Comprehensive Food Security & Vulnerability Analysis

(CFSVA)

Rwanda

December 2018

Data collected in
March-April 2018

MINAGRI

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Rwanda 2018 | Comprehensive food security and vulnerability analysis

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http://www.wfp.org/food-security and www.statistics.gov.rw

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Acronyms and abbreviations

CARI	Consolidated Approach for Reporting Indicators of food security
CFSVA	Comprehensive Food Security and Vulnerability Analysis
CI	Confidence Interval
CIP	Crop Intensification Programme
CSB	Corn Soya Blend
DHS	Demographic Health Survey
DRC	Democratic Republic of Congo
EAC	East African Community
EDPRS	Economic Development and Poverty Reduction Strategy
EICV4	Fourth Integrated Household Living Conditions Survey
ENA	Emergency Nutrition Assessment
FAO	Food and Agricultural Organization of the United Nations
FBF	Fortified Blended Foods
FCG	Food Consumption Group
FCS	Food Consumption Score
FCS-N	Food Consumption Score-Nutrition
FSI	Food Security Index
GDP	Gross Domestic Product
HDDS	Household Dietary Diversity Score
HH	Household
IYCF	Infant and Young Child Feeding
MAD	Minimum Acceptable Diet
MDD-W	Minimum Dietary Diversity for Women
MINAGRI	Ministry of Agriculture and Animal Resources
MINALOC	Ministry of Local Government
MIDIMAR	Ministry of Disaster Management and Refugees
MINEMA	Ministry in charge of Emergency Management (Former MIDIMAR)
mt	Metric Ton
MUAC	Mid-Upper Arm Circumference
NDVI	Normalized Difference Vegetation Index
NGO	Non-Governmental Organization
NFNP	National Food and Nutrition Policy
NISR	National Institute of Statistics of Rwanda
rCSI	Reduced Coping Strategy Index
RWF	Rwanda Franc
SD	Standard Deviation
SPSS	Statistical Package for Social Sciences
TLU	Tropical Livestock Unit
U5	Under 5 years of age
UNICEF	United Nations Children's Fund
USD	United States Dollar
VAM	Vulnerability Analysis and Mapping
VUP	Vision 2020 Umurenge Programme
WFP	United Nations World Food Programme
WHO	United Nations World Health Organization
Z-score	Standard score, normal score

Foreword

This Comprehensive Food Security and Vulnerability Analysis (CFSVA) 2018 measures the extent and depth of food and nutrition insecurity in Rwanda, observes trends over time, and analyses the socio-economic and demographic determinants linked to food and nutrition insecurity. The report provides insight into the following key questions:

- Who are the people currently facing food insecurity and malnutrition?
- How many are they?
- Where do they live?
- Why are they food insecure and/or malnourished?
- How can food assistance and other interventions make a difference in reducing food insecurity and malnutrition and in supporting livelihoods?

The 2018 CFSVA marks the fifth time that this type of survey has been conducted in Rwanda. The previous analyses took place in 2006, 2009, 2012, and 2015 under the overall leadership of the National Institute of Statistics Rwanda. The results of this CFSVA highlight the continuing positive trends from previous studies, namely that since 2006, Rwanda has taken great strides in reducing poverty and malnutrition in the country.

Although stunting rates have decreased over the past three years, the findings of the study reiterate that food access, food consumption, and chronic malnutrition remain issues that still need to be tackled hand-in-hand with poverty. Moreover, specific attention to household resilience to weather-related hazards needs to be raised as climate-related shocks increasingly contribute to chronic food access issues.

We are convinced that the analysis provided in this report of the underlying causes of both food insecurity and chronic malnutrition in Rwanda and the concrete recommendations herein will guide readers, planners, policymakers, and decision-makers with an evidence-based and informed approach towards tackling food insecurity and malnutrition in Rwanda.

Yusuf Murangwa

Director General

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Acknowledgements

This Comprehensive Food Security and Vulnerability Analysis (CFSVA) 2018 is a joint initiative between the National Institute of Statistics Rwanda (NISR), the Ministry of Agriculture and Animal Resources (MINAGRI), and the World Food Programme (WFP).

The analysis was coordinated by the CFSVA technical committee composed of the NISR, MINAGRI, and WFP in partnership with the Ministry of Local Government (MINALOC), Ministry of Health (MoH), and the National Early Childhood Development Programme (NECDP), under the Ministry of Gender and Family Promotion (MIGEPROF).

The 2018 CFSVA was made possible, thanks to the generous financial support from the European Union (EU), the United States Agency for International Development (USAID), The United Nations Children's Fund (UNICEF), and the World Food Programme (WFP). MINAGRI contributed both in cash and in kind towards the training, supervision, and transport of enumerators and team leaders, and review of the report.

We would also like to acknowledge the hard work of the data collectors and generosity of the 9,709 heads of households who devoted their time to sit down with enumerators and answer all the questions of the survey.

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Lastly, we appreciate the contribution of the 2018 CFSVA technical committee, which participated in and validated each step of the survey and proofread and approved the report prior to publication.

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Permanent Secretary

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Key findings

Household food security	81.3 percent of all households (about 2,034,942 households) are food secure (i.e., they are able to meet essential food and non-food needs without engaging in atypical coping strategies), have an acceptable diet, and use a low share of their budget to cover food needs. Among these, 38.6 percent (966,160 households) are considered marginally food secure, meaning that they are at high risk of becoming food insecure. In total, 18.7 percent (468,062 households) are food insecure: out of these, 1.7 percent (42,551 households) are severely food insecure.
Geographical location of food insecure households	The Western Province has the highest prevalence of food insecure households (29.9 percent), followed by the Southern Province (20.5 percent), Northern Province (17.8 percent) and Eastern Province (16.2 percent). The lowest prevalence of food insecurity was in the City of Kigali (2.2 percent of moderately food insecure). While the Western Province maintains the larger proportion of food insecure households, the situation in this province has steadily improved since 2015, with a decrease of 3.4 percent severely food insecure households. The food security situation has improved in 18 out of 30 districts all over the country, with the greatest improvement in Bugesera (+19.7 percent of food secure households). However, food insecurity remains high in Rutsiro (49 percent of food insecure households) and Ngororero (41 percent) and has greatly increased in Kayonza (+21.9 percent) to reach 32.8 percent.
Food availability	The main staple foods (maize, beans, sweet potato and Irish potato) were available in markets at the time of survey. Pulses, roots and tubers are produced within the country while there is an increase in importation of cereals, flours and seeds mainly from neighbouring countries. From the agricultural survey, food production for season 2018A increased compared to season 2017A. According to households, food stocks from season 2018A last 3 months for beans, tubers and roots but only 2 months for maize. Most farmers sell their agricultural production in order to get cash for other food, non-food items and services. Outside the City of Kigali, approximately one out of two households raised livestock, with more than 60 percent rearing livestock for their own food consumption.
Food consumption and nutrient value of food consumed	Overall trends since 2009 show no significant changes in food consumption. In 2018, 20 percent of households had borderline food consumption and 4 percent poor food consumption, which reflects an extremely unbalanced diet that is devoid of protein and comprised chiefly of starch together with some vegetables and pulses. These households do not consume any animal protein, dairy products, or fruits. Overall, 95 percent of households consumed plant based vitamin A-rich food at least once a week and 69 percent consumed protein-rich food daily, but only 21 percent of households consumed the heme iron-rich foods at least once a week. At the district level, food consumption has improved in 17 districts since 2015; but Rutsiro District remained, by far, the most food insecure district with the 62 percent of inadequate food consumption. Food consumption significantly deteriorated in Kayonza, Ngororero, and Kamonyi Districts.

Food access issues and shocks	Compared to 2015, more households reported having experienced shocks and faced food access issues. Around 40 percent of households reported having experienced at least one shock or an uncommon situation during the last 12 months that affected their access to food. The most commonly reported shocks were weather related, such as drought, irregular rains, or prolonged dry spells, which mainly affected the Eastern and Southern Provinces. Besides shocks, two third of households reported having food access issues over the past 12 months prior to the survey and 40 percent faced seasonal food access difficulties, which had doubled since 2012. Almost half of the households in Ubudehe 1 and low-income farmers reported seasonal food access issues.
Resilience and coping strategies	53 percent of households reported using livelihood coping strategies to face food shortages during the month before the survey. Half of them were engaged in crisis coping strategies like harvesting immature crops, consuming seeds stocks, or decreasing expenditures on productive assets, which may seriously impact household's future resilience. Around 30 percent of households in Ubudehe 1 used crisis strategies and 10 percent used emergency strategies, which may irreversibly affect households' livelihood and resilience to future shocks.
Market	Around 65 percent of food consumed by households is purchased in the market. Most of the food expenditure is dedicated to cereals. Overall economic access to food has improved with more households spending less than half of their budget to purchase food compared to 2015. However, one third of households borrowed food or purchased food on credit in the month before the survey. Physical access to market remains an issue in some areas with steep geographic terrain, like the Western Congo Nile Crest, especially during the rainy season.
Profile of the food insecure	The profile of food insecure households has not changed since the last CFSVA in 2015. Food insecure households were among the poorest (32 percent of households in Ubudehe 1 and 19 percent of households in Ubudehe 2). They have few active members and are more often headed by a person with a low level of education, a single person, or a disabled person. Food insecure households mainly depend on agriculture daily labour, on their own agricultural production (low-income farmers), unskilled daily labour, or on external support for their livelihoods. Food insecure households engaged in agriculture have no land or a land smaller than 0.5 ha and which is likely not included in the land consolidation programme. They cultivate few crops (2-3) and are less likely to have a vegetable garden or to practice land conservation. They do not raise livestock or raise only a few small ones and do not consume their own animal products.
Gender aspects on food security	Female headed households are more prone to be food insecure (23 percent) than male-headed households (17 percent) because proportionally, more female-headed households have an inadequate food consumption, spend a larger part of their budget for food, and are more engaged in livelihood coping strategies. Female headed households are poorer, with around 31 percent classified in Ubudehe 1 against 11 percent of male headed ones. Female heads of households are often widows or separated and their households have a

	lower number of active members. Around one female head out of two attended school against 80 percent of male heads of households. Female heads of households are mainly engaged in small agricultural production or agricultural daily labour which are the lowest forms of paid work, while male headed have more diversified livelihood activities like salaried work, business, or skilled labour.
Malnutrition for children 6-59 months	Chronic malnutrition (stunting) for children 6-59 months has dropped from 37 percent to 35 percent between 2015 and 2018. The prevalence of wasting is 2.0 percent, underweight is 12.6 percent, and overweight is 2.4 percent.
Geographic location of malnutrition	Stunting prevalence rate significantly decreased from 24.8 percent in 2015 to 12.9 percent in 2018 in the City of Kigali but remains serious and the highest in the Western Province at 44 percent. The stunting rate is above the WHO critical threshold (> 40 percent) in eleven districts of which Rutsiro (54 percent), Nyabihu (53 percent), and Rubavu (50 percent) have the highest stunting prevalence followed by Burera (49 percent), Ngororero (48 percent), Nyaruguru (48 percent). In terms of livelihood zones, stunting is the highest in the Northern Highland Beans and Wheat Zone and in the Western Congo-Nile Crest Tea zone.
Child diet	Infant and young child feeding (IYCF) practices remain inadequate: no more than 17 percent of children achieved the minimum acceptable diet (MAD) based on dietary diversity and meal frequency. Rwandan children 6-23 months ate an average of 3 food groups per day twice a day, meaning that at least one more food group and at least one more feeding time per day is needed to achieve MAD.
Factors associated with malnutrition	Stunting is related to child age and sex. Boys are more likely to be stunted than girls, especially towards reaching one year of age. Children who suffered from diarrhoea in the two weeks before the survey were also more likely to be stunted. The mother's food consumption and level of education influence child stunting. More children met the requirement for the minimum acceptable diet if their mother had good dietary diversity. Child stunting prevalence reached 47 percent with uneducated mother and decreased to 20 percent if the mother had completed secondary school. Children in poor, food insecure households and/or in households with three or more children under 5 were more likely to be malnourished.
Assistance	Overall, 22 percent of households had received some type of assistance during the 12 months prior to the survey but mainly targeted the poorest (75 percent of the households in Ubudehe 1 and 20 percent in Ubudehe 2). Households benefitted mainly from financial assistance like VUP public work, VUP direct support or MINAGRI Girinka programme and from medical services or free food distribution provided by the Government, assisted by NGOs for non-food assistance.

1. Background

1.1. Geographic context

Located in Central Africa, Rwanda is a land-locked country of 26,338 square kilometers bordering Uganda, Tanzania, Burundi, and the Democratic Republic of the Congo.

Administrative divisions of the country include five provinces: Northern Province, Western Province, Southern Province, Eastern Province, and the City of Kigali. Rwanda is further divided into 30 districts, 416 sectors, 2,148 cells and 14,837 villages, which are the smallest politico-administrative entities of the country (MINALOC, 2014).

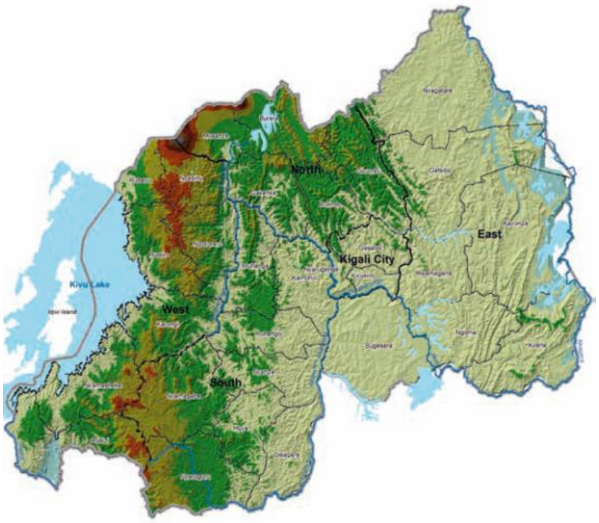
Because of its mean elevation of approximately 1,600 meters, Rwanda enjoys a temperate, sub-equatorial climate with average yearly temperatures of around 18.5 °C. Average annual rainfall is 1,250 millimeters, occurring over two rainy seasons of differing lengths that alternate with one long and one short dry season. The country is ecologically diverse with three distinct geographic areas:

(i) The western and north-central regions of Rwanda are made up of the mountains and foothills of the Congo-Nile Crest with the Northern highlands intercut by steep valleys and elevations that exceed 2,000 meters. The climate is cool and wet with annual rainfall ranging from 1,200-2,000 millimeters.

(ii) The central mountainous terrain of rolling hills has an average elevation that varies between 1,500 and 2,000 meters.

(iii) The eastern plateau comprises hills that gradually level into flat lowlands interspersed with a few hills and lake-filled valleys. The elevation of this region is generally below 1,500 meters. The climate is relatively warmer and drier and the average annual rainfall is in the range of 800-1,200 millimeters.

Map 1: Elevation map of Rwanda



Source: Rwanda Natural Resources Authority 2009

1.2. Natural risk and hazard

Rwanda is highly prone to five natural hazards: droughts, landslides, floods, earthquakes, and windstorms, which impose negative economic and social impacts on its development.

Rwanda's drought vulnerability is high. Agricultural vulnerability to drought decreases moving from the eastern part to the western part of the country. Severe drought in Seasons A and B impact, about 28,500 and 157,700 people respectively in all seven districts of the Eastern Province (Kayonza, Gatsibo, Kirehe, Nyagatare, Rwamagana, Ngoma and Bugesera). A total of about 62,000 mt and 157,700 mt of major crops are vulnerable to severe drought in Season A and Season B, respectively. Banana, cassava, and Irish potato are the most vulnerable crops.

The highlands of the Congo-Nile Ridge in the Western, Southern, and Northern Provinces are prone to landslides due to their moderate to very high slope susceptibility, with about 40 percent of the country's population exposed to this risk.

Regions around the five catchment areas of Nyabarongo, Sebeya, Nyabisindu, Mukungwa, and Kagitumba are prone to floods on a 25-year return period.

Approximately 2.8 million Rwandans are exposed to windstorms at intensities of moderate gale to strong gale across 13 districts.

The earthquake vulnerability of Rwanda is also significant, with the entire population exposed to this risk. Earthquake intensity varies from MMI[1] V to MMI VII based on two scenarios of 2,475-year and 475-year return periods. MMI VII is the highest earthquake intensity recorded in the western part of the country.

The country could incur huge economic losses from disasters triggered by drought, landslide, earthquake and windstorm. For instance, the total economic cost of vulnerable crops in the drought-prone areas could be estimated approximately at 8.8 billion Rwandan francs according to both drought hazard scenarios for Seasons A and B. These crop failure related losses are concentrated mainly in the Eastern Province, in particular, Kayonza, Kirehe and Gatsibo Districts where the highest losses are predicted under Season B.[2]

[1] Modified Mercalli Intensity (Scale)

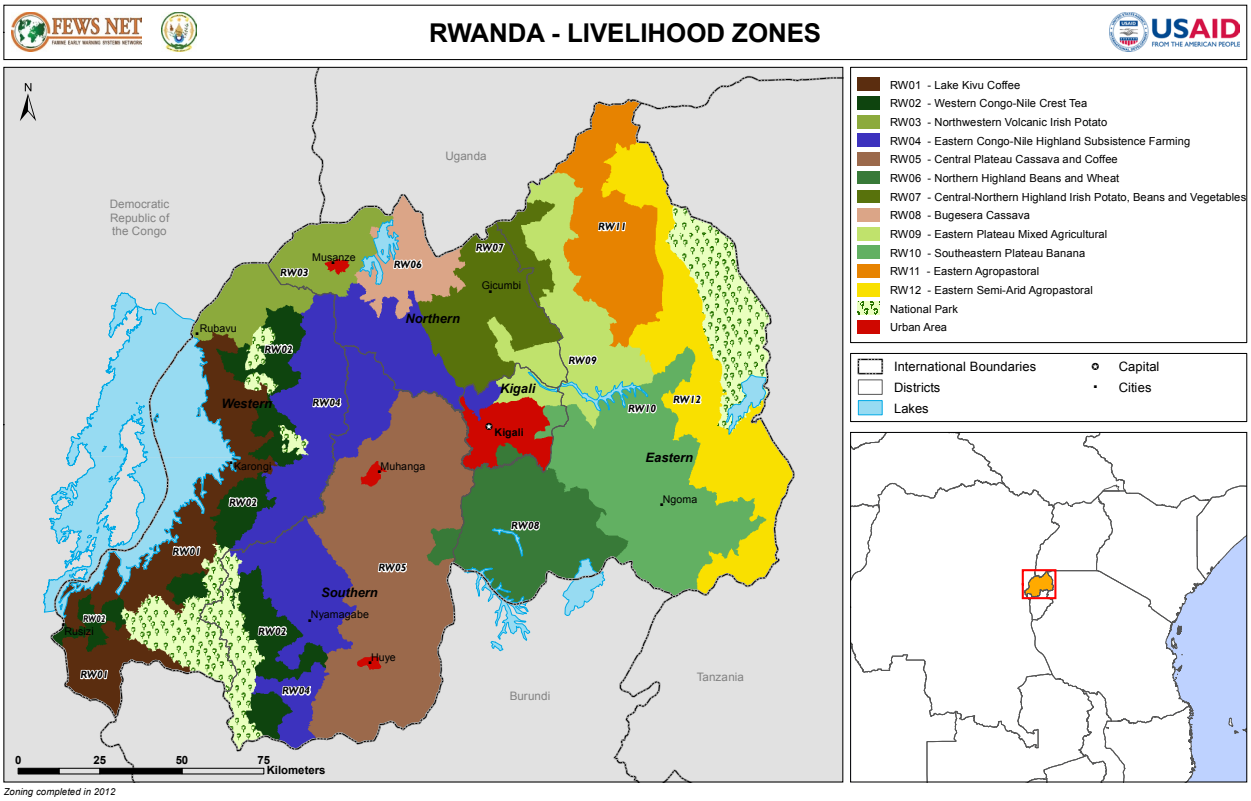
[2] MIDIMAR, The National Risk Atlas of Rwanda. 2015. Nairobi, UNON.

Livelihood zones

Twelve livelihood zones (excluding the City of Kigali) are defined based on local economies and livelihood opportunities. The boundaries of the livelihood zones follow those of sectors.
Regular food security analysis highlights some characteristics of rural livelihood zones, including:

- Most livelihood zones in Rwanda are considered relatively food self-sufficient.
- The three eastern livelihood zones (Bugesera Cassava, Eastern Agro-Pastoral, and Eastern Semi-Arid Agro-Pastoral) are all prone to drought.
- Bugesera Cassava Zone is prone to drought and is the only food-deficit production zone in the country, although deficits occur only in poor production years.
- The Eastern Semi-Arid and Eastern Agro-Pastoral Zones and parts of the East Congo-Nile Highlands Farming Zones are at risk of acute food insecurity during poor production years.
- Poor households in the Eastern Agro-Pastoral, Eastern Semi-Arid Agro-Pastoral, and Eastern Plateau Agriculture Zones rely on purchases to acquire significant portions of their annual food needs.

Map 2: Livelihood zones



Source: FEWS NET

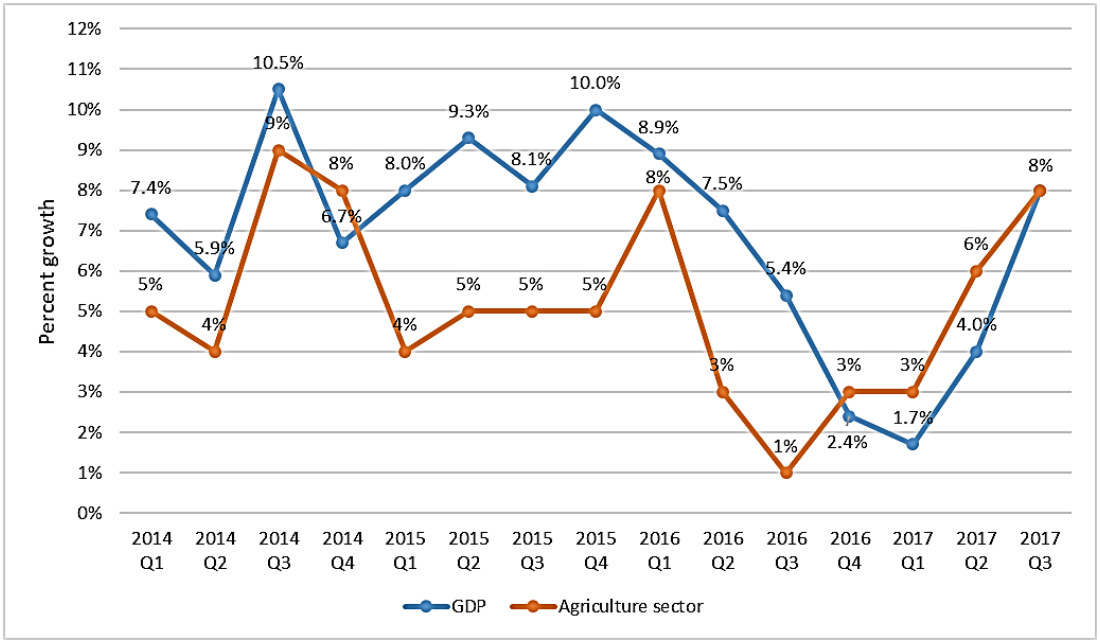
1.3. Macro-economic context

The Rwandan economy is mainly based on the service and agriculture sectors. In 2017, 46 percent of GDP came from the service sector, 31 percent from the agriculture sector, 16 percent from industry, and 7 percent was attributed to adjustment for taxes and subsidies on products.[3] These figures have remained stable since 2014. The Government's development plan, Vision 2020, aims to increase the contribution to GDP of services and industry to 57 percent and 19 percent, respectively, while decreasing agriculture's contribution to 24 percent.

