Literacy: the ability to both read and write with understanding (self-reported). A literate person is one who can both read and write a short, simple statement on his or her everyday life. An illiterate person is one who cannot, with understanding, both read and write such a statement. Hence, a person capable of reading and writing only figures and his or her own name should be considered illiterate, as should a person who can read but not write as well as one who can read and write only a ritual phrase that has been memorised. Literacy is recorded in the following languages: Kinyarwanda, English, French and Other.

A3.4. Employment/economic activity

Working age: even though the minimum working age specified in the labour law of Rwanda is 16, the 2012 RPHC collected data on the economic activities of persons aged five and above. The official retirement age is 60, but there is no upper limit to the working age in the Rwandan context. Employment indicators are computed for the resident population aged 16 and above, except for the analysis of children in employment.

Employed population: refers to persons who worked at least one hour in the seven-day period before the Census night, or who were temporarily absent from a job, or who were engaged in productive activities during the reference period, including: farming/rearing animals/fishing; production; services/selling; and domestic work at someone else's house.

Unemployed population: refers to persons who, during the seven-day period before the Census night, were without work but available for work. This constitutes the 'relaxed' definition of unemployment, as the condition of *seeking* work during the reference period is not taken into consideration.

Economically active population/labour force: refers to the sum of the employed and unemployed populations.

Inactive population: refers to persons who during the seven-day period before the Census night were without work and not available for work. These include persons looking after the house/family, students, people who have retired and persons who consider themselves too old to work.

Labour force participation rate (LFPR): defined as the ratio of the active population to the sum of the active and inactive population, expressed in percentage terms. Persons whose economic activity status has not been stated are excluded from the calculation of the LFPR.

Unemployment rate: defined as the ratio of unemployed to the labour force, expressed in percentage terms.

Status in employment: the International Standard Classification of status in employment identifies the following statuses: *employees* are persons working in paid (wage/salary, in-kind) employment; *employers* are persons on own account or with one or a number of partners in a self-employed job who engage one or more employees on a continuous basis; the *self-employed* are persons on own account or with one or a number of partners in a self-employed job not engaging any employee on a continuous basis; *contributing family workers* are persons working for

an establishment operated by a household member who cannot be regarded as a partner; and *members of producers' cooperatives* are persons working in a cooperative producing goods and services, in a self-employed job, not engaging any employee on a continuous basis.

Main industry and main occupation: the classifications of the main branch of economic activity are based on the International Standard Industrial Classification (ISIC), version 4 and the classifications of the main occupation are based on the International Standard Classification of Occupations (ISCO), version 4.

Economic dependency ratio: is measured as the ratio between economically dependent persons (sum of unemployed, inactive, and children aged five and under) and employed persons, multiplied by 100. An economic dependency ratio of 100 would imply that one employed person has to support one economically dependent person.

A3.5. Socio-cultural characteristics

Religion: the following nine response options were offered to measure religious affiliation in Rwanda: Catholic, Protestant, Adventist, Jehovah's Witness, other Christian religion, Muslim, traditionalist/animist, other religion and no religious affiliation

Nationality: nationality means the state of being legally a citizen of a particular country or the legal right of belonging to a particular nation whether by birth or naturalisation. Types of nationality are identified as single and dual nationality, which refers to the state of being a citizen of two countries. Article 7 of the Constitution of Rwanda specifies that persons of Rwandan origin, along with their descendants, have the right to acquire Rwandan nationality on demand. The same article provides allowance for dual nationality.

ANNEX 1: PERSONS AND INSTITUTIONS THAT CONTRIBUTED TO THE FIFTH RWANDA POPULATION AND HOUSING CENSUS, 2022

A. National Census Task Force

Institutions

Office of the President of the Republic of Rwanda

Office of the Prime Minister

Ministry of Finance and Economic Planning

Ministry of Local Government

Ministry of Defense

Ministry of Interior

Ministry of Health

Ministry in Charge of Emergency Management

Ministry of Foreign Affairs and Cooperation

Ministry of Education

Ministry of ICT & Innovation

Ministry of Public Service and Labour

Ministry of Infrastructure

Rwanda Information Society Authority

Office of Government Spokesperson

Rwanda National Police

Rwanda Correctional Service

Rwanda Public Procurement Authority

Rwanda Utilities Regulatory Authority

Rwanda Broadcasting Agency

Rwanda Education Board

National Examination and School Inspection Authority

Rwanda Biomedical Centre

Representatives of all Religious Confessions

Branches of the National Census Task Force

Members of the task Force at Province and the City of Kigali

Office of the Lord Mayor, City of Kigali

Office of the Governor, Southern Province

Office of the Governor, Western Province

Office of the Governor, Northern Province

Office of the Governor, Eastern Province

Representatives of all Religious Confessions

Members of the Branches of the Census Task Force at District Level

Office of the District of Nyarugenge

Office of the District of Gasabo

Office of the District of Kicukiro

Office of the District of Nyanza

Office of the District of Gisagara

Office of the District of Nyaruguru

Office of the District of Huye

Office of the District of Nyamagabe

Office of the District of Ruhango

Office of the District of Muhanga

Office of the District of Kamonyi

Office of the District of Karongi

Office of the District of Rutsiro

Office of the District of Rubavu

Office of the District of Nyabihu

Office of the District of Ngororero

Office of the District of Rusizi

Office of the District of Nyamasheke

Office of the District of Rulindo

Office of the District of Gakenke

Office of the District of Musanze

Office of the District of Burera

Office of the District of Gicumbi

Office of the District of Rwamagana

Office of the District of Nyagatare

Office of the District of Gatsibo

Office of the District of Kayonza

District of Office of the Ngoma

Office of the District of Bugesera

B. Census Technical Team

National Directors
Murangwa Yusuf, Director General of NISR
Murenzi Ivan, Deputy Director General of NISR