Rwanda has shown an impressive economic growth since the last decade due to several factors, including the establishment of a good business-enabling environment and well-directed public investments.[4] Between 2000 and 2016, Rwanda's economy grew by 5.9 percent per year on average, and by 2016 it was more than 3.5 times larger than in 2000. During the same period, the Gross Domestic Product (GDP) per capita increased from USD 242 to USD 729.[5] Exports have seen rapid growth from a low base, with 13.2 percent growth per annum between 2000 and 2016, while imports grew on average by 10 percent per annum, such that imports and exports increased their combined share of the economy from 31 to 48 percent.[6]

The annual decrease of GDP by six percent throughout 2016 was attributed mainly to bad weather that affected agricultural production and the completion of big infrastructure projects that constrained the performance of the industry sector.[7] In 2017, trends showed an economic upturn (Figure 1).[8] The objective, in line with the Vision 2020 document, is to reach an average GDP growth of 11.5 percent by the end of 2018.

Figure 1: GDP quarterly growth rate 2014-2017



Source : NISR, National Accounts, 2017

[3] National Institute of Statistics Rwanda (NISR), GDP data, sector contribution to GDP. Percentages presented are based on 3 quarters (Q1, Q2 and Q3) in 2017.
[4] Rwanda was classified 41 out of 190 in ease in doing business. World Bank, Doing Business 2018 report.
[5] NISR, National Accounts, 2017.
[6] NISR, National Accounts, 2017.
[7] Bank National of Rwanda. Annual report 2016-2017.
[8] NISR, Gross Domestic Product statistics. National Accounts, 2017.

1.3.1. Agriculture economy

Agriculture remains the backbone of the economy. The agriculture sector accounts for approximately 31 percent of the GDP, employs 58 percent of the Rwandan labour force,[9] generates 60 percent of the foreign exchange, provides 75 percent of raw materials for industry, and provides about 45 percent of total Government revenue.[10]

With 5.0 percent average annual growth, the agricultural sector has more than doubled in value from 2000 to 2017.[11] Productivity and production for a number of crops have sharply increased as a result of expansion of food production, scaled-up public investments in the Crop-Intensification Programme (CIP), Land Use Consolidation Programme (LUCP), input subsidies on fertilizers and seeds, and other public activities to promote production of priority crops, which consequently improve rural incomes.

Export crops have seen an average growth of 3.8 percent per annum between 2000 and 2016, but with high volatility from year to year due to global price variations in the dominant crops: tea and coffee. Livestock is currently the fastest growing sub-sector with an average growth of 8.3 percent per annum between 2010 and 2016.[12]

1.4. Social and development context

In 2016, Rwanda was classified 159th out of 188 countries, according to the Human Development National Index.[13] Homegrown policies and initiatives have contributed to significant improvement in access to services and human development indicators.

1.4.1. Demography

Rwanda's population has reached 12 million in 2018, according to NISR estimation. The population is young, with about 41 percent below 15 years of age and 14 percent under five in 2012. The female population share is 51.7 percent[14] and the fertility rate is 4.2 births per woman.[15] The rapidly growing population and consequent high population density (415 inhabitants per square kilometer in 2012), will continually pose huge economic and environmental constraints.

Rwanda's population is mainly rural, with only about 17 percent living in urban areas in 2012, of which 49 percent live in the City of Kigali.[16] With a high annual urbanization rate of 5.9 percent, however, the urban population is projected to grow to 30 percent in 2032, driven by rural-urban migration of young people in search of better social and economic opportunities, natural increase of the urban population through births, and geographical expansion of the urban areas through reclassification.[17]

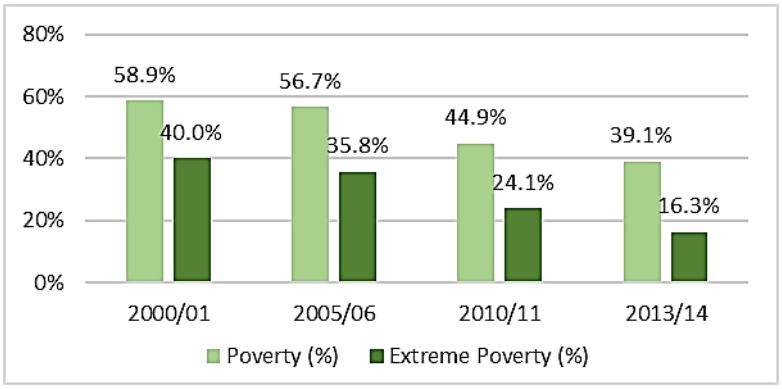
1.4.2. Poverty levels and income equality

The proportion of Rwandans living in poverty fell from 44.9 percent of the population in 2010/11 to 39.1 percent in 2013/14 and extreme poverty fell from 24.1 percent to 16.3 percent of the population

[9] NISR, Labour Force Survey Trends, February 2018.
[10] National Bank of Rwanda. 2015.
[11] Based on GDP data from NISR National Accounts, 2017.
[12] Based on GDP data from NISR National Accounts, 2017.
[13] UNDP, Human Development Report 2016.
[14] NISR and MINECOFIN, Rwanda Population and Housing Census 2012.
[15] National Institute of Statistics of Rwanda, Rwanda Demographic and Health Survey 2014/15. March 2016.
[16]NISR and MINECOFIN, Rwanda Population and Housing Census 2012.
[17] Ministry of Finance and Economic Planning, Unlocking Rwanda's potential to reap the demographic dividend. October 2017.

during the same period (Figure 2)[18]. Poverty is highest in Northern Province (46.1 percent) and Western Province (45.2 percent) than in the Southern Province (38.4 percent) and Eastern Province (37.9 percent).

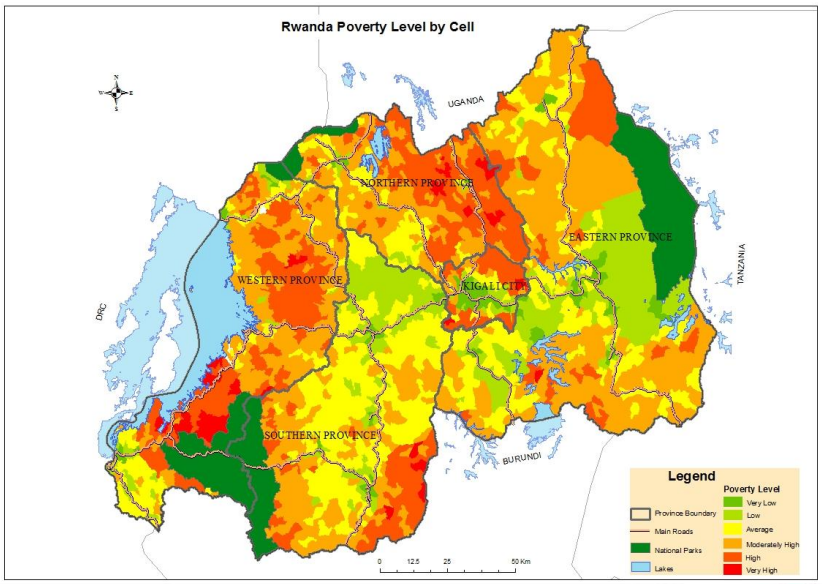
Figure 2: Poverty and extreme poverty in Rwanda



Source: NISR, Rwanda Poverty Profile Report, 2015

A cross-analysis of the EICV3 (2010/11) and EICV4 (2013/14) data shows that 26.4 percent of the population are chronically poor, 27.4 percent are transient poor (moving in and out of poverty between these years), and 46 percent of the population was not poor in either year.[19] While poverty is much higher in rural areas, the strongest reduction in poverty between 2010/11 and 2013/14 also occurred in rural areas, where poor households were able to largely reduce their consumption shortfall relative to the poverty line (Map 3). A consequence was the decrease of the Gini index (the level of inequality in consumption per adult equivalent) from 46.6 to 44.7 between 2010/11 and 2013/14.[20]

Map 3: Poverty level in Rwanda by cell – 2013/2014



Source: NISR, Rwanda Poverty Profile Report 2013/2014.

[18] National Institute of Statistics of Rwanda, Rwanda Poverty Profile Report, 2013/2014. August 2015.
[19] National Institute of Statistics of Rwanda, Poverty Trend Analysis Report 2010/11-2013/14. June 2016.
The poverty rate is defined as the share of the population whose total consumption is below the total poverty line (RWF 159,375 in January 2014 prices of which RWF 105,034 is for food items). Poverty is defined as the share of the population that cannot afford to buy a basic basket of goods (food and non-food).
[20] The Gini coefficient was 0.507 in 2000.

1.4.3. Socio-economic indicators

The following table 1 presents some core social and economic indicators.

Table 1: Selected social and economic indicators

Education, Water & Sanitation	EICV 2010/11	EICV 2013/14	
Net Attendance Rate in Primary School	89.6%	87.9%	
Net Attendance Rate in Secondary School	17.8%	23%	
Access to improved drinking water	74.2%	84.8%	
Percentage of households with improved sanitation	74.5%	83.4%	
Average time (in minutes) to reach a health center	61.4%	56.5%	
Health & Nutrition	**DHS 2010**	**DHS 2014**	**CFSVA 2015**
Child mortality rate	76 ‰	50 ‰	
Infant Mortality rate (DHS 2014/15)	50 ‰	32 ‰	
Children 6-59 months stunted	44%	38%	36.7%
Children 6-59 months wasted	3%	2%	1.7%
Children 6-59 months underweight	11%	9%	8.1%
Children 6-59 months overweight	7.1%	7.7%	
Maternal mortality rate (DHS 2014/15)	476	210 per 100,000 live births	
Employment	**LFS Aug 2016**	**LFS Feb 2017**	**LFS Feb 2018**
Average monthly salary in agriculture	20,478 RWF	22,244 RWF	
Average monthly salary in industry	64,306 RWF	75,668 RWF	
Unemployment rate	18.8%	16.7%	16%
Economic dependency ratio	143	124	

Source: NISR Statistic Yearbook.

1.4.4. Gender

Rwanda has adopted international and regional frameworks on human and women's rights. The 2015 revised Constitution enshrines the principles of gender equality and women's rights and provides for a minimum 30 percent quota for women in all decision-making positions. In 2016, Rwanda was classified among the African countries with medium discrimination against women. With 64 percent of women representatives of lower chamber of parliament, Rwanda is the first African nation reaching this target, far ahead of others.[21] Notable achievements in promotion of gender equality and women's empowerment include the revision of discriminatory laws and the enactment of gender-sensitive laws.

Female access to formal financial services have almost doubled in four years from 36 percent in 2012 to 63 percent in 2016. However, it remains below the proportion of male access, whose percentage increased from 51 percent to 74 percent in the same period.[22] The unemployment rate among females decreased from 22.7 percent to 17.5 percent between August 2016 and February 2017, while it remained stable for males during this period.[23] With regards to education, the primary completion rate reached 71.1 percent for girls and 59.3 percent for boys in 2016 (against 66.1 percent and 56.4 percent, respectively in 2014). Extension of social protection programmes, operational in 330 sectors, accounted for 53,000 female-headed households and 59,000 male-headed households employed in public works according to the EDPRS2 midterm report of 2016.[24]

[21] UNDP, Africa Human Development Report 2016.
[22] Government of Rwanda, Gender Monitoring Office annual report 2016-2017.
[23] NISR, Statistical Yearbook 2017.
[24] GoR, Gender Monitoring Office annual report 2016-2017.

In 2015, Rwanda joined the UN Women HeForShe campaign and pledged three impact commitments: Bridging the gender digital divide in ICT and attaining parity in access and usage; tripling girls enrolment in TVET to advance women employment opportunities; and eradicating GBV in all its forms.

1.4.5. Migration

According to UNHCR, as of the end of January 2018, Rwanda hosted about 174,000 refugees and asylum seekers. Nearly 57,000 of them are Burundians living in Mahama Camp in Kirehe District.

1.5. Government development policies

1.5.1. From Vision 2020 to Vision 2050

Vision 2020 is the overarching policy document underpinning all other development policies in Rwanda. Its aim is to transform Rwanda from a low-income country into a middle-income country through three main objectives: (i) macroeconomic stability and wealth creation to reduce aid dependency, (ii) structural economic transformation, and (iii) creation of a productive middle class and fostering entrepreneurship. Vision 2020 was revised in 2012 and more ambitious targets were set for the 26 percent of indicators that had already been achieved.

Under Vision 2050, Rwanda aspires to attain upper middle-income country status by 2035 and high-income status by 2050, with the intention of providing high quality livelihoods and living standards to Rwandan citizens by mid-century. Vision 2050 stresses the importance of agro-processing and technology-intensive agriculture with a commercial focus under its Pillar III: Transformation for Prosperity.

1.5.2. From EDPRS 2 to the National Strategy for Transformation 2018-2024

The National Strategy for Transformation 2018-2024 follows the Economic Development and Poverty Reduction Strategy 2 (EDPRS 2, which ended June 2018) and includes the implementation of the last two years of Vision 2020 and the first four years of Vision 2050.

1.5.3. Strategic Plan for Agriculture Transformation 2018-2024 - PSTA4

The PSTA4 is the Sector Strategic Plan for Agriculture under Rwanda's National Strategy for Transformation (NST). It guides public investments in agriculture and sets out the estimated required resources for the agricultural sector during the period of 2018-2024, while contributing to the three NST pillars of economic, social, and governance transformation in line with the aspirations of Vision 2050. Furthermore, the PSTA4 is an implementation plan under the National Agricultural Policy (NAP) 2018, which sets the policy framework for a productive, green, and market-led agriculture sector towards 2030. PSTA4 is articulated around four priority areas: Innovation and Extension; Productivity and Resilience; Inclusive Markets and Value Addition; and Enabling Environment and Responsive Institutions. Four impact areas have been defined, aligned to the targets of the 2014 Malabo Declaration on Agriculture and Postharvest Losses:

1. Increased contribution to wealth creation
2. Economic opportunities and prosperity - jobs and poverty alleviation
3. Improved food security and nutrition
4. Increased resilience and sustainability

1.5.4. The National Food and Nutrition Policy and the National Food and Nutrition Strategic Plan of 2013-2018

The National Food and Nutrition Policy 2013-2018 (NFNP) is an update and revision of the National Nutrition Policy of 2007. The NFNP is fully aligned with the EDPRS II food and nutrition-related objectives. The linkage of nutrition, household food security, and social protection is reinforced within the NFNP through seven strategic directions (SDs) that address Rwanda's nutrition issues using a conceptual framework adapted from the Health Sector Strategic Plan III (HSSP), which includes multisector ownership, responsibilities, and joint participation, with foundational principles of good governance and linkages to national and international policies. The National Food and Nutrition Strategic Plan of 2013-2018 lays out in greater detail output objectives, key activities, implementation priorities, and monitoring and evaluation frameworks for each of the seven strategic directions.

1.6. Food security and nutrition trends in 2015

1.6.1. Food insecurity rates in 2015

According to the last 2015 CFSVA, 16.8 percent of households in Rwanda were food insecure and 2.6 percent severely food insecure. The Western Province was identified as the most food insecure area with 35.2 percent of all households food insecure and 5.6 percent severely food insecure, followed by the Southern Province (24 percent food insecure), Northern Province (17 percent) and the Eastern Province (14 percent). The prevalence of food insecurity was the lowest in the City of Kigali with 3 percent of households moderately food insecure.

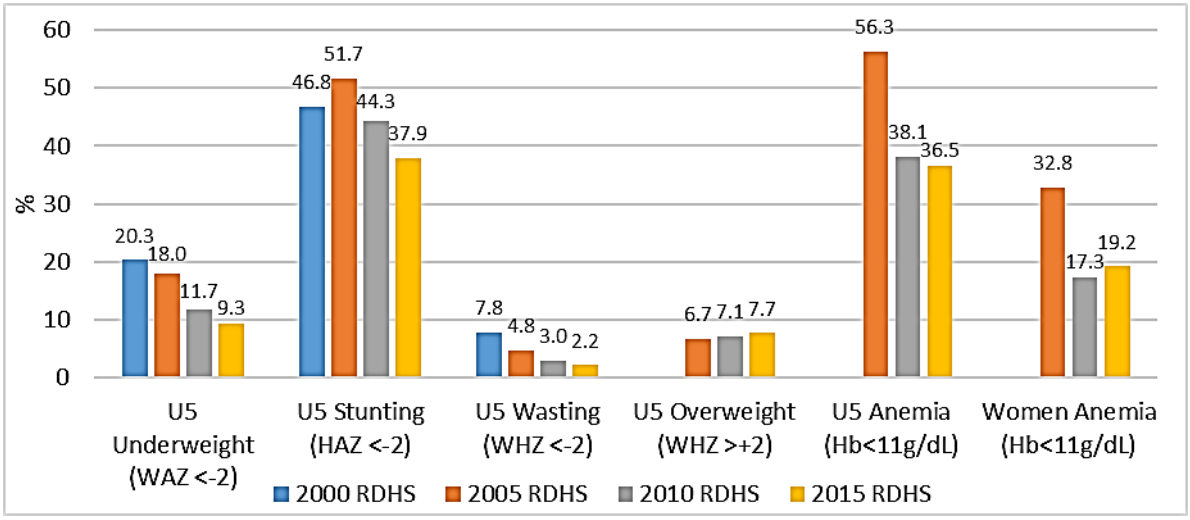
The livelihood zones most affected by food insecurity were the Western Congo-Nile Crest Tea Zone (49 percent), the Lake Kivu Coffee Zone (37 percent) and the Northern Highland Beans and Wheat Zone (32 percent). The districts with the highest percentage of food insecure households were Rutsiro (57 percent), Nyamagabe (42 percent), Nyabihu (39 percent), Nyaruguru (37 percent), Rusizi (36 percent), Karongi (35 percent), and Nyamasheke (35 percent).

1.6.2. Nutrition status in children and women in 2015

The past three Rwanda Demographic Health Survey (RDHS) (2005, 2010, 2015) reported a persistently high prevalence of stunting for children 6-59 months and elevated levels of anaemia among U5 and women of reproductive age. Stunting prevalence trended downward since 2005 to 38 percent in 2015, but masks significant district level disparities, with prevalence in 14 of 30 districts still above the WHO critical level of 40 percent. Each RDHS indicates a reduction in the prevalence of wasting, down to 2 percent in 2015 with severe acute malnutrition (SAM) in the medium category. In 2015, anaemia among children 6-59 months was high at 36.5 percent and medium among women of reproductive age at 19 percent. Prevalence of overweight was on the rise (Figure 3).[25]

[25] UN Network Nutrition Strategy. Draft 2017

Figure 3: Trends in key nutrition indicators, 2000-2015 (RDHS)



Source: Data from RDHS reports.

The results from the 2012 and 2015 CFSVA showed that stunting rates among children 6-59 months dropped from 42 percent to 36.7 percent and wasting rates decreased from 3.6 percent to 1.7 percent.[26] The prevalence of stunting was the highest in Western Province with 46 percent in 2015. Boys were more likely to be stunted than girls.

In 2015, only 15 percent of children aged 6 to 23 months met the requirements for a minimum acceptable diet based on diet diversity and frequency of meals taken.

The 2015 CFSVA findings showed that of non-pregnant women between 15 and 49 years, 5 percent were wasted and 27 percent overweight. The prevalence of overweight women increased since 2012 and especially in urban areas where it reached 40 percent.

[26] The 2014/15 RDHS found 38% of stunting, 2% of wasting and 9% of underweight children under 5.

2. Rationale and objectives

The CFSVA is conducted every three years in Rwanda to provide an updated baseline with regards to the food security and nutrition situation of households and to monitor changes over the years. [27]

This 2018 CFSVA, conducted by MINAGRI, NISR, WFP, and other partners, particularly aimed to provide baseline information on food insecurity and malnutrition for monitoring the progress of implementation of various policies and strategies, including priority areas number 2 and 3 of the 4th Strategic Plan for Agriculture Transformation 2018-2024 (PSTA4), which focus on ensuring food and nutrition security at household level. Findings from the CFSVA survey will also inform implementation of SDG targets, mainly focusing on Zero Hunger (SDG 2), responsible consumption and production (SDG 12), and climate action (SDG 13), among others. Furthermore, the CFSVA serves as the baseline for monitoring targets of the Malabo Declaration, including: ending hunger by 2025, halving poverty by 2025 through inclusive agricultural growth and transformation, and enhancing resilience in livelihoods and production systems to climate variability and other shocks.

Objectives

The 2018 CFSVA was conducted in March-April 2018, just after the main season A harvest. It provides a relatively favourable snapshot of the food security situation in the country, reflecting the food stocks that many households will be expected to have from the season A harvest.

The assessment broadly aimed to:

1. Analyse socio-economic and demographic determinants linked to food and nutrition insecurity (according to key questions, see box below);
2. Train and build capacity of government partners to manage and conduct food security and nutrition assessments; and
3. Formulate specific recommendations for social protection and food security and nutrition interventions, including geographic and household-level targeting criteria.

Key questions of the CSFVA assessment

1. Who are the food insecure, malnourished, or vulnerable people?
2. How many people are food insecure, malnourished, or vulnerable?
3. Where do they live?
4. What have been the historical food security and nutrition trends and the outlook for the country?
5. What are the underlying causes and threats of food insecurity and malnutrition?
6. What are the implications of social protection, food security, and nutrition interventions?

[27] The previous CFSVAs were conducted in 2006, 2009, 2012 and 2015.

3. Methodology

3.1 Food security & nutritional concepts

3.1.1 Food security

Food security is a state in which "all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life".[28] Food security is a multidimensional function which includes:

Food availability - the amount of food physically available to a household (micro level) or to an area (community, district, region or country), which includes domestic production, commercial imports, reserves, and food aid.

Food access - the physical ability (road network and market) and economic ability (own production, exchange and purchase) of a household to acquire adequate amounts of food regularly. It may include home production and stocks, purchases, barter, gifts, borrowing, and food assistance.

Food utilization - the intra-household use of the food they have access to and the individual's ability to absorb and use nutrients (a function of their health status and of the efficiency of food conversion by their body).

Stability - a fourth dimension which emphasizes the importance of reducing the risk of adverse effects on food availability, access, or utilization.

Food security is an outcome of household livelihood strategies and activities. The strategies are based on the assets and/or capital available to the household.

3.1.2 Nutrition

Nutrition is the intake of food, considered in relation to the body's dietary needs.[29] It is part of "food utilization" at the individual level.

Malnutrition occurs when an individual's diet does not provide adequate nutrients for growth and maintenance, or when the body is unable to fully utilize the consumed food due to illness.[30] There are several forms of malnutrition:

Acute malnutrition, also known as "wasting", is measured by low mid upper arm circumference (MUAC) or weight-for-height and/or oedema. It is characterized by a rapid deterioration in nutritional status over a short period of time related to a severe or recurrent lack of nutrients (lean period, severe epidemic, sudden or repeated change in the diet, or conflict). There are different levels of severity of acute malnutrition: moderate acute malnutrition (MAM) and severe acute malnutrition (SAM).

Chronic malnutrition, also known as "stunting", is defined as low height-for-age and is a form of growth failure which develops over a long period of time. Inadequate nutrition over long periods of time (including poor maternal nutrition and poor IYCF practices), repeated infections, and/or inadequate parental care practices can lead to stunting. It also has moderate and severe forms.

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[28] World Food Summit, 1996

[29] World Health Organization, http://www.who.int/topics/nutrition/en/ (accessed July 24, 2018).

[30] ***Nutritional security*** is achieved when a household has secure physical, economic and environmental access to a balanced diet and safe drinking water, a sanitary environment, adequate health services and knowledgeable care to ensure adequate nutritional status for an active and healthy life at all times for all its members.

Underweight is defined as low weight-for-age as a result of acute or chronic malnutrition or a combination of both.

Micronutrient malnutrition refers to vitamin and mineral nutritional deficiency diseases caused by dietary insufficiency and/or inadequate absorption. Vitamin A deficiency, iron deficiency anaemia and iodine deficiency disorders are among the most common forms of micronutrient malnutrition.

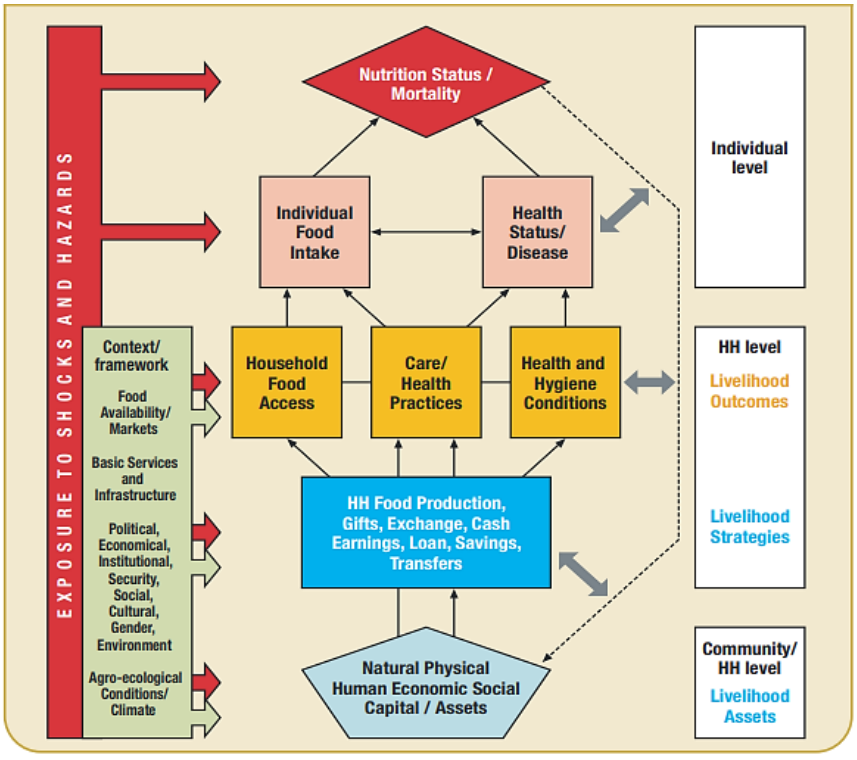
Overweight and obesity are defined as ''abnormal or excessive fat accumulation that presents a risk to health''. Depending on the age, different methods to measure a body's healthy weight are available.

Children 6-59 months are considered the most sensitive to nutritional stress. The 6–59 months age group is most commonly chosen as representative of the magnitude of the situation for the entire population.

3.2 Conceptual framework

The 2018 CFSVA is based on the Food and Nutrition Security Conceptual Framework which helps to identify determinants of food insecurity and malnutrition (Figure 4). The framework clearly presents the linkage between food security and nutrition. Food security and nutritional status primarily deteriorate because of inadequate feeding practices and disease. Chronic and acute food insecurity are some of the critical underlying factors of undernutrition. Climatic or human-induced shocks often limit or disrupt existing household livelihood mechanisms including their use of assets and production, and access to food. For poor populations, changes in production, food prices, wage structures, and other variables often lead to deteriorating household food security and, subsequently, nutritional status. In addition to factors influencing household access to food, an increase in the incidence of communicable diseases related to hygiene conditions and care practices often undermines nutritional status.

Figure 4: Food and nutrition security conceptual framework (UNICEF)



3.3 CARI approach

This food security analysis is based on WFP's Consolidated Approach for Reporting Indicators of Food Security (CARI)[31] - a method that combines a suite of food security indicators, including the household's current status of food consumption (food consumption score) and its coping capacity (food expenditure share and livelihood coping strategies) into a summary indicator – the Food Security Index (FSI). The FSI classifies households into four standard descriptive groups: food secure, marginally food secure, moderately food insecure, and severely food insecure. The latter two groups can be combined and classified as food insecure households. Table 2 below provides a description of the different food security categories. The overall prevalence of food insecurity in the population is calculated by summing up the rates of the "moderately food insecure" and "severely food insecure" categories.

Table 2: Description of the food security index categories

Food Security Index	Description	Food in/secure
Food secure	Able to meet essential food and non-food needs without engaging in atypical coping strategies	Food secure
Marginally food secure	Has minimally adequate food consumption without engaging in irreversible coping strategies; unable to afford some essential non-food expenditures	
Moderately food insecure	Has significant food consumption gaps OR marginally able to meet minimum food needs only with irreversible coping strategies	Food insecure
Severely food insecure	Has extreme food consumption gaps OR has extreme loss of livelihood assets that will lead to food consumption gaps or worse.	

3.4 Data collection

The CFSVA combines qualitative and quantitative primary data collection with secondary data review. Primary data was collected from households and from key informants at community level in all 30 districts by 30 enumerator teams over 40 days from the first week of March to the first week of April 2018. Secondary data, which includes a review of food security literature in Rwanda, were used to complement primary data analysis.

3.4.1 Survey instruments

Three instruments were used for qualitative and quantitative primary data collection:

- a community questionnaire administered to key informants (including local leaders and local population) through focus group discussions around questions about community infrastructure, market information, agricultural crop calendar, nutrition, shocks, and assistance received, which will help to contextualize the results from the household interviews;
- a household questionnaire administered to randomly selected households that included questions on demographics, housing facilities, assets, agriculture, livelihoods, income and

[31] CARI is an approach developed by WFP for reporting the severity of household food insecurity using a combination of indicators: Food Consumption Score, Share of Food Expenditure, livelihood coping strategies adopted, daily per capita intake in kilocalories, and poverty status. For more details on CARI guidance, see: http://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp271449.pdf 10

expenditure, access to credit, food consumption and food sources, shocks, coping strategies, and assistance received.

- a mother and child questionnaire administered to women of reproductive age (15-49 years) within households, which included questions regarding pregnancy, health, hygiene, and food consumption. In addition, the questionnaire included an anthropometric section for children 6-59 months and a section on IYCF practices, pertaining to children between 6-23 months.

The instruments were first developed in English and subsequently translated into Kinyarwanda. Tablets programmed with the questionnaires under Open Data Kit (ODK) were used for the data collection.[32]

3.4.2 Sampling

The sampling frame for the 2018 CFSVA was designed to provide statistically representative and precise information for food security and nutrition at the district level. Both urban and rural households from all 30 districts, including the City of Kigali, were included in the sample.

A two-stage cluster sample procedure was applied by district. The first stage comprised random sampling of 30 villages per district with probability proportional to the population size. In the second stage, 10 households in each of the 30 villages in the 30 districts were selected for participation in the survey. A systematic random sampling technique was employed to select 10 households from the list to be interviewed. A household was eligible for participation in the survey if its members lived in one of the selected villages at the time of the interview.

In total 9,709 households were interviewed countrywide, including 8,543 women 15 to 49 years old and anthropometric measurements for 6,170 children from 6 to 59 months. The IYCF module was administered to caretakers of all children between 6 to 23 months (2,040 children).
In order to account for the topographic, socio-economic, ecological, and agricultural diversity in the country, data analysis was also done by livelihood zone and by the urban / rural status of the area.

3.4.3 Survey quality assurance

All possible steps were taken to ensure that the results accurately represent the food security and nutrition situation in Rwanda. The enumerators were trained on the methodology and questionnaires, including training on taking anthropometric measurements and conducting interviews.[33] A careful translation of the questionnaires was conducted to avoid misunderstanding of the questions and to ensure questions were asked correctly. Moreover, data collection of the 30 enumerator teams was closely supervised by a team of 12 supervisors, including WFP, NISR, MINAGRI, and UNICEF, who were deployed for weekly field visits throughout the data collection period to ensure that data was collected in a standardized manner, including daily checks on anthropometric data.

[32] https://opendatakit.org

[33] 179 enumerators participated in 9 days of training prior to data collection. The training covered instructions on how to select respondents, conduct interviews, and take anthropometric measurements. It included field testing and practice sessions. After the training, the best 150 enumerators and team leaders were selected through a test and were sent to the field in teams of five (2 for food security, 2 for nutrition and 1 team leader).

3.4.4 Data cleaning and analysis

Data were downloaded directly from the tablet used for data collection to a Microsoft Access database and exported to SPSS software for analysis. Data were cleaned and analysed according to the analysis plan validated by the technical committee for descriptive statistics on demographics, housing and facilities, assets, access to credit, agriculture production, livelihoods, incomes and expenditures, food consumption, shocks, coping strategies, assistance variables, and nutrition for women and children under 2 (IYCF). Causal analysis was also done to elucidate underlying causes of food insecurity and malnutrition. Z-scores for wasting, stunting, and underweight were computed using ENA software.

3.5 Study limitations

Nutrition sampling

The survey was designed to be statistically representative for nutritional data at district level. Based on ENA software and 2012 population statistics, which indicate 15 percent children 6-59 months, it was planned to measure 199 children 6-59 months among the 300 households that were interviewed in each district (i.e., 5,970 children 6-59 months in total). If the sampling for children 6-59 months was not covered among the 300 households, it was planned that 30 additional households would be randomly selected for interview to reach the planned coverage for children U5. Despite these contingencies, the planned sampling for children U5 could not be reached in all districts because the number of children under 5 were below the expected numbers. The discrepancy between the planned and actual numbers of children of this age group per district varies from 4 (Kirehe) to 56 (Muhanga). Nevertheless, the nutritional data remains representative in the district level, but with a wider confidence interval.

Seasonality

The 2018 CFSVA data collection was conducted in March-April, before the lean season, while the 2015 CFSVA was conducted in April-May. The period of data collection may influence the food security trends.

Key informant questionnaire

The sampling for community information was not designed to be statistically representative at the village-level in Rwanda; thus, the information from key informant focus groups was used as contextual information only.

4. Food availability

KEY MESSAGES

- Main food crops grown by households, included: beans (90 %), maize (53 %), white flesh sweet potato (43 %) and cassava (23 %).
- Season 2018A production were expected to be slightly higher than for Season 2017A.
- Household food stocks were, on average, sufficient for beans, maize, and cassava.
- 50 % agricultural households use chemical fertilizers and pesticides for maize; 67 % practice anti-erosion activities, and 9 % have irrigated lands.
- There is an increasing trend of cereals, flours, and seeds imports.
- Half of households raise livestock mainly for their own consumption.

4.1 Domestic food production

4.1.1 Farm characteristics and agricultural practices

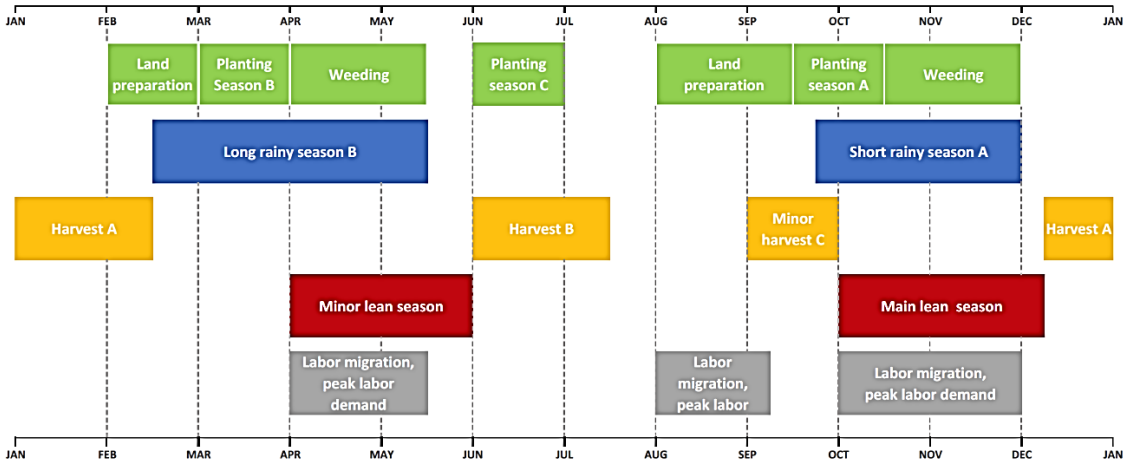
Agriculture is dominated by small-scale, subsistence, rain-fed farming, and mixed-cropping, with a progressive adoption of modern technologies and practices. Land is a binding constraint with only 1.78 million hectares of arable land across the country, and prevents environmentally sustainable extension of the agricultural frontier. Almost 81 percent of the arable area is intensive cropland on hillsides, 7.1 percent intensive cropland in marshlands, and 10 percent are rangeland.[34] Rwandan agriculture is characterized by small production units. The average landholding size is 0.6 ha often divided into three to four sub-plots. About 50 percent of rural farm households cultivate less than 0.35 ha and 15 percent farm less than 0.1 ha.[35] Often, around 3.2 crops per plot are grown.[36]

There are two main and distinct agricultural seasons across the country as well as a third season that occurs in lowland marshland areas during the drier season:

- **Season A** starts in September and ends in February of the following calendar year, with the main harvest in December to February;
- **Season B** starts in March and ends in June of the same calendar year with main harvest in June-July;
- **Season C** starts in July and ends in September of the same calendar year with the harvest in September.

[34] NISR, Seasonal Agriculture Survey. Season 2018A.
[35] NSIR, EIVC 4 2013/2014
[36] NISR, Seasonal Agriculture Survey. Season 2018A.

Figure 5: Seasonal agricultural calendar for Rwanda (FEWS NET)



According to the Seasonal Agriculture Survey, Season 2018A, irrigation was practiced by 5 percent of small-scale farmers (holding less than 10 ha of agricultural land) and 18.5 percent of large-scale farmers (holding at least 10 ha of agricultural land). Around 68 percent of small-scale farmers and 63.5 percent of large-scale farmers practiced anti-erosion activities.[37] Nearly half of all large-scale farmers use improved seeds, fertilizers, and pesticides, while only a few small-scale farmers used these (Table 3).

Table 3: Use of improved seeds, fertilizers and pesticides during Season 2018A

Use	Small-scale farmers (agri. land < 10ha)	Large-scale farmers (agri. land ≥ 10ha)
Improved seeds	11%	53.8%
Organic fertilizers	48.2%	50.8%
Inorganic fertilizers	24.8%	42.8%
Pesticides	19.5%	42.1%

Source: Seasonal Agriculture Survey 2018A report - NISR

The 2018 CFSVA findings show that decisions about agriculture expenses are managed by the head of household in 86 percent of the cases or by their spouse in 14 percent of the cases. Around 78 percent of households for beans production and 51 percent for maize do not use chemical inputs (pesticide or fertilizer). Regarding soil conservation practices, 67 percent of households enhanced their land with terraces, agroforestry, and other soil and water conservation practices and 9 percent of agricultural households have part of their land irrigated.

Around 44 percent of households had access to agriculture extension services and 26 percent received weather and climate information services in the period of Season 2018A.

4.1.2 Crop production

From a consumption point of view, the most important commodities are beans, maize, cassava, Irish potatoes, sweet potatoes, and cooking bananas; while cash crops are coffee and tea. The 2018 CFSVA findings show that 89 percent of households cultivated beans, 53 percent maize, 43 percent white fleshed sweet potato, and 23 percent cassava as one of the three main crops of the Season 2018A.

Following the 2016 severe drought, crop production increased in 2017 and much more during the Season 2018A.[38] Comparing the agricultural Season 2017A and 2018A, the expected production for maize increased by 6 percent, bush beans by 13 percent, and cassava by 8 percent and banana beer

[37] NISR, Seasonal Agricultural Survey. 2018 Season A report, draft June 2018.
[38] According to the Season 2017A and Season 2018A agricultural survey reports.

decreased by 4 percent (Table 4). These trends were also confirmed on a longer term between 2015 and 2018 as shown below, except for "other crops".

Table 4: Expected agricultural production (mt) 2015 - 2018

	2015		2016		2017		2018
Colonne1	2015 A	2015 B	2016 A	2016 B	2017 A	2017 B	2018A
Cereals	369,966	241,439	402,748	257,355	383,286	267,560	437,116
Tubers and Roots	1,319,108	1,336,491	1,361,656	1,295,014	1,531,253	1,566,821	1,658,188
Bananas	983,989	878,852	1,005,934	892,792	974,898	754,252	952,684
Legumes and Pulses	275,498	205,251	279,017	203,531	254,496	254,326	284,891
Vegetables and Fruits	165,144	143,217	172,047	135,764	189,515	172,258	190,757
Other crops	412,912	449,903	429,398	244,866	N/A	N/A	57,299
TOTAL (mt)	3,526,617	3,255,152	3,650,799	3,029,322	3,333,447	3,015,217	3,580,925

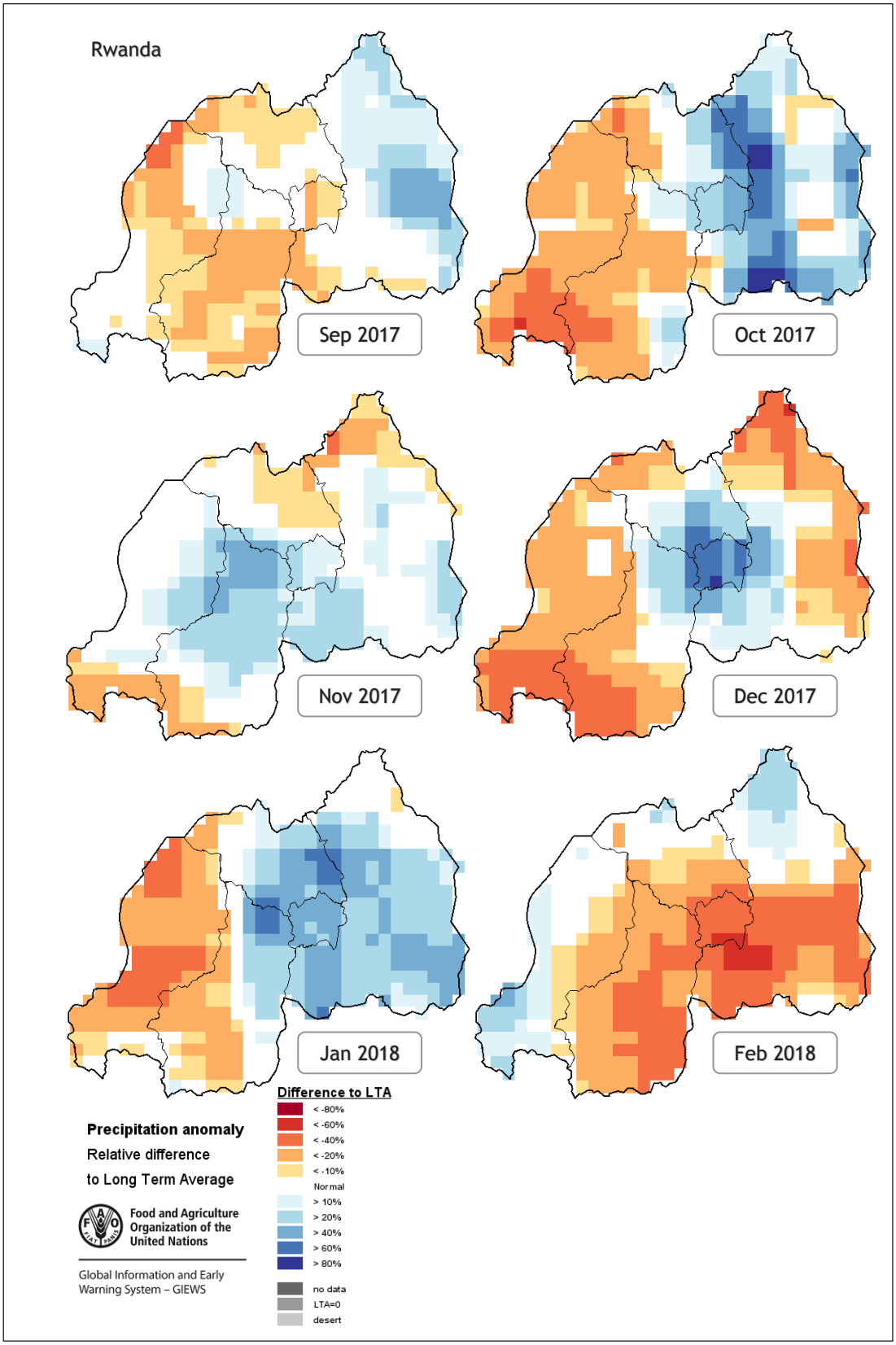
Source: Seasonal Agricultural Surveys – NISR

Crop production varies by geographical area according to rainfall pattern and agricultural practices. Map 4 (below) presents the monthly precipitation anomaly in reference to the Long-Term-Average (LTA) of the agricultural Season 2018A. The rainy season began in early September for the eastern part of the country. In October, rainfalls were below the LTA in the western and southern parts of the country as well as in some areas within the Kayonza and Nyagatare Districts. In November, precipitation decreased below the LTA in the north in the Nyagatare District and in the South in the Risuzu, Nyaruguru and Gisagara Districts.

According to SAS Season 2018A, around one third of the agriculturalists sowed before September 1st, including only 18 percent in the Kayonza District, where sowing was mostly carried out late, between September 15th and October 15th.[39]

[39] NISR, Seasonal Agricultural Survey. 2018 Season A report, draft June 2018.

Map 4: Precipitation anomaly (relative difference to Long Term Average) from September 2017 to February 2018.



Source: GIEWS, FAO

4.1.3 Livestock production

According to the EICV4, about 68 percent of all households in Rwanda raised livestock, most commonly: goats, cattle, and chicken. The Northern Province had the highest percentage of households raising cattle (60.4 percent against 45.9 percent in the Eastern Province) and sheep (31.5 percent against 18 percent in the Western Province). Goats and chicken were more raised in the Eastern Province (by 64.8 percent and 49.5 percent of households respectively), while pigs were mainly grown in households living in the Southern Province (47.4 percent of households).

The findings of 2018 CFSVA show that, other than in the City of Kigali, around 50 percent of households raised livestock (Figure 6). Among them, almost 39 percent of households reported rearing cattle, 30 percent goats, 17 percent chicken, 13 percent pigs, and 7 percent sheep.[40] Based on the Tropical Livestock Unit, more animals and/or larger type of animals (such as cattle) were raised in the Eastern Province. More than 60 percent of animals were reared for households' own subsistence (Figure 7). Around 30 percent of cattle, goats, pigs, and sheep were sold in 2018, which is more than in 2015[41]. Livestock resources (expenses and incomes they generated) are managed by the head of the household (in 60.8 percent of households) or their spouse (in 32.8 percent of households).

Figure 6: Percentage of households rearing livestock and average Tropical Livestock Unit (TLU) by province

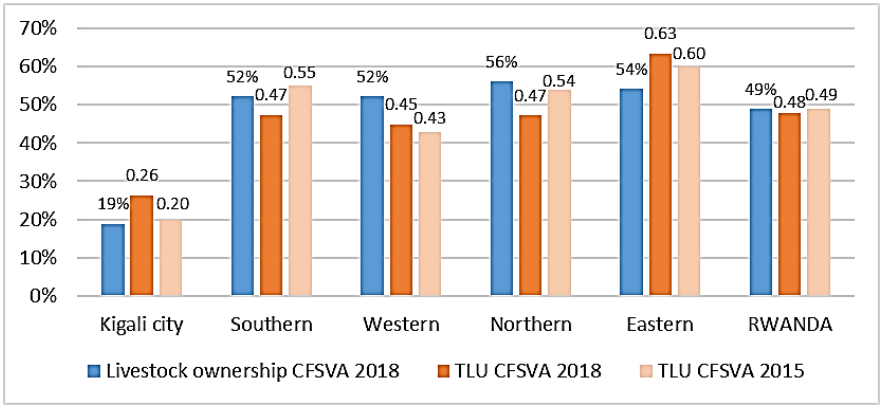
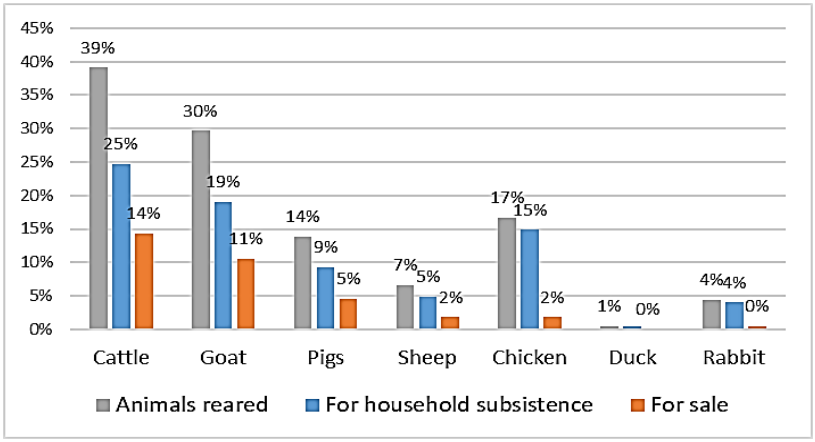


Figure 7: Livestock reared by household for own subsistence or for business



[40] The households were asked how many and what type of animals they rear.
[41] For 2015 CFSVA, around 10% of cattle, goat, sheep, chicken, rabbits and 17% of pigs and ducks were raised for sale.