National Census Technical Director
Habarugira Venant, Director of Census Unit, NISR

Census National Coordinators
Habarugira Venant
Byiringiro James
Mutijima Prosper
Bigirimana Florent
Ndakize Michel
Munyarugerero Juvenal

Census National Field Coordinators

Habarugira Venant	NISR	Lt Col Rusizana Deo	RDF
Byiringiro James	NISR	CSP Rubayiza Venant	RNP
Mutijima Prosper	NISR	SP Habinshuti Emmanuel	RCS
Bigirimana Florent	NISR	Karagire Gonzague	MINEMA
Ndakize Michel	NISR		
Munyarugerero Juvenal	NISR		
Lt Col Ndikuriyo Jean Paul	RDF	CIP Habineza Hamiss	RCS
Maj Rugema Ntazinda	RDF	CIP B Karemera	RCS
Capt Mugemanyi Faustin	RDF	CIP Mukambarushimana Irene	RCS
Lt Muteteri Sophie	RDF	IP Karugaba Donath	RCS
SP Ndayisenga Alex	RNP	S/SGT Gatete Edison	RCS
SP Nzabonimpa Joseph	RNP	Mukansonera Pascasie	MINEMA
CIP Nzeyimana Florent	RNP	Murangasabwe Emma Marie	MINEMA
CIP Nayihiki Elam	RNP	Mbabazi Emmanuel	MINEMA
AIP Tuyishime Emmanuel	RNP	Uwamurera Odette	MINEMA
		Musoni Jean Damascene	MINEMA

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Karera Albert
Hakizimana Celestin
Habimana Norbert
Ngabo Muhire Olympe
Kabera Jean Luc
Segahwege Astrid
Ndizeye Job
Ntawiha Athanasie
Munderere Theophile
Nshimiyimana Patrick
Uwimbabazi Denyse

Post Enumeration Survey
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Uwimana Therese
Muhoza Didier
Uwimbabazi Denise
Harerimana Massoud
Nshimiyimana Clement
Uwamahoro Sandrine
Iranzi Orodha
Hagenimana Jean damascene
Ntagengerwa Bonus
Gaga Rukorera Didier
Mugenzi Gilbert
Nahimana Samuel
Akingeneye Seraphine
Ntambara Juvenal
Kambogo Francois
Bosco Ndayiragije
Patrick Niyongira

Census District Team Leaders
30 (1 per District)

District Data Quality Monitors (60)
60 (2 per District)

Sector Data Quality Monitors
1,277 (416 Sector Education Inspectors, 416 primary school teachers, and 445 youths)

Enumerators
26,437 (Primary School Teachers + Youth)

Special Groups Supervisors: 32
Special Groups Enumerators: 289

Data Processing, Cartography and ICT Infrastructures

Programmer:
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Assistant Programmers:
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Nshimiyimana Clement

Census Data Analysis

National Data Analysts

Imanishimwe Valentine	Population size, structure& spatial distribution
Nilingiyimana Faustin	Marital status & nuptiality
Uwayezu Beatrice	Fertility
Kanyonga Ingabire Evelyne	Mortality
Mukazitoni Madeleine	Social cultural characteristics of the population
Serugendo Jean Baptiste	Migration and spatial mobility
Nzabonimpa Jean Claude	Characteristics of housing and households
Uwamahoro Pacifique	Economic Activity
Abalikumwe Francois	Measurement& mapping of non-monetary poverty
Uwitonze Martin	Education
Tuyisenge Methode	Gender status
Rukundo Ephrem	Socio-economic status of persons with disabilities
Bizimana Venuste	Socio-economic status of children
Ngomituje Xavier	Socio-economic status of youth
Didas Uwamahoro	Socio-economic status of aged people
Buramba Eric	Agriculture
Habarugira Venant	Population Projections
Nyabyenda Emmanuel Christian &Tuyisenge Methode	Compilation of the Main Indicators

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Neza Nadege

Corporate Services

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Ingabire Alice	Ag. Director of HR and Admin.	Nzayisenga Cyrile	Logistics Officer
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Munyemana Silas	Director of Finance	Muhima Jadot	Accountant
Nshimiyumukiza Steven	Accountant	Sibomana Diane	Accountant
Uwizeye Richard	Financial specialist	Dusenge Elias	Office Messenger
Munezero Nadia	Planning office	Uwamahoro Console	Secretary/Finance Unit
Mupende Emmanuel	M& E specialist	Shumbusho Alphonse	Procurement Specialist
Tuyisenge Alice	HR Officer	Nkurunziza Godfrey	Procurement Officer
Ntwali Abdul	HR Officer	Nshuti Henry	Procurement Support Staff
Kazimbaya Sita	Office Messenger	Umuhoza Nahayo Anaise	Procurement Support Staff
Ndungutse Emmanuel	Printing and Distribution Officer	Tuyisenge Yasin	Logistics Support Staff
Babyeyi Nadine	Ag. Head of Central Secretariat	Riziki Emma	Finance Support Staff
Uwimpuhwe Claire	SPIU Secretary	Iradukunda Pascasie	Finance Support Staff
Rutijanwa Felecite	Administrative Assistant/DG Office	Uwimana Thacienne	HR Support Staff
Umwari Angelique	Administrative Assistant/DDG Office	Musonerwa Claver	HR Support Staff
Murebwayire Theodette	Logistics Officer	Umutoni Alice	Secretary Census Unit

Proofreading of thematic reports

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Munana Jean de Dieu	MINIYOUTH	Ntirampeba Sylvere	MIFOTRA
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