4.2 Food stocks

In case of emergency, Rwanda has put in place the National Strategic Grain Reserve to mitigate potential shocks to the food supply that the market or other government programmes cannot sustain.[42] In December 2017, 7,762 mt of maize and 422,245 mt of beans were reported to be stored across the country for the reserve.[43]

At the time of survey following the Season 2018A harvest, households estimated their food stock as 3 months for beans, 2 months for maize, 3 months for white fleshed sweet potatoes, 2 months for Irish potatoes, and 4 months for cassava.[44]

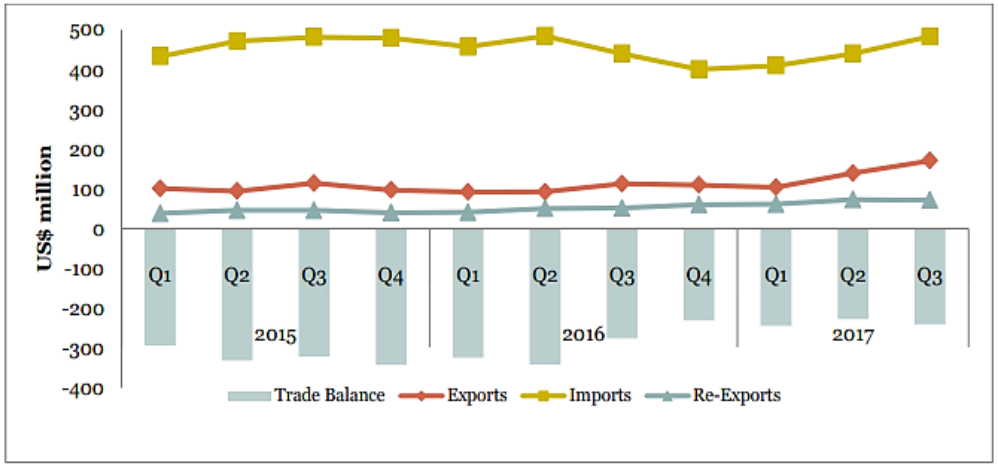
4.3 Market environment and trade

The National Cross-Border Trade Strategy (2012-2017) promotes trade - both formal and informal - with Rwanda's neighbouring countries. Rwanda has benefited from its memberships in the East African Community (EAC) and the Common Market for Eastern and Southern Africa (COMESA) through progressively improved trade with its neighbours. In addition, the extraordinary African Union Summit held in March 2018 launched the basis for the African Continental Free Trade Area.

4.3.1 Imports/exports

In the third quarter of 2017, the total imports of goods constituted 67 percent of the total trade in goods (USD 482.86 million), while domestic exports constituted 23.5 percent (USD 170.66 million), and re-exports constituted 9.9 percent (USD 71.57 million). The global trade in goods has also increased over the last two years (Figure 8).

Figure 8: Value of Rwanda's formal external trade in goods (2015-2017Q3)



Source: NISR with raw data from RRA/Customs Department

The main export of domestic commodities in the third quarter of 2017 were "other commodities and transactions" (37 percent share) mainly to the United Arab Emirates, "food and live animals" (32 percent) mainly to DRC and Kenya, and "crude materials, inedible, except fuels" (22.5 percent) mainly

[42] The stock is sufficient to cover the emergency needs of ten percent of the population of Rwanda for a period of three months in line with guidelines established by FAO and WFP. Source: National Strategic Grain Reserve Operations and Procedures Manual, 2013

[43] MINAGRI Information System, May 2018.

[44] Months of stock duration counted from harvest (median, not the mean).

to Switzerland and Singapore.[45] East African Community partner states accounted for around 12.6 percent of total domestic exports.[46] Informally, Rwanda's cross-border trade exports are dominated by local agricultural produce (40 percent) and livestock (26 percent), as well as processed food, and fast-moving consumable goods to neighbouring countries (DRC, Burundi).[47]

Notwithstanding the impressive food sector performance, Rwanda is net importer of main staples including rice (from Tanzania, Pakistan, and India) and maize grain and maize flour (from Uganda and Tanzania). According to FAO statistics, the main commodities imported (by volume) are wheat, maize, sugar and cooking oil.[48] Cereals, flours and seed importations increased by 20.3 percent in volume between 2016 and 2017.[49] In the third quarter of 2017, 17.7 percent of globally imported goods comprised "food and live animals" from Uganda and Tanzania.

4.3.2 Cross-border trade flow forecast

Regional cross-border trade in staple food commodities was expected to increase through the second quarter of 2018 in line with increasing supplies from the November 2017 to January 2018 harvest, and the forthcoming May to August 2018 harvest.[50]

Rice imports from Tanzania were expected to increase through the second quarter of 2018. More commodities from the May-to-August harvest were also expected to enter the market amidst high carryover stocks. Low prices in the region will be supported by lower maize prices compared to last year. Locally produced rice will likely be 30 percent above the four-year average by June 2018 reaching 84,000 and 60,000 mt respectively. For maize, most of the regional outflows would be attracted by relatively higher prices in Kenya than in Rwanda, which may reduce regional exports to Rwanda, and thereby sustain or increase local prices.[51]

However, maize grain imports (mainly from Uganda) contributed to lower than expected prices due to average and above average harvest in the region, with the situation expected to prevail through the end of the year.[52]

[45] Rwanda's key destination markets of exports during the third quarter of 2017 were, the United Arab Emirates (38.49 percent share), Switzerland (10.37 percent share), Kenya (10.10 percent share), the Democratic Republic of Congo (9.43 percent share) and Singapore (7.18 percent share). Source: NISR; Formal external trade in goods. Third quarter 2017. December 2017.

[46] NISR, formal external trade statistics report. Third quarter 2017. December 2017.

[47] Ministry of Trade and Industry, National Cross Border Trade strategy 2012-2017.

[48] WFP, Market assessment. Towards market-based food assistance to refugees. October 2014.

[49] BNR, Formal monthly imports report. 2017.

[50] FEWS NET/FAO/WFP, Joint Cross Border Market and Trade Monitoring Initiative. East Africa Cross-border Trade Bulletin. Volume 20. January 2018.

[51] *ibid*

[52] East Africa Cross Border trade bulletin (April, July 2018).

5. Overview of Food Security

KEY MESSAGES

- 81 percent of households in Rwanda are food secure and 19 percent are food insecure, according to the CARI index. (These figures do not indicate a statistically significant change since 2015.)
- Food consumption has slightly improved, economic access to food has steadily increased, and more households were involved in crisis livelihood coping strategies.
- The Western Province has the highest prevalence of food insecure households (30 %), with food insecurity in the districts of Rutsiro and Ngororero at 49 % and 41 %, respectively.
- Households perceive themselves to be more food insecure than revealed in the assessment results.

5.1 The Food Security Situation

Table 5 presents the percentage of households by food security classification for each of the three food insecurity indicators and the FSI. Overall, 81.3 percent of households in Rwanda are considered food secure and 18.7 percent are food insecure (17.0 percent are moderately food insecure and 1.7 percent severely food insecure).

Approximately 467,000 households were found to be food insecure. Of this, close to 42,500 households were severely food insecure, indicating that they have limited or no access to sufficient, nutritious food required to live a healthy life. These severely food insecure households had poor food consumption in the seven days preceding the survey, spent more than 75 percent of their monthly budget on food, and used 'emergency' coping strategies[53] in the last 30 days prior to the survey.

Among the food secure households, almost 40 percent (38.6 percent) were marginally food insecure, indicating that these households were food secure based on their current food consumption, but have a lower coping capacity with the impact of shocks.

Table 5: Food security classification based on the CARI

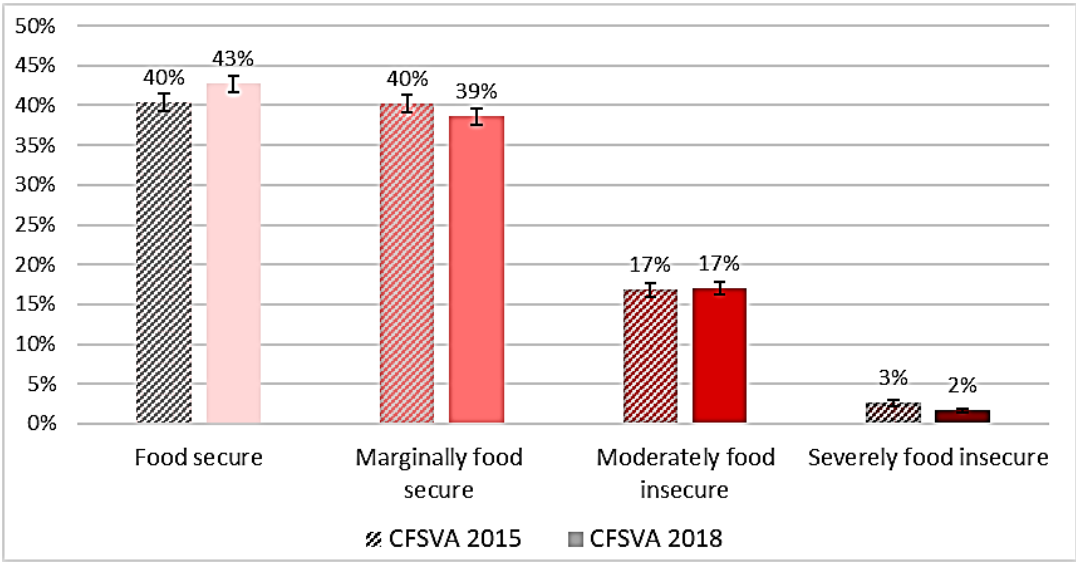
Domain		Indicator	Food secure	Marginally Food Secure	Moderately Food Insecure	Severely Food Insecure
Current Status	Food Consumption	Food consumption Group	**Acceptable**		**Borderline**	**Poor**
			76.2%		20.0%	3.8%
Coping Capacity	Economic Vulnerability	Food Expenditure Share	**< 50%**	**50% - 65%**	**65% - 75%**	**> 75%**
			56.9%	19.6%	10.5%	13.0%
	Asset Depletion	Livelihood Coping Strategy Categories	**None**	**Stress**	**Crisis**	**Emergency**
			46.9%	21.1%	27.0%	5.0%
Food Security Index 2018			**42.7%**	**38.6%**	**17.0%**	**1.7%**
Confidence interval			±1.0%	±1.0%	±0.7%	±0.3%
Total food in/secure 2018			**81.3%** (± 0.8%)		**18.7%** (± 0.8%)	

[53] The analysis is based on 10 livelihoods coping strategies classified as 'stress', 'crisis', 'emergency'. See section 9.3 for further information.

5.1.1 Trends since 2015

Compared to the 2015 CFSVA, the proportion of the total food insecure households in 2018 have not significantly changed.[54] However, significant differences were observed for the fully food secure households (+3 percent) and the severely food insecure households (-1 percent) (Figure 9).

Figure 9: Proportion of households by food security categories in 2015 and 2018



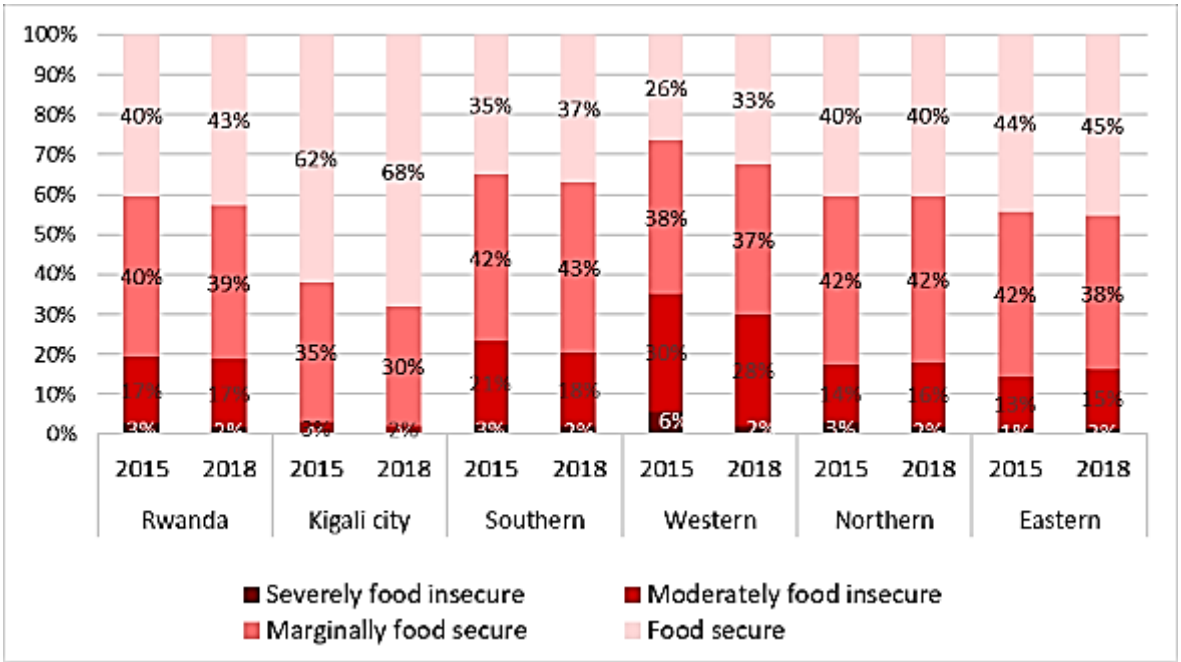
Food consumption slightly improved since 2015 (+2.2 percent households with acceptable food consumption and -3.2 percent of households with poor food consumption). However, the pattern of household resilience has changed since 2015. The **economic access to food** has steadily enhanced with a significant proportion (+20 percent) of households spending less than 50 percent of their budget on food.[55] However, more households were involved in 'crisis' **livelihood coping strategies**[56] (+10 percent when compared to 2015), which might substantially reduce their ability to cope with future shocks.

5.2 Where are the food insecure households?

The Western Province has the highest prevalence of food insecure households (29.9 percent), followed by the Southern Province (20.5 percent), Northern Province (17.8 percent) and Eastern Province (16.2 percent). The lowest prevalence of food insecurity was in the City of Kigali (2.2 percent of moderately food insecure households). While the Western Province maintained the larger proportion of food insecure households, the situation in this province had steadily improved since 2015, with a decrease of 3.4 percent severely food insecure households (Figure 10).

[54] The proportion of total food insecure households is 81.3% ± 0.8% in 2018 against 80.6% ± 0.9% in 2015.
[55] Economic vulnerability is measured using the 'food expenditure share' indicator. This indicator is based on the premise that the greater the importance of food within a household's overall budget (relative to other consumed items/services), the more economically vulnerable the household.
[56] The analysis is based on 10 livelihoods coping strategies classified as 'stress', 'crisis', 'emergency'. See section 9.3 for further information.

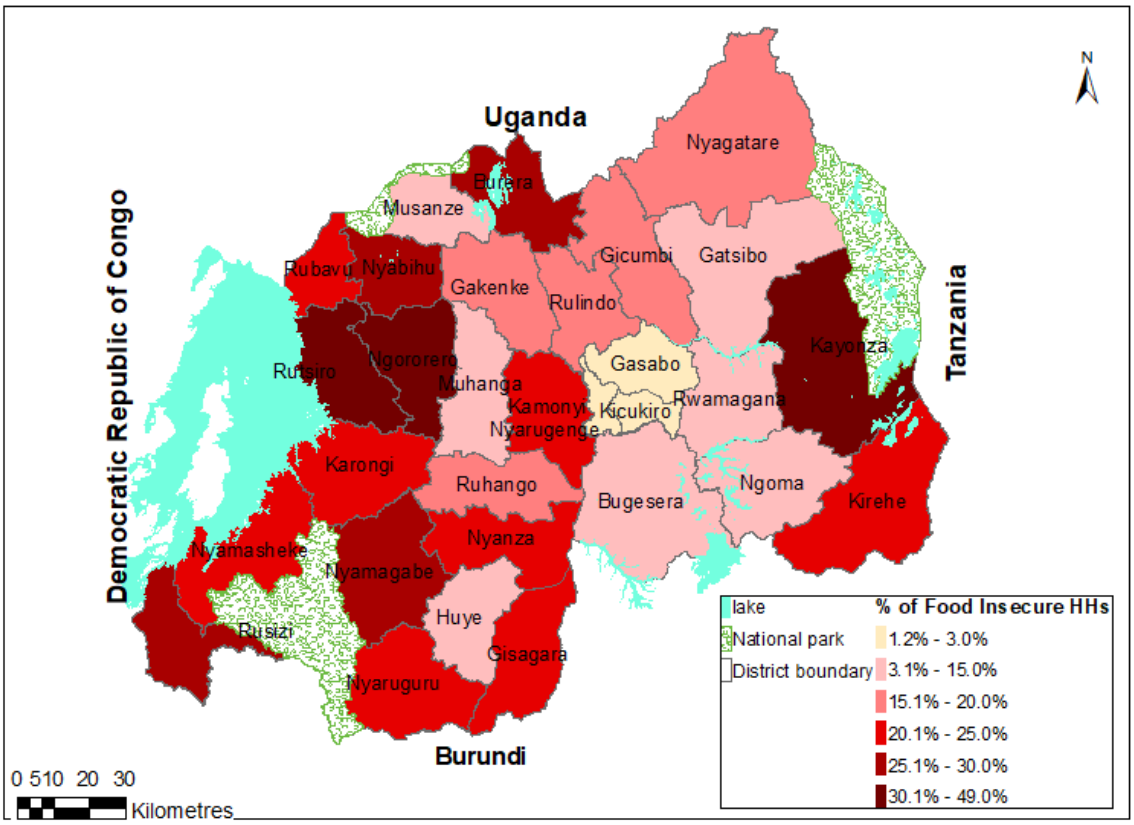
Figure 10: Trends of food insecurity by province



At district level, Rutsiro and Ngororero in the Western Province have the larger proportion of food insecure households (49.0 percent and 40.8 percent, respectively), followed by Kayonza (32.8 percent) in the Eastern Province, Nyamagabe (29.9 percent) in the Southern Province, Burera (29.7 percent) in the Northern Province, Nyabihu (25.7 percent) and Rusizi (25.3 percent) in the Western Province. The higher prevalence of severely food insecure households, however, are in Burera (6.5 percent), Rutsiro (5.6 percent), Kayonza (4.8 percent) and Nyamagabe (3.7 percent) (Table 6).

In comparison with 2015, food security situation has improved in 18 districts all over the country (Figure 11). Significant changes were observed for Bugesera (+19.7 percent of food secure households), Nyamasheke (+13.8 percent), Nyanza (+13.4 percent), Nyabihu (+13.4 percent), Nyamagabe (+13.0 percent) and Nyaruguru (+12.4 percent). In contrast, food security highly deteriorated in Kayonza (-21.9 percent of food insecure households), Ngororero (-17.3 percent), Kamonyi (-12.5 percent) and Rulindo (-8.5 percent) (Figure 12).

Map 5: Percentage of food insecure households per district in Rwanda (2018)



Map 6: Percentage of food insecure households per district (2015)

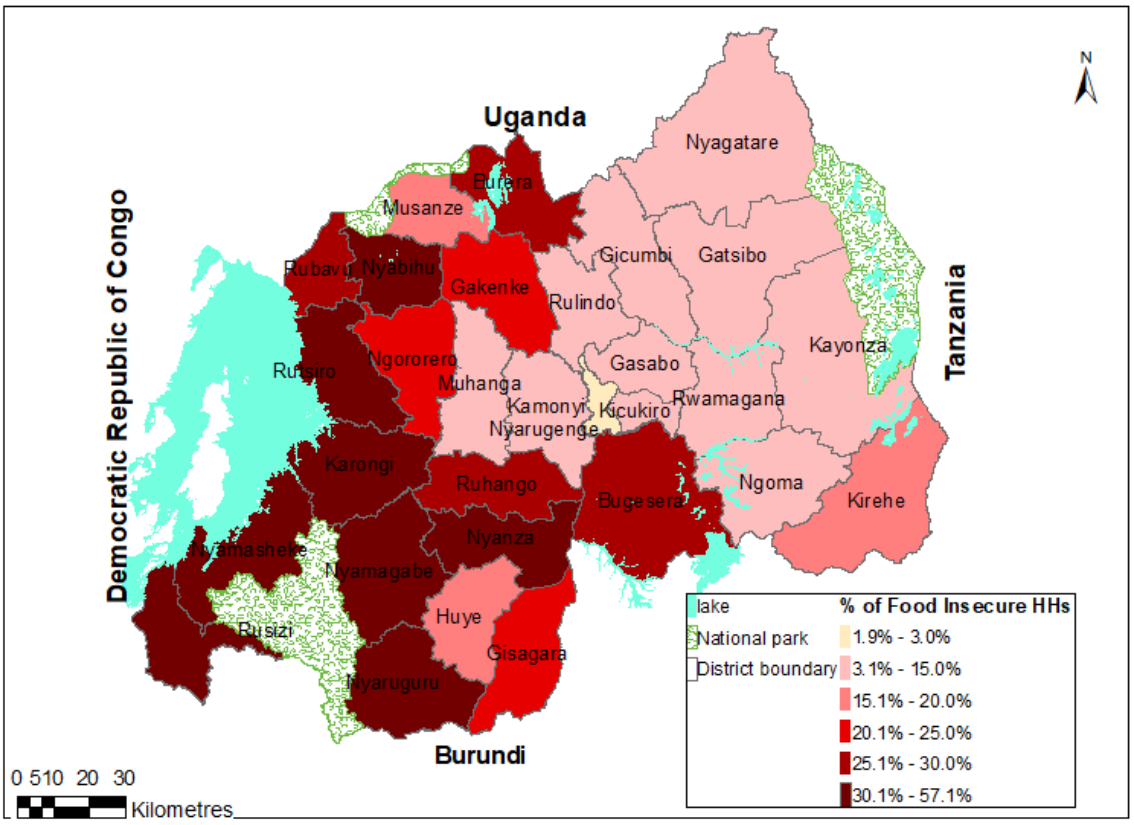


Table 6: Percentage and number of food secure and food insecure households by province and district

HOUSEHOLD FOOD SECURITY STATUS										
	Total households	Food secure		Marginally food secure		Moderately food insecure		Severely food insecure		Total Food insecure	
		%	Households	%	Households	%	Households	%	Households	%	Households
RWANDA	2,503,004	42.7%	1,068,783	38.6%	966,160	17.0%	425,511	1.7%	42,551	18.7%	468,062
Kigali city	331,473	68.1%	225,761	29.7%	98,387	1.9%	6,338	0.3%	987	2.2%	7,325
Southern	603,758	36.8%	222,206	42.7%	257,692	18.4%	111,167	2.1%	12,692	20.5%	123,860
Western	545,167	32.6%	177,687	37.5%	204,433	27.7%	151,090	2.2%	11,958	29.9%	163,047
Northern	433,215	40.4%	175,130	41.7%	180,817	16.0%	69,196	1.9%	8,072	17.8%	77,268
Eastern	589,391	45.5%	267,900	38.3%	225,979	14.7%	86,522	1.5%	8,990	16.2%	95,512
Nyarugenge	60,879	64.5%	39,243	34.4%	20,912	1.2%	724	0.0%	-	1.2%	724
Gasabo	159,794	67.3%	107,612	30.3%	48,429	1.7%	2,767	0.6%	987	2.3%	3,754
Kicukiro	110,800	71.2%	78,907	26.2%	29,045	2.6%	2,848	0.0%	-	2.6%	2,848
Nyanza	65,381	39.4%	25,759	40.6%	26,515	17.9%	11,705	2.1%	1,402	20.0%	13,107
Gisagara	69,400	42.8%	29,703	33.7%	23,381	21.5%	14,954	2.0%	1,363	23.5%	16,317
Nyaruguru	66,543	26.1%	17,384	49.9%	33,178	22.2%	14,782	1.8%	1,199	24.0%	15,981
Huye	86,913	45.0%	39,142	40.6%	35,277	12.1%	10,511	2.3%	1,985	14.4%	12,495
Nyamagabe	73,520	28.4%	20,886	41.8%	30,696	26.2%	19,229	3.7%	2,710	29.8%	21,939
Ruhango	79,949	37.0%	29,606	45.2%	36,162	16.6%	13,280	1.1%	901	17.7%	14,181
Muhanga	78,857	42.5%	33,552	44.4%	35,013	12.2%	9,585	0.9%	707	13.1%	10,292
Kamonyi	83,194	31.5%	26,175	45.0%	37,471	20.6%	17,122	2.9%	2,426	23.5%	19,548
Karongi	76,712	35.6%	27,295	39.5%	30,323	23.4%	17,962	1.5%	1,132	24.9%	19,094
Rutsiro	75,210	19.3%	14,484	31.8%	23,893	43.3%	32,601	5.6%	4,232	49.0%	36,832
Rubavu	76,523	44.1%	33,718	34.0%	26,054	20.6%	15,741	1.3%	1,010	21.9%	16,751
Nyabihu	53,558	43.2%	23,112	31.0%	16,604	23.3%	12,480	2.5%	1,362	25.8%	13,842
Ngororero	89,789	21.5%	19,330	37.7%	33,850	39.2%	35,174	1.6%	1,435	40.8%	36,609
Rusizi	88,952	40.9%	36,353	33.8%	30,044	23.2%	20,678	2.1%	1,877	25.4%	22,556
Nyamasheke	84,423	27.7%	23,395	51.7%	43,664	19.5%	16,453	1.1%	911	20.6%	17,363
Rulindo	77,791	40.5%	31,482	42.9%	33,386	16.1%	12,527	0.5%	397	16.6%	12,923
Gakenke	91,502	44.9%	41,047	40.1%	36,713	13.8%	12,613	1.2%	1,129	15.0%	13,742
Musanze	87,385	49.6%	43,365	38.9%	33,998	10.5%	9,193	0.9%	829	11.5%	10,022
Burera	80,990	28.4%	23,023	41.9%	33,911	23.2%	18,827	6.5%	5,229	29.7%	24,056
Gicumbi	95,546	37.9%	36,213	44.8%	42,808	16.8%	16,036	0.5%	489	17.3%	16,525
Rwamagana	66,381	61.5%	40,795	26.7%	17,700	10.5%	6,997	1.3%	889	11.9%	7,886
Nyagatare	111,576	41.0%	45,691	42.5%	47,463	14.9%	16,649	1.6%	1,772	16.5%	18,422
Gatsibo	79,532	52.8%	42,021	37.0%	29,441	9.2%	7,354	0.9%	716	10.1%	8,070
Kayonza	69,770	37.5%	26,142	29.8%	20,788	28.0%	19,508	4.8%	3,332	32.7%	22,840
Kirehe	81,680	27.3%	22,273	50.2%	40,967	21.9%	17,850	0.7%	590	22.6%	18,440
Ngoma	86,132	48.8%	42,056	37.8%	32,575	12.3%	10,583	1.1%	918	13.4%	11,501
Bugesera	94,321	51.9%	48,923	39.3%	37,045	8.0%	7,580	0.8%	772	8.9%	8,353

Figure 11: Food insecurity percentage per district in 2015 and 2018

(red circle: districts with a high deterioration of food security;
green circle: districts with a high improvement of food security)

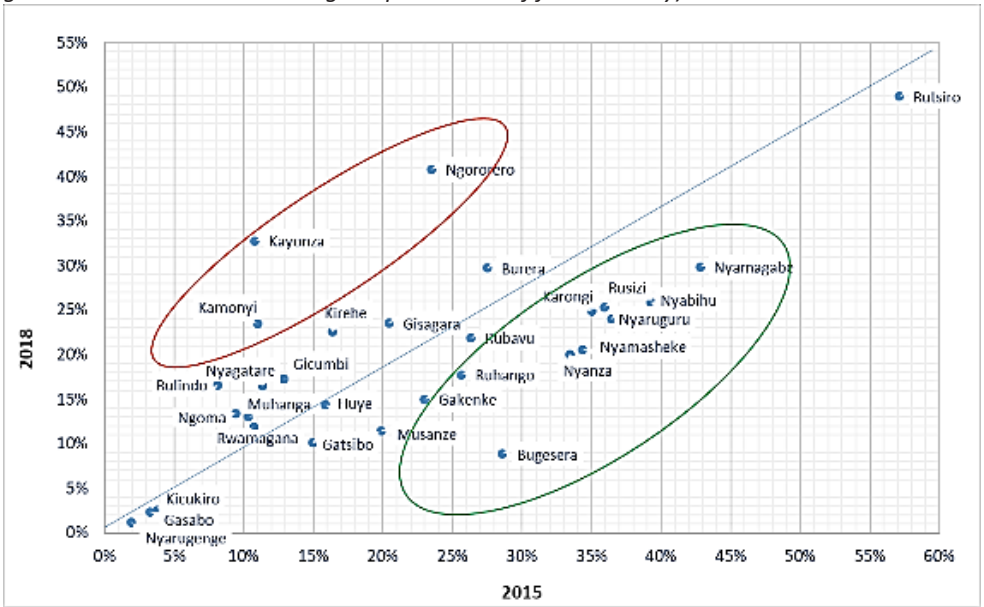
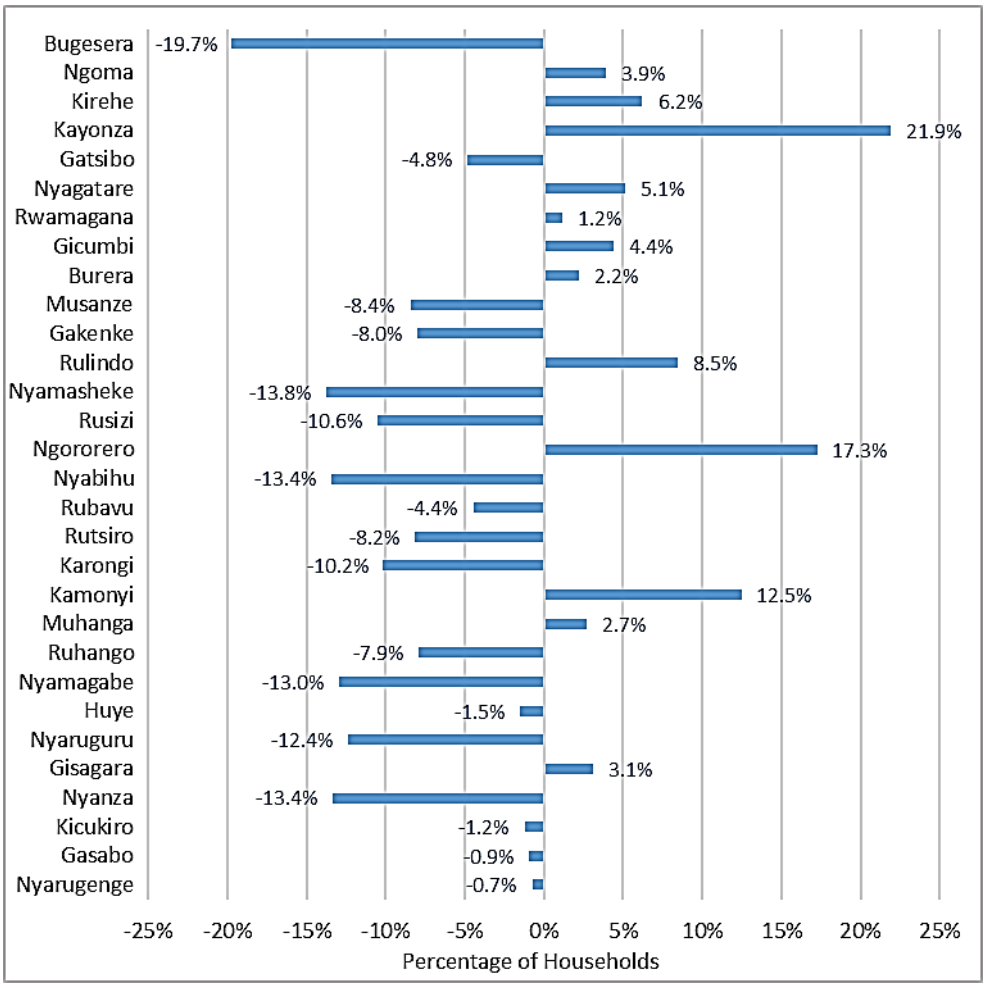


Figure 12: Variation of food insecurity percentage between 2015 and 2018



The analysis by livelihood zone shows an improvement of the situation with a diminution of the prevalence of food insecurity in the Western Congo-Nile Crest Tea Zone (from 49 percent in 2015 to 35.8 percent in 2018), the Lake Kivu Coffee Zone (from 37 percent to 29.5 percent) and the Northern Highlands Beans and Wheat Zone (from 32 percent to 31 percent), which are the three most food insecure livelihood zones. The situation has also significantly become better off in the Bugesera Cassava Zone from almost 26.1 percent of food insecure households in 2015 to 9.7 percent in 2018. However, the overall situation in the Eastern Province has worsened mainly due to successive droughts[57] (Table 7).

Table 7: Percentage of food insecure household by livelihood zones in 2015 and 2018

Livelihood zone	2015 Food insecure	2018 Food insecure	Variation 2018/2015
Kigali city	2.9%	2.0%	-1.0%
Lake Kivu Coffee Zone	37.3%	27.4%	-9.9%
West Congo-Nile Crest Tea Zone	49.1%	35.8%	-13.4%
Northwest Volcanic Irish Potato Zone	21.7%	16.6%	-5.1%
East Congo-Nile Highland Subsistence Farming Zone	25.1%	24.5%	-0.6%
Central Plateau Cassava and Coffee Zone	19.5%	18.5%	-1.0%
Northern Highland Beans and Wheat Zone	31.9%	30.8%	-1.1%
Central-Northern Highland Irish Potato, Beans and Vegetable Zone	11.1%	16.5%	5.4%
Bugesera Cassava Zone	26.1%	9.7%	-16.4%
Eastern Plateau Mixed Agriculture Zone	12.1%	12.5%	0.4%
Southeastern Plateau Banana Zone	11.0%	17.0%	6.1%
Eastern Agropastoral Zone	12.3%	22.6%	10.3%
Eastern Semi-Arid Agropastoral Zone	15.7%	23.8%	8.2%

[57] See section 9 on shocks affecting household food security.

6. Who are the food insecure households?

KEY MESSAGES

- Almost 60 percent of food insecure households are in the two poorest wealth quintiles and 30 percent in Ubudehe 1.
- The profile of food insecure households has not changed since the last CFSVA. Food insecure households have few active members (active members are between 18-60 years old), are more often headed by a person with a low level of education, or a single or a person with disabilities (who is most likely a woman).
- Food insecure households mainly depend on agriculture daily labour, on their own agricultural production (low-income agriculturalist), unskilled daily labour, or on external support for their livelihoods.
- Food insecure households engaged in agriculture have no land or land of small size, grow fewer crops, are less likely to have a vegetable garden or livestock, and are less likely to practice land conservation.

6.1 Household demographics and characteristics of the head of household

In terms of household size, food security tends to increase with the size of the household. But it is mainly the number of active members (between 18 and 60 years of age) who impact household food security. The lower the dependency ratio, the wealthier the household and the better the household food security status.

Food security status varies according to key characteristics of the head of household. Household food security is related to gender, disability, marital status, and education level of the head of household (Figure 13).[58]

Female-headed households (23 percent) are more food insecure compared to male-headed households (17 percent). Female heads of households are mainly widows, which means that the number of active members and the household labour force, in general, may be weaker, and consequently rendering the household more financially vulnerable (Figure 14).

Around 7 percent of heads of household have a disability. These households tend to be more food insecure (27 percent against 18 percent for the heads of households without disability). On the marital status of the head of household, higher rates of moderate and severe food insecurity can be observed among households whose head is single, divorced, or separated (most likely to be women-headed households).

The higher the education level of the head of household, the better the household food security status. Indeed, households whose heads are illiterate – followed by households whose head has only completed primary school – are significantly more food insecure than households whose heads completed secondary or higher education.

[58] Significant statistical differences were observed between the groups for these variables ($p<0.05$). No significant differences were observed related to the age of the head of household.

Figure 13: Food security status by characteristic of head of household and household demography

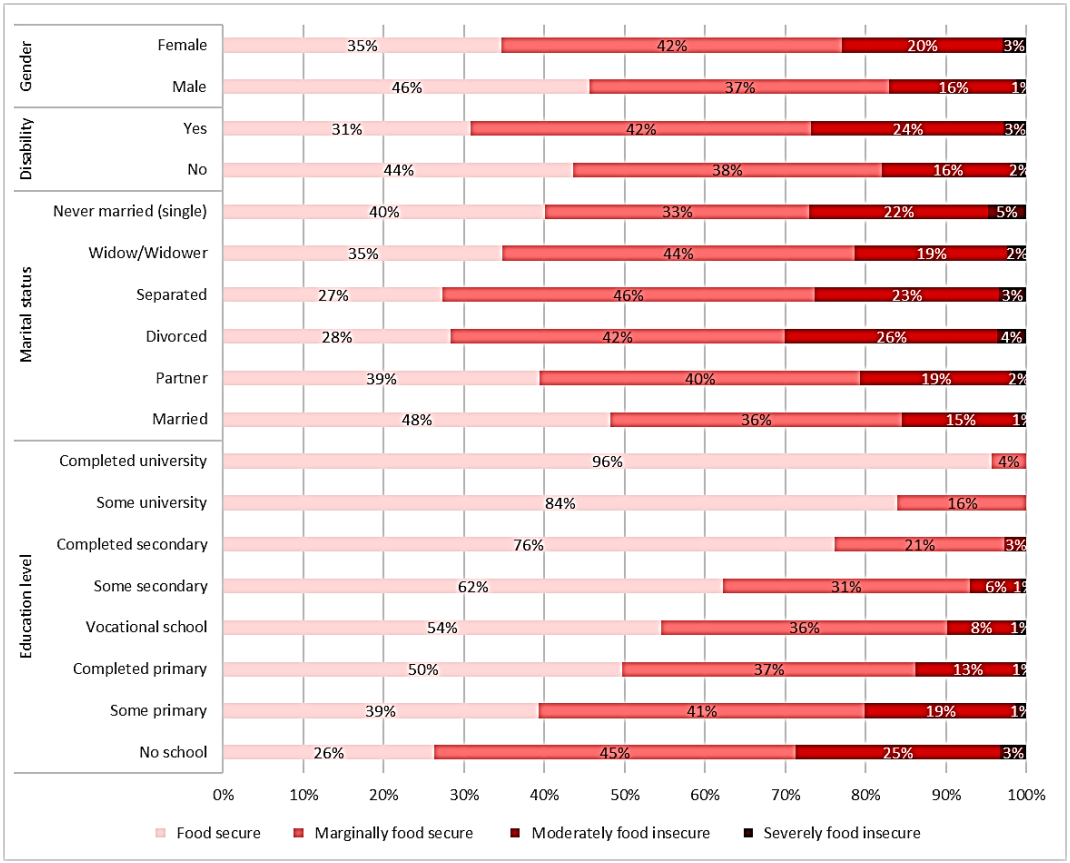
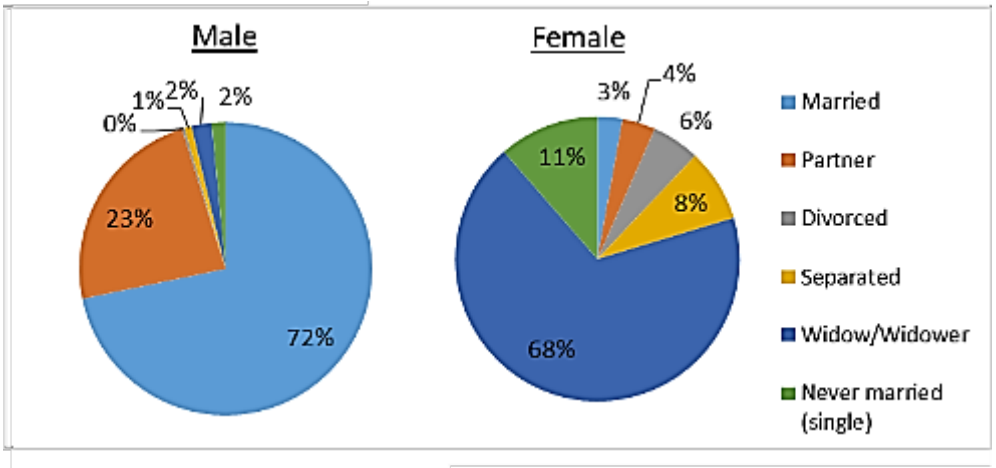


Figure 14: Marital status by gender of head of household



Education and school attendance

In 2018, 73.5 percent of heads of households had at least attended primary school and 65 percent knew how to read and write. Only 54 percent of female heads of household had some education compared to 80 percent of male heads of households. Concerning the other members of the household, 77 percent of the spouse of the head had some education, 64 percent could read and write, and 95 percent of his/her children had attended at least some primary school and 77 percent could read and write.

In 2016, the net enrolment rate for primary school was 98.0 percent for girls and 97.3 percent for boys. Of all households surveyed, 65 percent had a child between 7 and 14 years; of whom 94 percent girls and 93 percent boys were currently attending primary school.

Around 10 percent of these children had missed at least one week of school since January 2018. The most common reason for absenteeism was sickness (85 percent), with less frequent reasons being that the child refused to go (5 percent) or school fees were unpaid (5 percent).

Children in the poorer households were more likely to have been absent than those in wealthier households: in the wealthiest quintile, 12 percent of the households reported at least one child being absent for one week or more during the last 3 months, compared to 29 percent of the households in the poorest quintile.

6.2 Wealth and poverty

6.2.1 Wealth index

In order to estimate household wealth and to allow a comparison between previous CFSVA surveys, a wealth index was developed based on a principal component analysis (PCA) to categorize households into quintiles (poorest, poor, medium, wealthy, and wealthiest), each representing 20 percent of the household population (Figure 15).[59]

The wealth index measures relative wealth and, unlike the poverty line, is not an absolute measure of poverty. It is a composite index that combines the ownership of 13 key assets and housing characteristics: ownership of an iron, TV, mobile phone, cooker, fridge, plough, grinding mill, sewing machine, improved lighting, improved flooring, improved walls, improved toilet, and more than two sleeping rooms in the house.[60] Asset ownership gives an indication of the longer-term economic status of a household and is less dependent on short-term economic changes compared with other wealth or poverty measures. Enhancement in wealth status is related to better housing facilities (Figure 16).

[59] The Wealth Index used in this survey was adapted from CFSVA Rwanda in 2012. The Government of Rwanda, however, recently adapted the global Multidimensional Poverty Index (MPI) to the local context to measure non-monetary poverty. For comparison with previous CFSVA surveys, the Wealth Index was used instead of the Multidimensional Poverty Index. For more information on the PCA used to create the wealth index see annexes.
[60] To facilitate comparison with the findings of the 2015 CFSVA, the same list of assets was used.

Figure 15: Percentage of households in each wealth quintile by province[61]

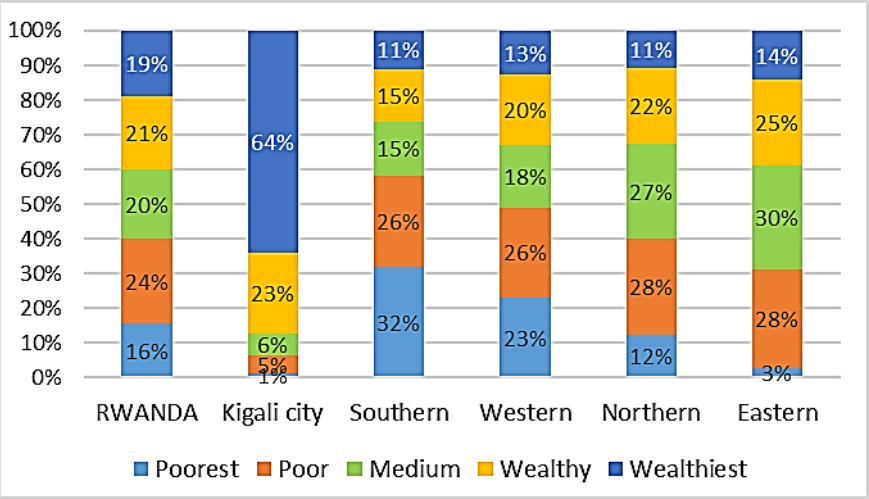
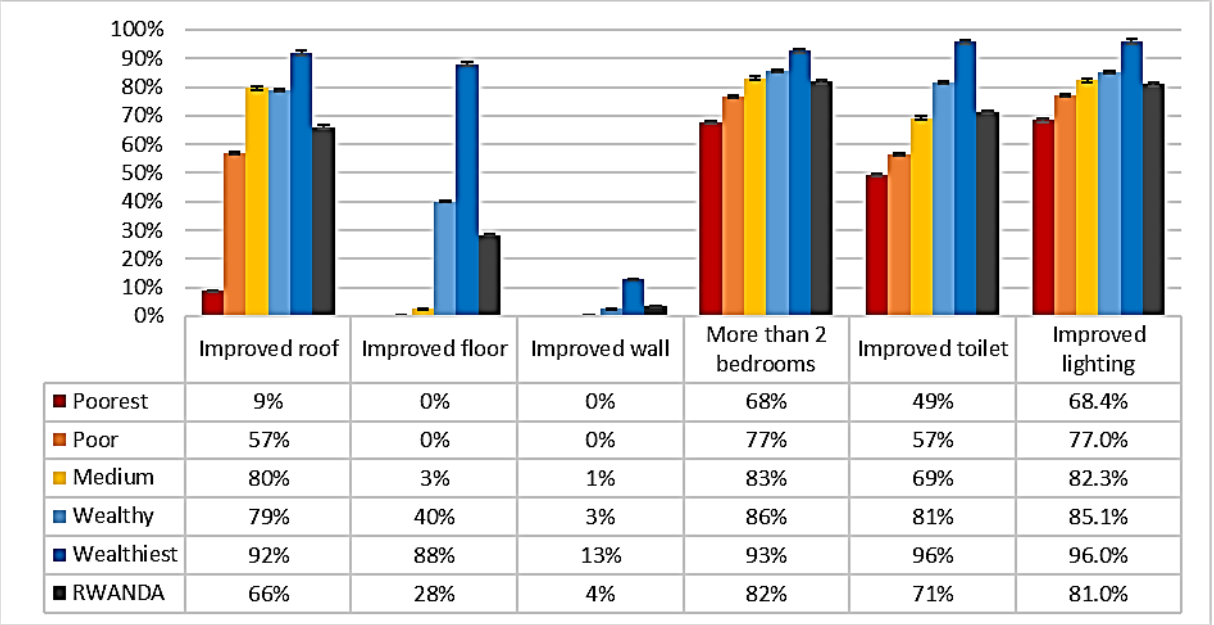


Figure 16: Housing facilities by wealth quintile



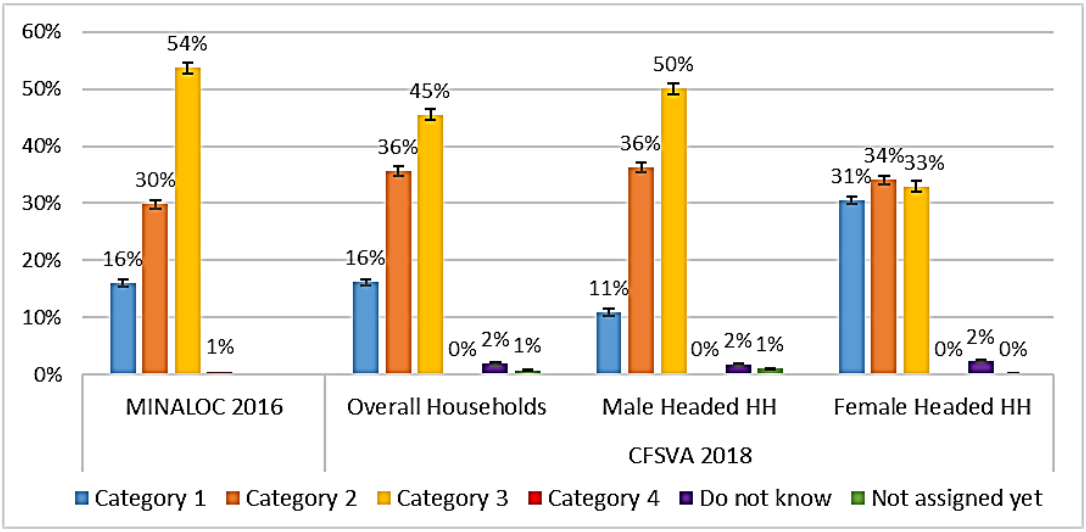
	Improved roof	Improved floor	Improved wall	More than 2 bedrooms	Improved toilet	Improved lighting
Poorest	9%	0%	0%	68%	49%	68.4%
Poor	57%	0%	0%	77%	57%	77.0%
Medium	80%	3%	1%	83%	69%	82.3%
Wealthy	79%	40%	3%	86%	81%	85.1%
Wealthiest	92%	88%	13%	93%	96%	96.0%
RWANDA	66%	28%	4%	82%	71%	81.0%

6.2.2 Ubudehe categories

Since 2015, the Government of Rwanda adopted a system of classifying all Rwandan households in four categories (Ubudehe categories) that reflect their economic status.[62] For the 2018 CFSVA, households were asked in which Ubudehe categories they were classified. The results approximately matched the 2016 Revised Ubudehe categorization carried out by MINALOC. 2018 CFSVA findings showed that one third of female headed households were in Ubudehe 1 against 11 percent of male headed households (Figure 17).

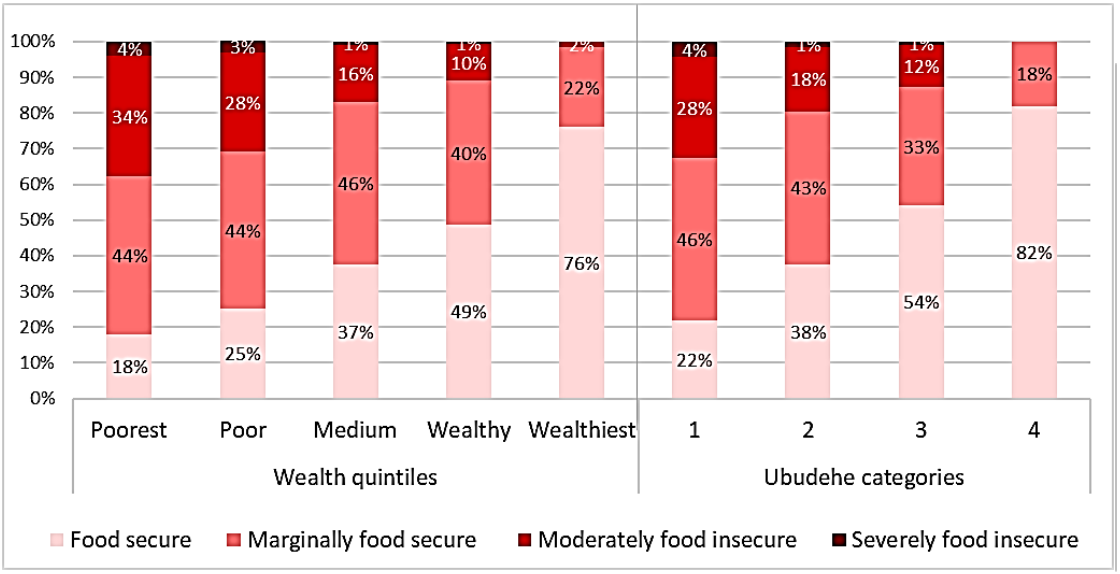
[61] Because the sampled population of Rwanda do not follow a perfect normal distribution for the wealth index variable, the percentage of households in Rwanda in each quintile is not equal to 20 percent.
[62] For further information on the Ubudehe Programme, see Section 12.

Figure 17: Ubudehe households categorization in 2016 and 2018



As derived through the wealth index, the prevalence of moderate and severe food insecurity is significantly higher in households classified in Ubudehe 1 – the poorest category (28 percent moderately food insecure households and 4 percent severely food insecure households).

Figure 18: Food security status by wealth quintile and Ubudehe categories



Food insecurity is related to the economic status of a household. Figure 18 shows that the share of food insecure households is significantly higher (31 to 38 percent of households) in the two poorest quintiles and the percentage of food secure households is significantly larger in the wealthiest quintiles (90 to 98 percent in the wealthiest).

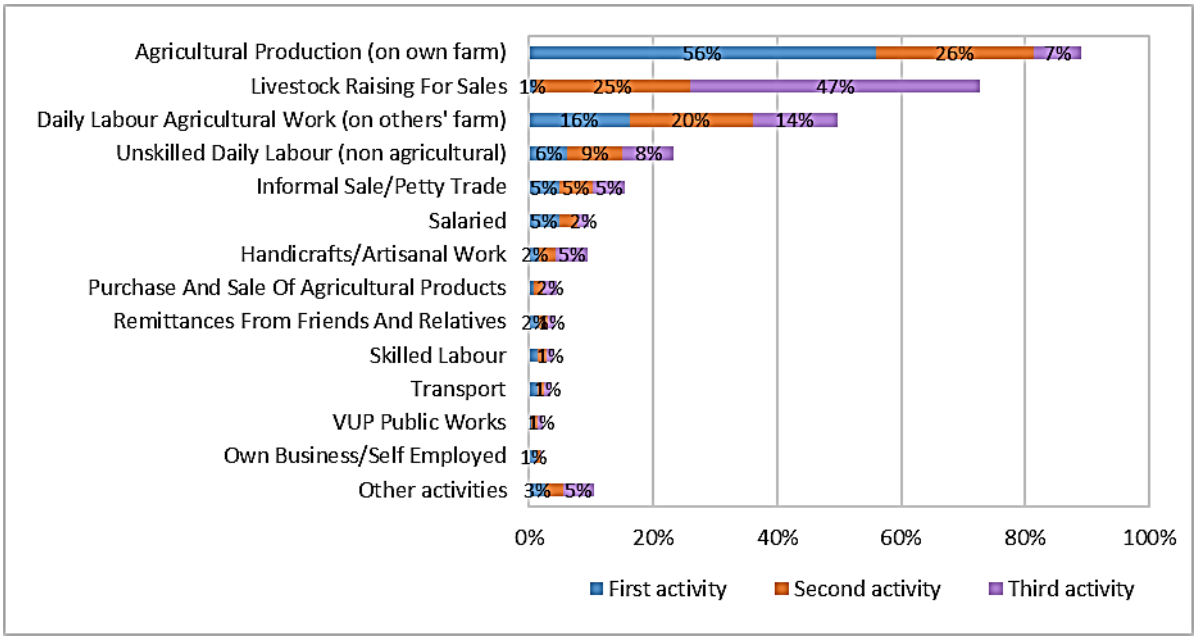
6.3 Livelihood activities

6.3.1 Income-generating activities

Households were asked how many income-generating activities they relied on to sustain their livelihoods. Up to three of the most important income-generating activities were identified along with their relative importance in contributing to overall household livelihood. On average, 89 percent of households had income-generating activities. Almost 28 percent of these households had only one activity, 42 percent had two activities and 30 percent had three or more income-generating activities.

The most common income-generating activity was agricultural production on the household's own farm (practiced by 56 percent of households) and daily labour agricultural work (16 percent). Livestock raising was mainly practiced as a second activity (for 25 percent of households) or a third activity (47 percent of households). Trade, own business, or salaried work were the main income activities of few households (less than 15 percent) (Figure 19).

Figure 19: Percentage of households involved in three main income-generating activities



All household members contributed to income-generation, with a larger contribution from the head of household (50 percent) than from the spouse (33 percent) or children (14 percent). No significant difference was observed in income contribution despite the gender of the head of household.

6.3.2 Livelihood groups

To facilitate analysis by the main income activities, households were grouped together primarily on their main income-generating activity, followed by the similarities in the nature of the activity and the per capita expenditure. Based on this information, households were initially classified into eight groups according to their primary livelihood activity. In addition, households relying on agriculture as their main livelihood activity were divided into a further two groups: agro-pastoralists with at least 10 percent of their income from livestock and purely crop-growing farmers (agriculturalists). The latter group of agriculturalist households was divided even further, based on their level of expenditure as a proxy for income. Agriculturalists with an annual per capita expenditure of less than RWF 159,375 (the

national poverty line[63]) were classified as low-income agriculturalists, while those with an annual per capita expenditure above RWF 159,375 were classified as medium/high income agriculturalists.

This classification exercise resulted finally in ten livelihood groups presented in Table 8: (1) low-income agriculturalists; (2) medium/high-income agriculturalists; (3) agro-pastoralists; (4) agricultural daily labourers; (5) unskilled daily labourers; (6) skilled labourers; (7) formal/informal trade and petty trade; (8) salaried work and own business; (9) transfers/support/begging; and (10) artisanal work and other activities.

One third of households were low-income agriculturalists (32 percent) and one third were either agricultural daily labourers (16 percent) or agro-pastoralists (16 percent). Medium/high income agriculturalists comprised 7.5 percent of the households; unskilled or skilled daily labourers constituted 9 percent of the households while only 2 percent were salaried or had their own business.

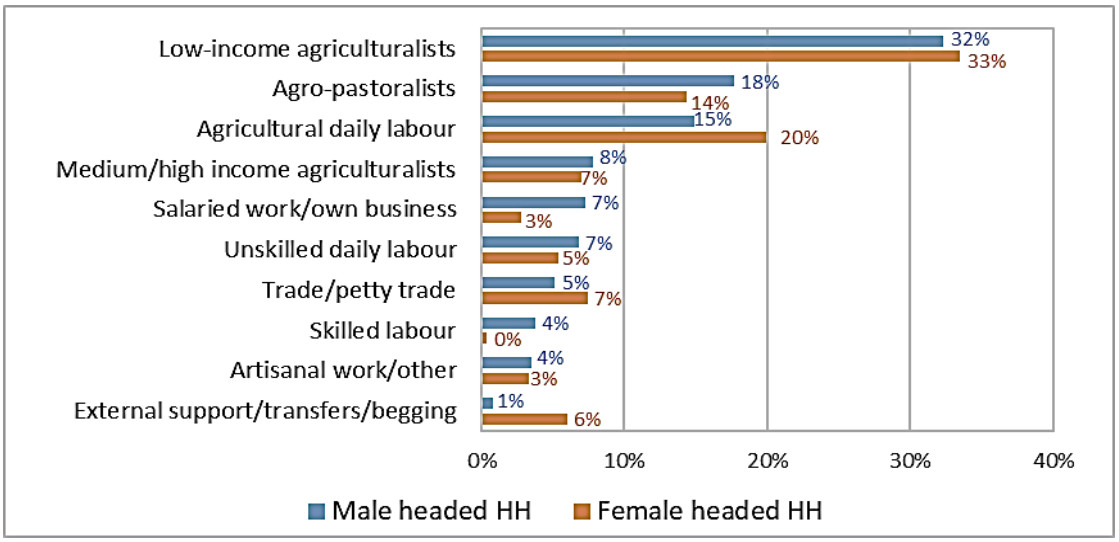
Table 8: Profile of livelihood groups

Livelihood groups	Description (based on average group characteristics)	% in the two lowest wealth quintiles
Low-income agriculturalists Population in Rwanda: 32.5%	Low income agriculturalists obtain the vast majority (79%) of their income from their own land, with some contribution from daily agricultural labour (10%).	48%
Agricultural daily labour Population: 16%	Agricultural daily labourers gain 74.5 percent of their income from daily agricultural labour and 18.5 percent from their own crop production.	64%
Agro-pastoralists Population: 16%	The main income source of Agro-pastoralists is crop production on their own land (63%) with an important contribution from raising livestock for sale (28%).	38%
Medium/high income agriculturalists Population: 7.5%	The medium/high income agriculturalists obtain the vast majority (80%) of their income from their own land and other numerous activities.	17%
Unskilled daily labour Population: 3%	These households combine income from daily labour (71%) with agricultural production (13.5%).	34%
Skilled labour Population: 6%	This group gains 38 percent of income from unspecified skilled labour activities and 40 percent from transport.	5%
Trade/petty trade Population: 6%	These households on average get 64 percent of their income from informal/petty trade, 12 percent from trade with agricultural products and 10 percent from their own agricultural production.	6%
Salaried work/own business Population: 2%	This group gains 64 percent of income from salaried work and 18 percent from their own business or self-employment.	3%
External support/ transfers/ begging Population: 3.5%	These are households that earn the majority of their income from remittances (62%), social transfers (20%) and from agricultural own production (10%).	57%
Artisanal work/other Population: 7.5%	Artisans and households in other activities gain 39 percent of their income from artisanal work and 39 percent from "other activities" with other contributions from own agricultural production (11%).	14%

While male-headed households are more frequent in salaried work/own business group (7 percent), female-headed households are more involved in precarious livelihood groups such external support/ transfers/begging (6 percent) or agricultural daily labour (15 to 20 percent) (Figure 20).

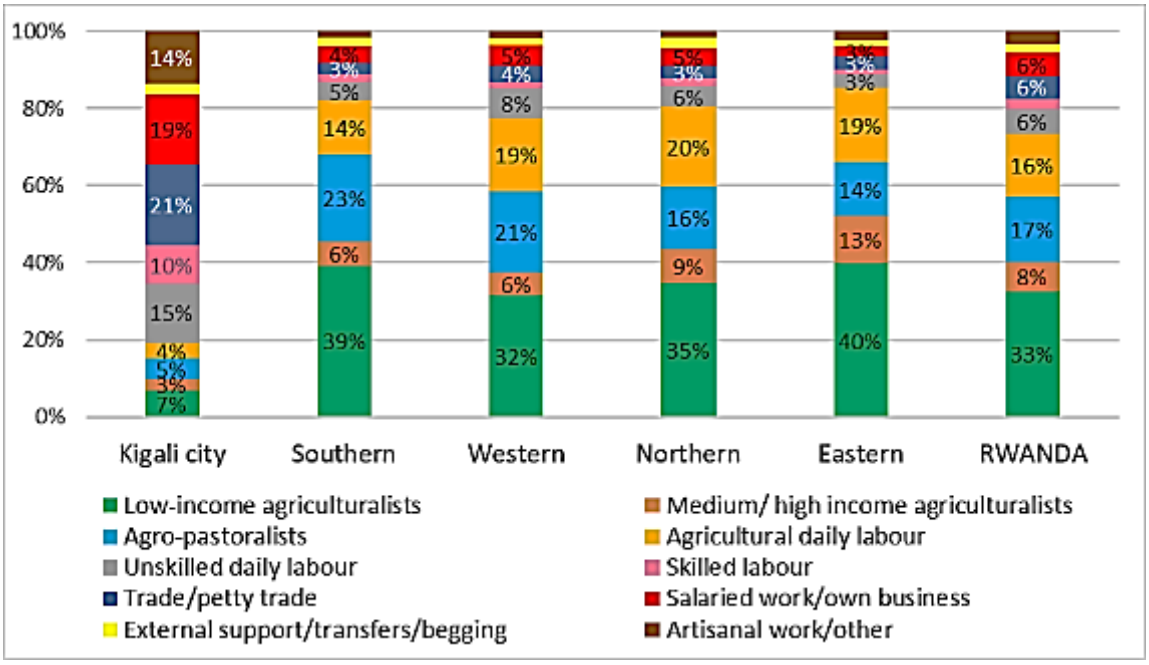
[63] For 2015 CFSVA, the poverty line used was 118,000 RWF. Hence, it is observed that the percentage of low-income agriculturalists increased between 2015 and 2018, likely attributed to the change in poverty line.

Figure 20: Percentage of households in livelihood groups by gender of head of household



The geographical representation of the livelihood groups indicated that most households in all provinces, except the City of Kigali, were low-income agriculturalists. Agro-pastoralists were more represented in the Southern and Western Provinces, while medium/high-income agriculturalists were greater in the Eastern Province. In the City of Kigali, households comprised mostly petty traders (21 percent), salaried/own business workers (19 percent), and non-agricultural unskilled daily labourers (15 percent) (Figure 21).

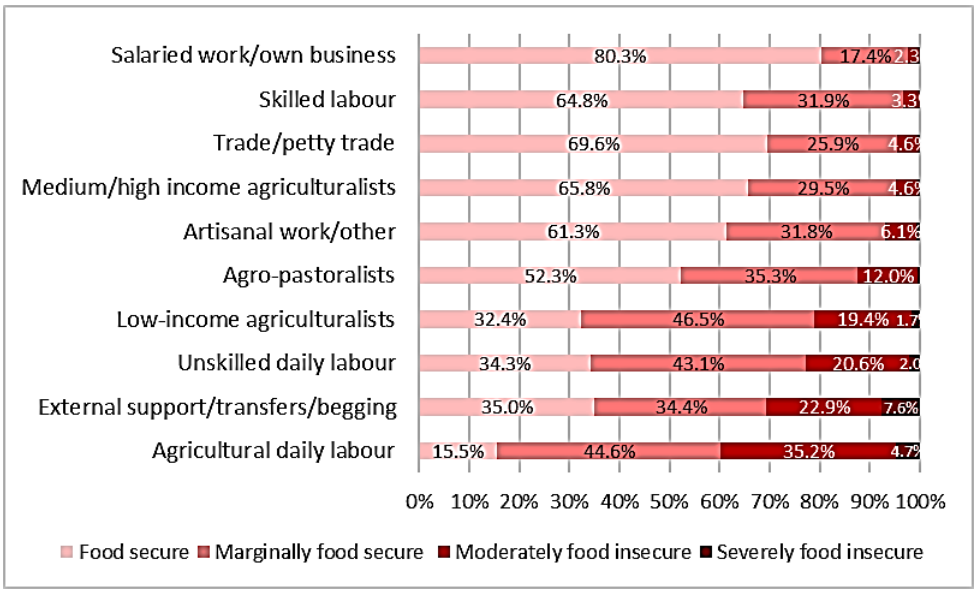
Figure 21: Representation of households by livelihood group by province



6.3.3 Livelihood groups and food security

As identified in the CFSVA 2015, the households engaged in agricultural daily labour represented 16 percent of Rwanda population and were typically the most food insecure (39.9 percent) followed by households living from external support or begging (30.6 percent, with 7.6 percent of severely food insecure), the unskilled daily labourers (22.7 percent), and the low-income agriculturalists (21.1 percent). The most food secure livelihood groups are the salaried workers and business owners (97.7 percent of food secure households), the skilled labourers (96.7 percent) and the (petty) traders (95.4 percent) (Figure 22).

Figure 22: Food security (CARI index) by livelihood group



6.4 Farming activities

Agricultural practices might have a significant impact on the food security status and, more specifically, on the food consumption of the households. Land and livestock ownership, land size, number of crops grown, cultivation of a vegetable garden and land conservation practices are statistically related to the food security status of households.[64]

6.4.1 Land ownership and land tenancy

Access to land is vital for the livelihoods of most rural households in Rwanda. Demographic pressure and slow development of the agricultural sector have resulted in small, semi-subsistence, and increasingly fragmented farms. The 2018 CFSVA findings show that 71 percent of households have farm land or pasture for livestock. On average, the farm land size is between 0.2 and 0.5 ha and the land is generally divided into 3 plots.[65] Female headed households have proportionally smaller land than male-headed households (Table 9). For the agricultural Season 2018A, around 21 percent of households rented land and 4 percent had free access to land.

[64] Food security status is dependent on all these variables at bivariate level based on Pearson Test ($p<0.05$). A general linear model was run between this set of variables and the food consumption score. The low correlation coefficient ($R^2=0.25$) shows that this set of variables do not fully explain the food consumption status of a household.

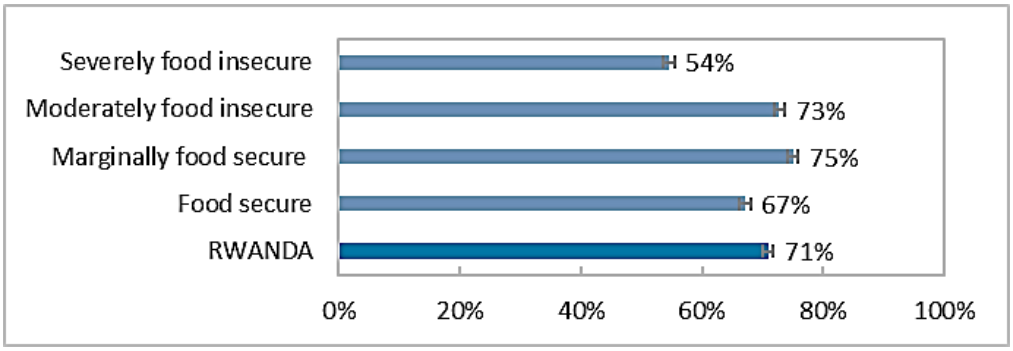
[65] According to SAS 2017, the average land size is 0.6 ha.

Table 9: Land size by agricultural livelihood groups and gender of head of household.

	Farming land size							
	<0.1 ha	0.1 < 0.2 ha	0.2 < 0.5 ha	0.5 < 1ha	1 < 2 ha	2 < 5 ha	5 ha and above	No farm land
Low-income agriculturalists	24.5%	24.2%	21.6%	13.8%	5.4%	0.7%	0.1%	10%
Agro-pastoralists	17.9%	21.8%	21.9%	16.3%	10.5%	3.4%	0.5%	8%
Agricultural daily labour	34.8%	16.9%	8.6%	1.7%	0.3%	0.0%	0.0%	38%
Medium/high income agriculturalists	14.6%	17.2%	21.5%	18.4%	10.2%	4.1%	0.5%	13%
Male headed households	20.5%	18.4%	15.3%	10.4%	5.3%	1.4%	0.2%	28%
Female headed households	24.0%	17.5%	14.5%	8.3%	3.8%	1.0%	0.2%	31%
RWANDA	**21.4%**	**18.2%**	**15.1%**	**9.9%**	**4.9%**	**1.3%**	**0.2%**	**29%**

Land ownership contributes to food security (Figure 23).[66] There are more severely food insecure households that do not own land than households that do. But not all food secure households own land. Indeed, the livelihood analysis showed that households that are not involved in agriculture activities and do not own land are relatively better off than those who are involved in agriculture and own land.

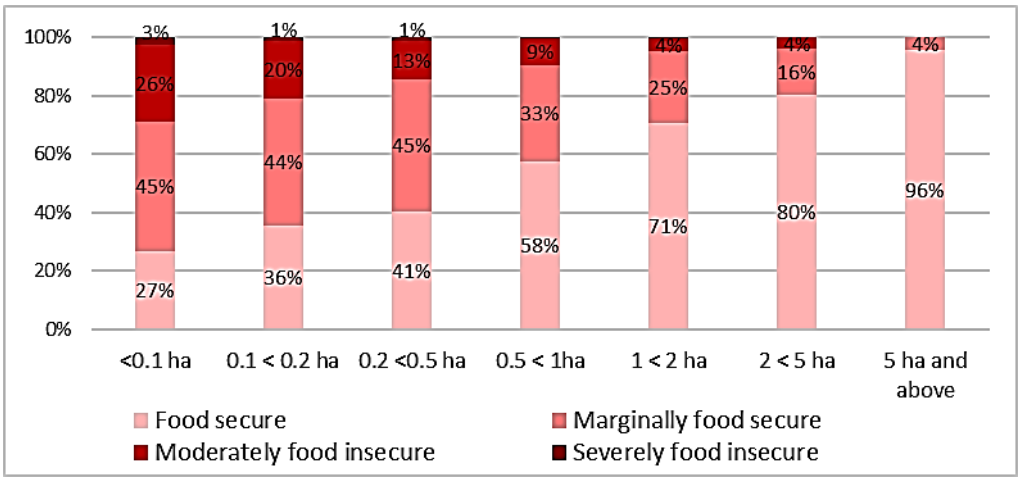
Figure 23: Percentage of households owning a farming or a pasture land by food security status



For households involved in agriculture, food security is closely related to the size of the land ($p<0.05$). 46 percent of severely food insecure households had no land. Thirty two percent of households having less than 0.1 hectare were food insecure, while more than 95 percent of households owning more than 1 hectare were food secure (Figure 24). A household owning a farming land with a minimum size of 0.5 hectare, would increase the probability of being food secure to 90 percent.

[66] Land ownership and food security status are statistically dependent ($p<0.05$, Pearson test).

Figure 24: Food security status by land size

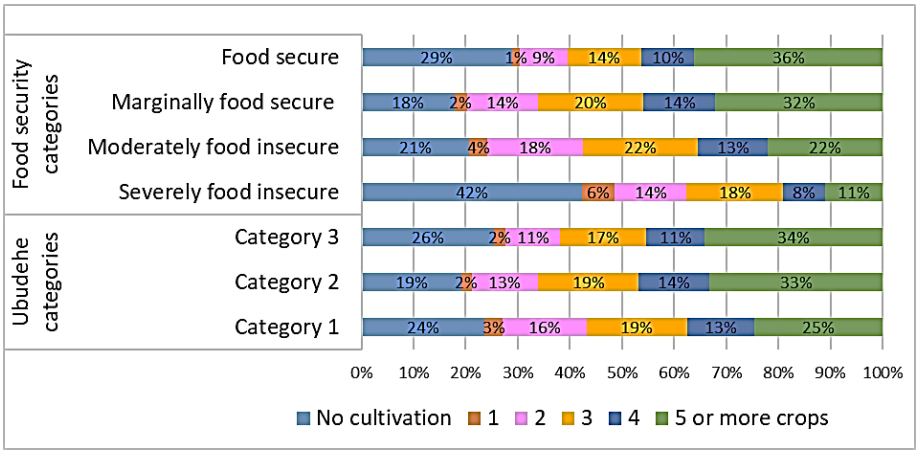


Land tenancy is an important component of the Rwandan land tenure system. The emergence of sharecropping has been brought about by high pressures for land use, which were caused not only by a population increase, but also by the development of cash crop production and the existence of a labour exchange system.[67] For agricultural Season 2018A, around 10 percent of households in the whole country practice sharecropping on their farm land, but this practice is largely adopted by the low-income agriculturalists and agro-pastoralists who have less than 0.2 ha and are mainly in the districts of Kayonza (26 percent of households), Karongi (24 percent), Rusizi (21 percent) and Nyaruguru (18 percent). Land tenancy is an additional productive cost which has a deep impact on the household budget and, by consequence, on the food security status of the households. Indeed, it was observed that the more severely food insecure households (16.7 percent) used sharecropping compared to other food secure groups (10 percent).

6.4.2 Number of crops grown

For agricultural households, the more crops cultivated in Season A, the more likely it was for households to be food secure (Figure 24). Food secure households cultivated, on average, 5.4 crops against 3.2 crops for severely food insecure households.

Figure 25: Percentage of households growing crops during Season 2018A by food security status

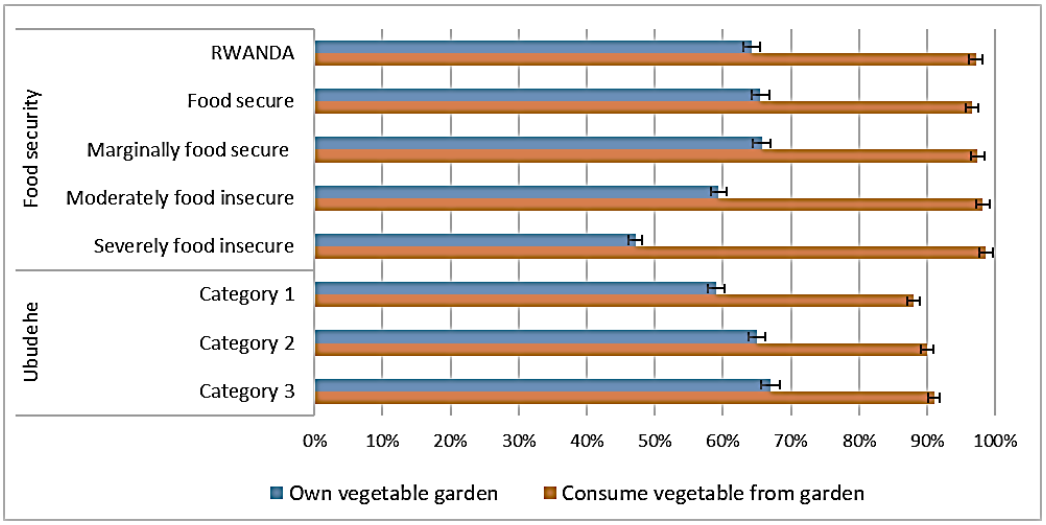


[67] Takeuchi S. and Marara, J. *Regional differences regarding land tenancy in rural Rwanda, with special reference to sharecropping in a coffee production area*. African Study Monographs, Suppl.35: 111-138, March 2007.

6.4.3 Vegetable garden

Owning a vegetable garden contributes to food security of the household.[68] 64 percent of households had a vegetable garden and 90 percent of these households consumed the vegetables grown in their garden (Figure 26). The poorest households (in Ubudehe 1) were less likely to have a vegetable garden.[69] In terms of food security, almost half (47 percent) of the severely food insecure households had a vegetable garden compared with 65 percent of food secure households.

Figure 26: Percentage of households growing a vegetable garden and consuming its vegetable by food security status and Ubudehe categories[70]



6.4.4 Farming practices – land consolidation, irrigation, soil protection

6.4.4.1 Land use consolidation

In Rwanda, since the land area is limited, the scope for expansion of farming into uncultivated lands is minimal. Agricultural land utilization systems in Rwanda should therefore focus on optimizing the use of available farm land. The Land Use Consolidation Policy of 2008 was one of the main pillars of the Crop Intensification Programme (CIP) that was initiated in 2007 by MINAGRI. Land consolidation is a reallocation of parcels of land to overcome the effects of fragmentation. Through this approach, the boundaries and rights of parcels remain intact and the government provides subsidized inputs for farmers in a given area with closed parcels to grow the same priority crops on a minimum sized area of 5 hectares in a synchronized manner.

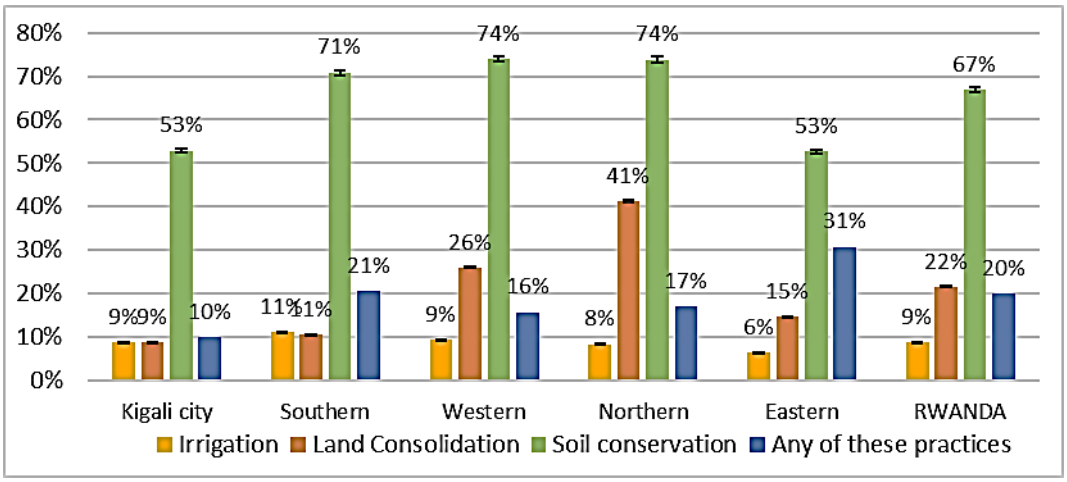
Around 22 percent of all the households owning a land (41 percent of households in the Northern Province and 26 percent in the Western Province) have a portion of their land under the land use consolidation programme.[71].

[68] Vegetable garden ownership and food security status are statistically dependent ($p<0.05$, Pearson test).
[69] Few households in Ubudehe 4 have a vegetable garden. Most of households in Ubudehe 4 are urban households who mainly obtain food from the market.
[70] Very few households from Ubudehe 4 responded to the questions about vegetable garden.
[71] 19 percent of the low-income agriculturalists and 27 percent of the medium/high agriculturalists have a portion of their land under the land use consolidation programme.

6.4.4.2 Soil protection and irrigation

Around 67 percent of agricultural households are engaged in land conservation practices, including terracing and agroforestry, that minimize soil erosion and promote water conservation; 22 percent have land under the land consolidation programme; and 9 percent of agricultural households have a part of their land irrigated. Compared to other provinces, soil conservation and irrigation is less applied in the Eastern Province. Almost 20 percent of households do not practice any irrigation, land conservation, or land consolidation (Figure 27).

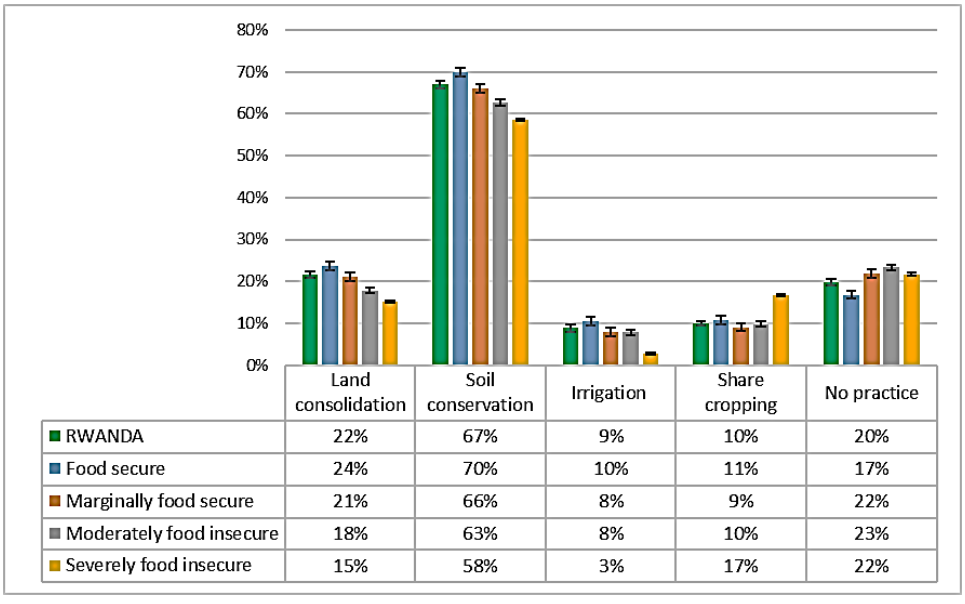
Figure 27: Land consolidation, irrigation and soil conservation practice by province



6.4.4.3 Farming practices and food security

Figure 28 shows that households involved in the land consolidation programme, practicing soil erosion control or irrigation are more likely to be food secure.[72] More severely food insecure households require alternatives to the practice of sharecropping.

Figure 28: Farming practice by food security status



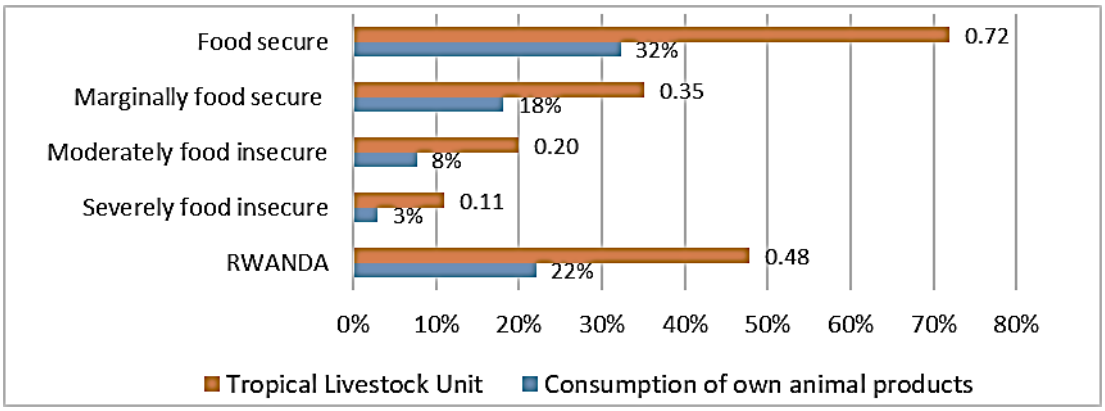
	Land consolidation	Soil conservation	Irrigation	Share cropping	No practice
RWANDA	22%	67%	9%	10%	20%
Food secure	24%	70%	10%	11%	17%
Marginally food secure	21%	66%	8%	9%	22%
Moderately food insecure	18%	63%	8%	10%	23%
Severely food insecure	15%	58%	3%	17%	22%

[72] Food security and farming practice are statistically not independent (p<0.05 Khi2 Pearson Test).

6.4.5 Livestock

Ownership of livestock is associated with better household food security.[73] Around 68 percent of households raised livestock, mainly cattle.[74] Based on the tropical livestock unit (TLU) which combines the number and the type of livestock, a higher TLU corresponds to a better household food security status mainly due to a higher consumption of animal source products (Figure 29). Severely food insecure households raised smaller animals like chicken or rabbits. Only 10 percent of severely food insecure households had cattle and 6 percent had goats.[75] Only 3 percent of severely food insecure households consumed products from the animals they own.

Figure 29: Average Tropical Livestock Unit and percentage of consumption of animal products



Gender in livestock and agricultural practices

The 2004 National Land Policy and the Organic Land Law revised in 2013 guarantee equal rights between men and women in all aspects of acquisition, registration, and management of land. However, land typically depends on the husband's needs and priorities within a married couple. But when women have land tenure security, they can grow more and earn more and consequently spend a higher proportion on caring for the family, especially on food and other care-related matters than men (IFAD, 2015). Further, women still grow subsistence crops due to social norms and their caring nature, while men mostly grow cash crops.[76]

The CFSVA findings show that female headed households comprise mainly widows.[77] These households are more vulnerable in terms of labour force. It was found that female headed households had no land or had access to small-sized land (<0.5 ha) compared to male-headed households; however, no information was collected about the quality of land owned by these households. Female-headed households more practiced land sharecropping (12 percent) and were less engaged in the land consolidation programme (16 percent). A fewer proportion practiced soil conservation techniques or had irrigated land compared to male-headed households (Figure 30).

[73] At bivariate level, livestock ownership has a positive effect on the food consumption score ($p<0.05$).
[74] See chapter 4.1.3 on livestock.
[75] In terms of Ubudehe categories, 17 percent of households in Ubudehe 1 raised cattle and 16 percent raised goats.
[76] MIGEPROF, Rwanda Country Strategic Review of Food and Nutrition Security. June 2018.
[77] 68 percent of females managing a household are widows. See previous section about the characteristic of households.

A lower percentage (62 percent) of female headed households cultivated vegetable gardens but they did it entirely for their own consumption. Female-headed households owned less or smaller livestock than male-headed households (0.33 TLU against 0.53 TLU) and consumed less of their animal products (Figure 31).

Figure 30: Farming practice by gender of head of household.

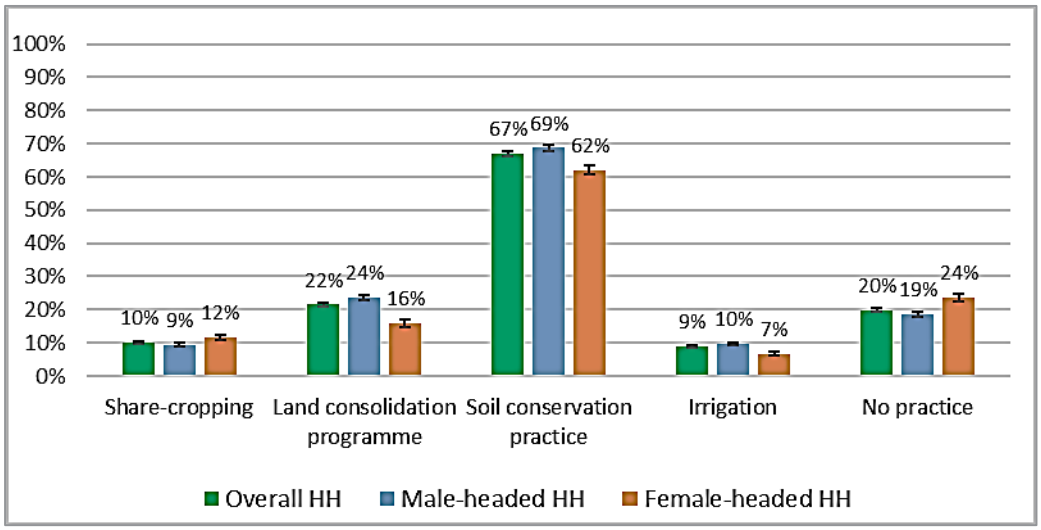
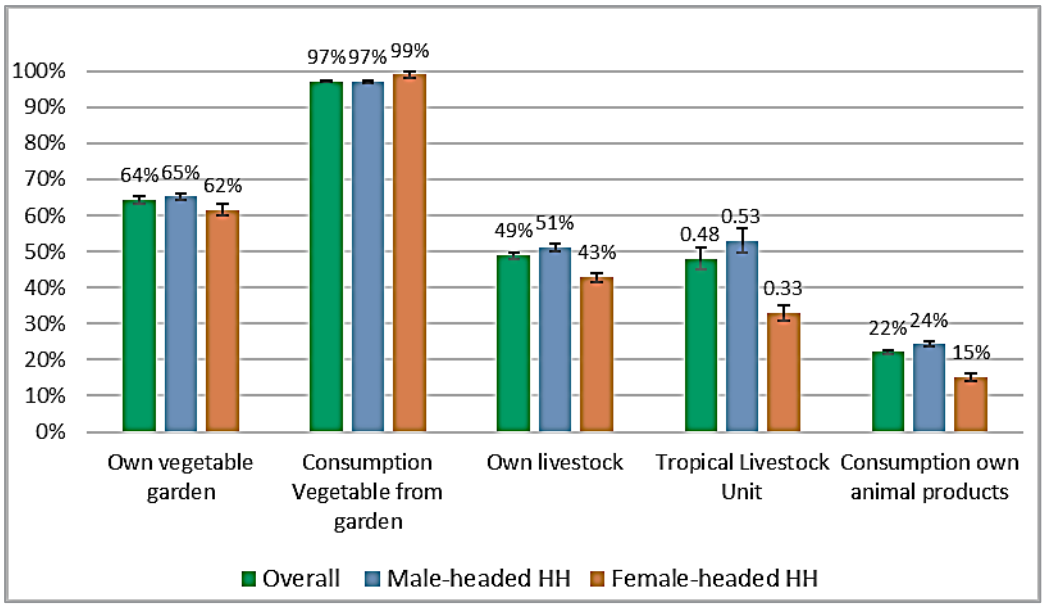


Figure 31: Vegetable garden, livestock ownership, and own product consumption by gender of head of household



7. What do they eat?

KEY MESSAGES

- Overall trends showed no visible change in food consumption since 2009. 76 percent of households had an adequate food consumption, 20 percent had borderline food consumption and 4 percent poor food consumption.
- Starches and vegetables were consumed by all food consumption groups.
- Households with poor and borderline food consumption did not consume animal products, dairy products, and fruits.
- Food secure households consumed more than 4 food groups.
- 56 percent of households had a daily consumption of vitamin A-rich food and 69 percent of protein-rich food.
- Rutsiro District had the highest prevalence of inadequate food consumption (62 percent, including 23 percent of poor food consumption), based on the food consumption score.
- 65 percent of foods consumed by a household were purchased from the market; however, agricultural households consumed up to 50 percent of their production.

7.1 Food consumption and dietary diversity

7.1.1 Food consumption trends

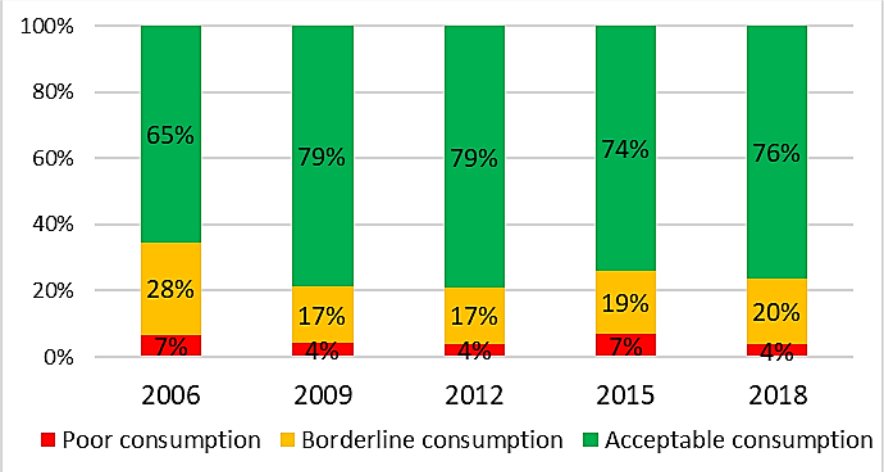
The food consumption score (FCS) is one of the three indicators used to compute food security status at the household level.[78] The FCS is calculated from the types of foods and the frequency with which they are consumed during a seven-day period. Based on their score, households are then classified into three consumption categories: poor (FCS≤21), borderline (21<FCS≤35) and acceptable consumption (FCS≥35). Those with poor and borderline food consumption are grouped and classified as having inadequate food consumption.

In March-April 2018, more than one in five households (23.8 percent) had inadequate food consumption, with 3.8 percent of them consuming a poor diet and 20 percent consuming a borderline diet. On a national basis, the food consumption pattern does not fluctuate much over the years, as shown in figure 32. Food consumption had slightly deteriorated in 2015 but the situation in 2018 had significantly recovered (+2.2 percent adequate food consumption and -3.2 percent poor food consumption), despite the severe drought in 2016 and economic inflation.[79]

[78] Refer to CARI Approach in the Section 3 above and to the Consolidated Approach to Reporting Indicators of Food Security (CARI) Guidelines for further information.

[79] From 2015 to 2018, the proportion of acceptable food consumption varied from 74.0 ± 1.0% to 76.2 ± 0.8%, borderline food consumption from 19.0 ± 0.9% to 20.0 ± 0.8% and poor food consumption from 7.0 ± 0.6% to 3.8 ± 0.4%.

Figure 31: National trends of food consumption groups (2009-2018) (CI: 95%)

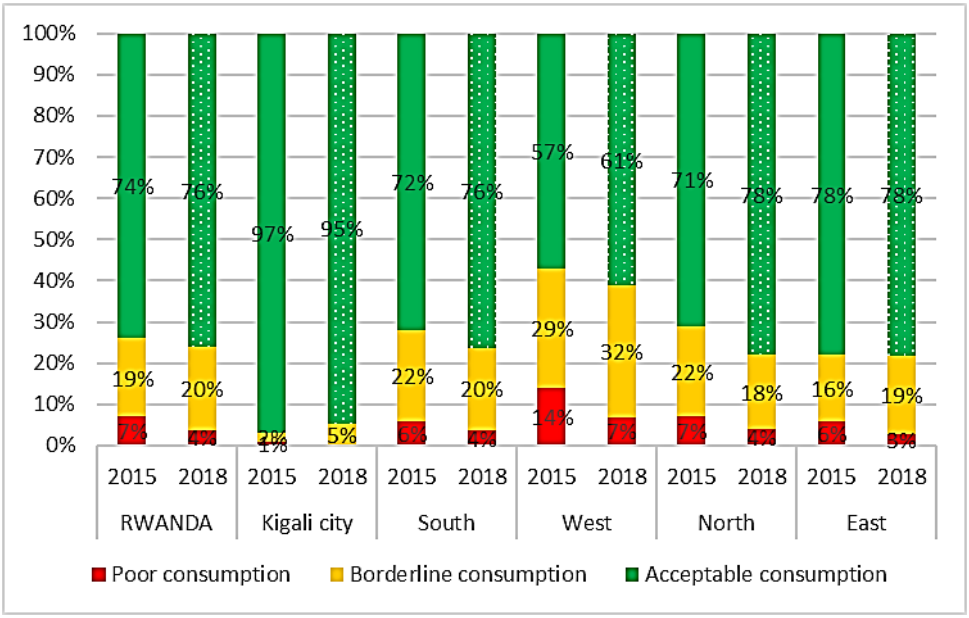


7.1.2 Geographical disparities in food consumption

At province level, the proportion of households with a poor food consumption had reduced in all provinces and a significant increase in the percentage of households with an adequate food consumption was observed in the Northern Province (+7 percent adequate food consumption), the Southern Province (+4 percent), and the Western Province (+4 percent) compared to 2015. The improvement in food consumption was less significant in the Eastern Province, which is more prone to the impacts of climate hazards.

Although the poor food consumption rate dropped from 14 to 7 percent, the Western Province remains the highest food insecure province (32 percent of borderline consumption and 7 percent of poor food consumption) (Figure 33).

Figure 32: Food consumption groups by province



At the district level, food consumption had improved in 17 districts since 2015. But Rutsiro District remained, by far, the most food insecure with 62 percent inadequate food consumption, including 23 percent of households with poor diet. Food consumption seriously deteriorated in Kayonza (from 16 percent inadequate food consumption in 2015 to 28 percent in 2018), Ngororero (from 32 percent to

50 percent) and Kamonyi (from 16 percent to 29 percent). Food consumption continued to remain inadequate in Karongi, Burera, and Rusizi Districts with 36 percent of households indicating borderline or poor food consumption.

Map 7: Inadequate food consumption in Rwanda by district in 2018

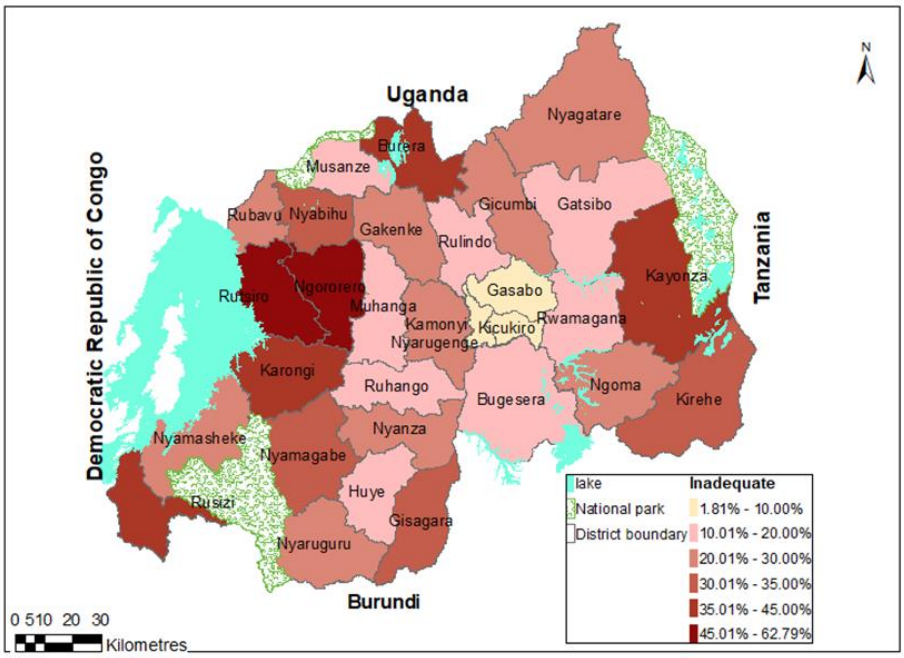
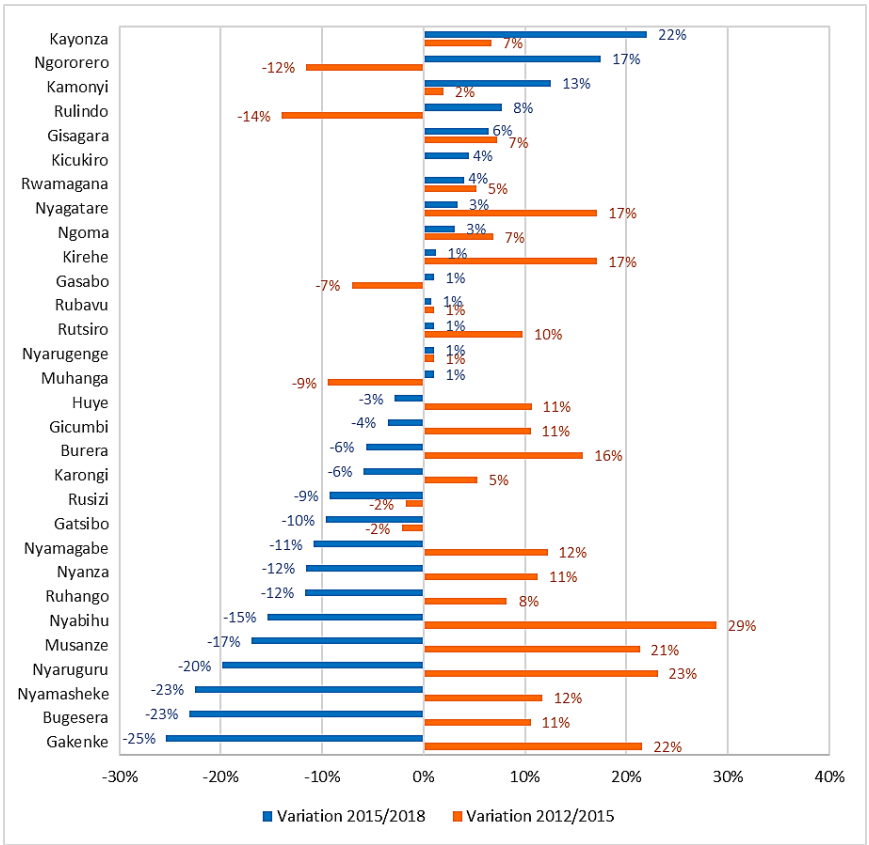


Figure 33: Variation of households' adequate food consumption per district and between 2012/2018 and 2015/2018

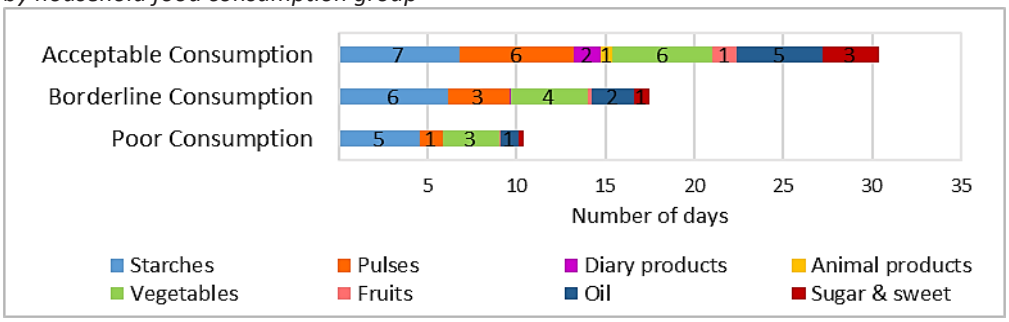


7.1.2.1 Composition of the diet

As the calculation of FCS does not include the number of meals taken on a daily basis, households were asked this in the survey to better understand the frequency and composition of their daily dietary intake. Children and adults in a household with acceptable food consumption usually eat twice a day, while the adults in a household with poor or borderline food consumption usually eat once a day and children twice a day.

The Rwandan diet is based primarily on staples (starch) and vegetables (Figure 35). The FCS increases with households consuming more pulses (vegetable proteins) and oil (fats). The acceptable weekly food diet in Rwanda is composed of daily consumption of starches, pulses, vegetables, and oil and consumption of meat, milk products and fruits once or twice a week. It was observed that there was no consumption of animal products,[80] fruits, and sugar by households with poor or borderline consumption.

Figure 34: Number of days in a week different food groups are consumed by household food consumption group

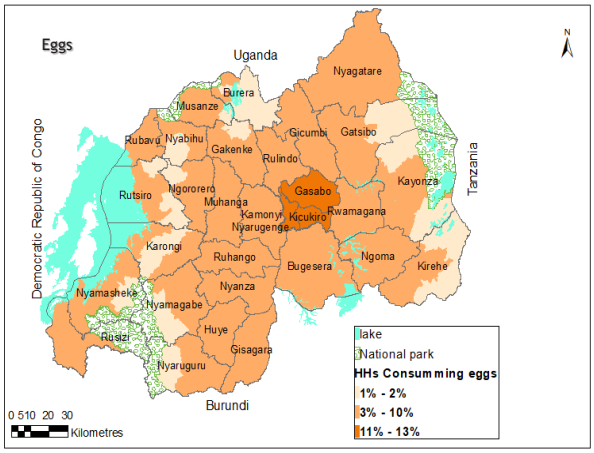


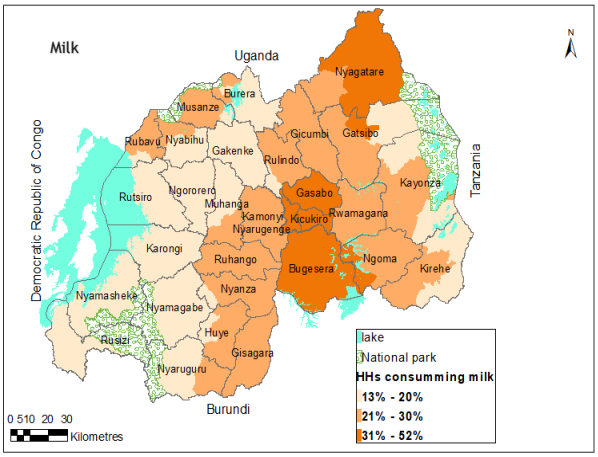
Food consumption behaviour remains relatively constant over many years. Geographical patterns in the consumption of specific food items across the country were studied for 2012 CFSVA. Map 7 presents the situation in 2018. Animal proteins (eggs, milk, meat, fish) intake was relatively high in the City of Kigali and in Bugesera District. Milk, meat, and fish consumption doubled in Bugesera district compared to 2012, which partially explains the improvement of food security in this district. Milk is mostly consumed in the northeast of the country that is also known for its livestock production, although meat consumption in this area had decreased.

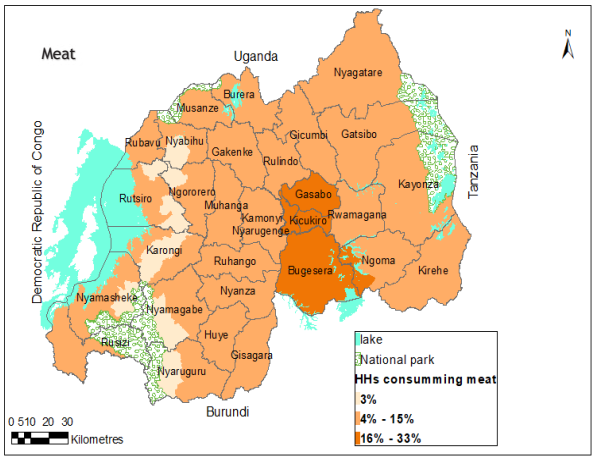
Fish was also most consumed along Lake Kivu although the percentage of consumption had decreased since 2012. Pulses, including beans, are widely consumed everywhere, but relatively less along Lake Kivu. In 2012, yellow sweet potatoes used to be consumed in the North and on the Congo Nile Crest. In 2018, the consumption of the more nutritious orange fleshed sweet potatoes improved in the Northern Province as well as in the Bugesera and Nyagatare Districts.

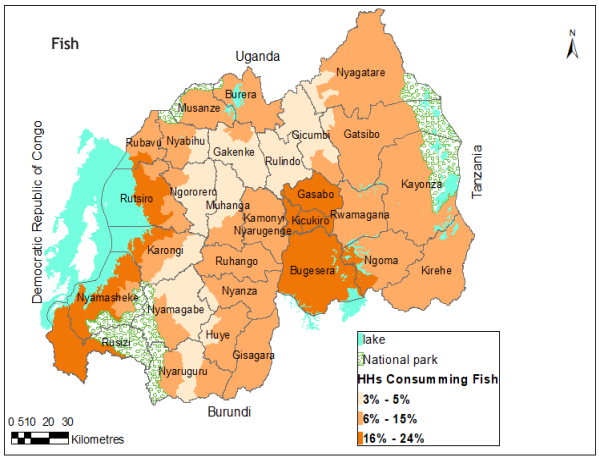
[80] Animal products include milk and dairy products, flesh meat, organ meat, fish, other seafood, and eggs.

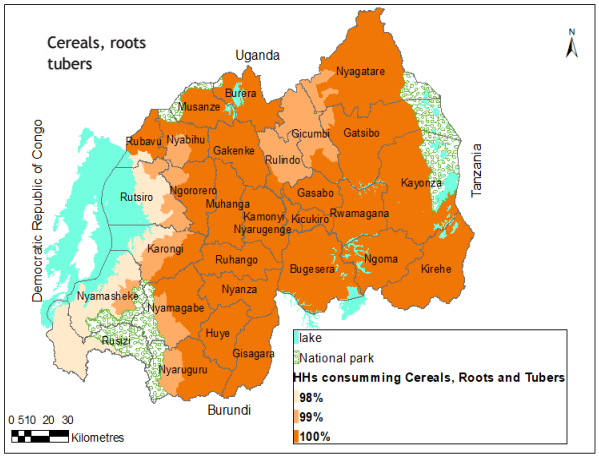
Map 8: Percentage of households consuming different foods at least once a week in 2018.

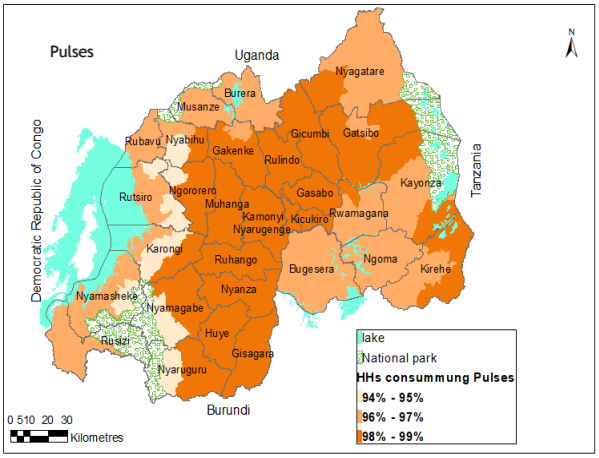


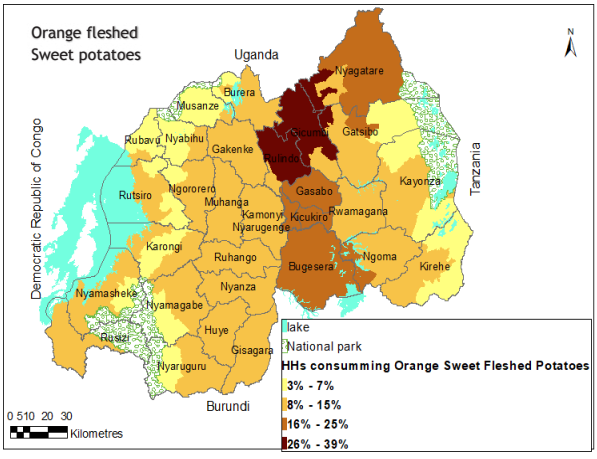








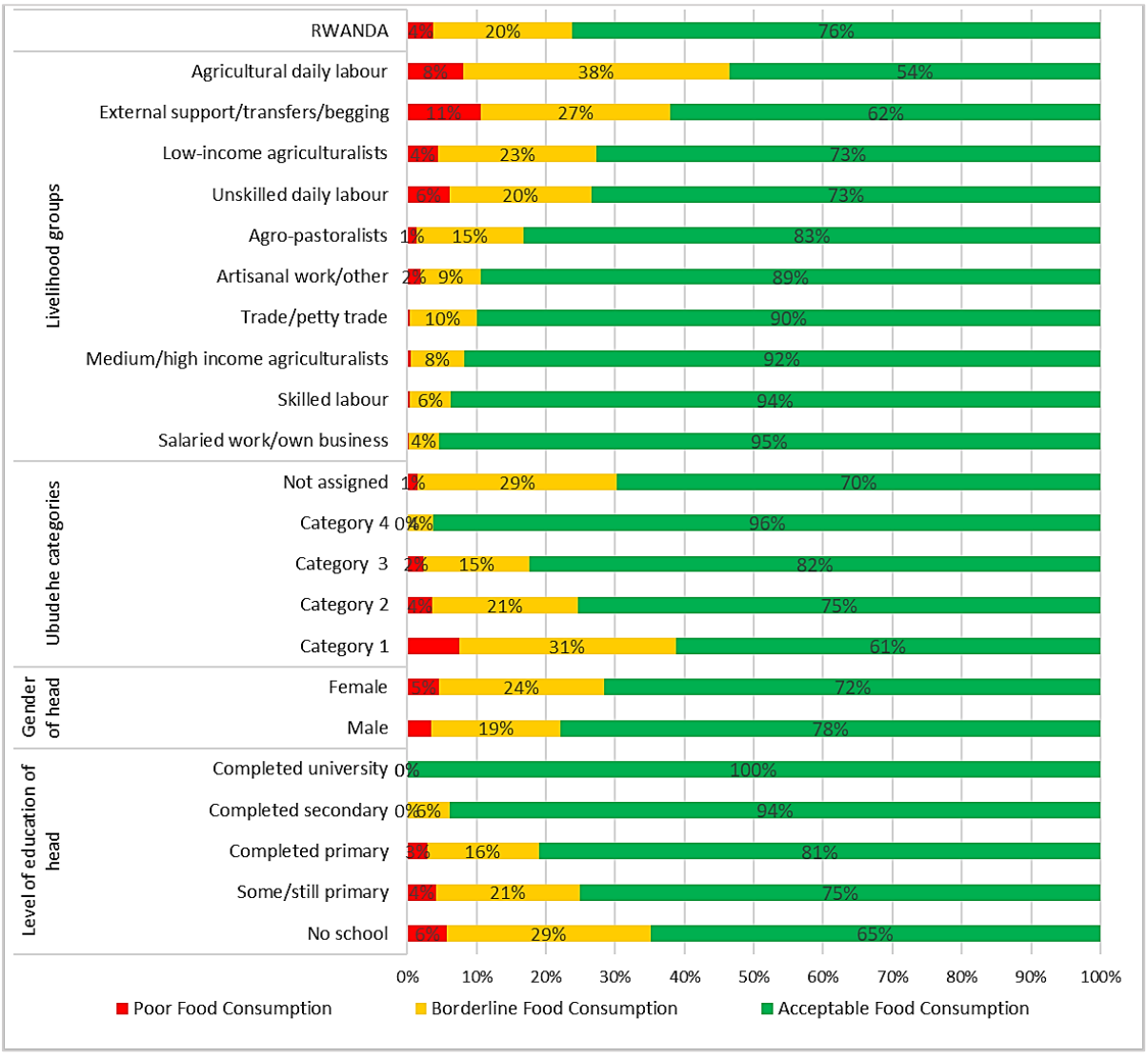




7.1.2.2 Food consumption by household characteristics

There are significant differences ($p<0.05$) in food consumption depending on the characteristics of the household (Figure 36). A larger proportion of households with an inadequate food consumption was found in the poor (36 percent) and poorest (43 percent) quintiles based on the wealth index or in households classified in Ubudehe 1 (38 percent). According to the livelihood groups, inadequate food consumption is higher in households comprising agricultural daily labourers (46 percent) and households living on external support, transfers, or begging (38 percent). A higher prevalence of inadequate food consumption was found among people living alone (34 percent) or among female-headed households (29 percent against 22 percent for male), or households headed by a person with no school education (35 percent) or only some primary education (25 percent).[81]

Figure 35: Food consumption by household characteristics (p<0.05)



[81] No significant difference was found for inadequate food consumption according to the age or marital status of the head of household or the number of income activities of the households.

7.1.3 Nutritional value of food items consumed (FCS-N)

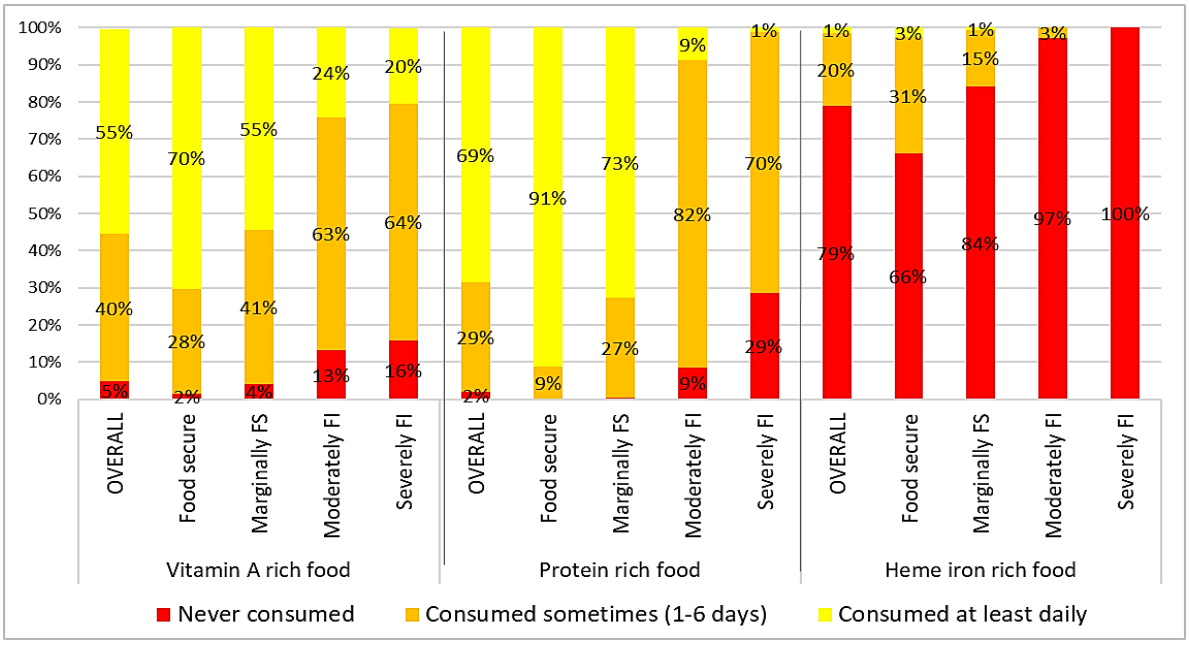
The Food Consumption Score-Nutrition (FCS-N) helps to understand household-level nutrient adequacy and attempts to improve the link between household food access and consumption and nutritional outcomes. The FCS-N uses data derived from the FCS module to provide information on three specific nutrients: heme iron, plant based vitamin A, and protein. In the analysis, a distinction was made between households where the nutrients were never consumed (0 times/week), sometimes consumed (1-6 times/week), or consumed at least once daily (daily or more/week).[82]

Like the food consumption score, the consumption of these nutritional specific groups has not particularly changed since the last CFSVA of 2015. Most households (95 percent) consumed vitamin A rich food items[83] at least once during the week before the survey was conducted and 56 percent consumed these foods daily (Figure 37).

Protein-rich food[84] was consumed daily by 69 percent of households. Among severely food insecure households, 29 percent (compared to 48 percent in 2015) had not consumed any protein-rich food within the last seven days.

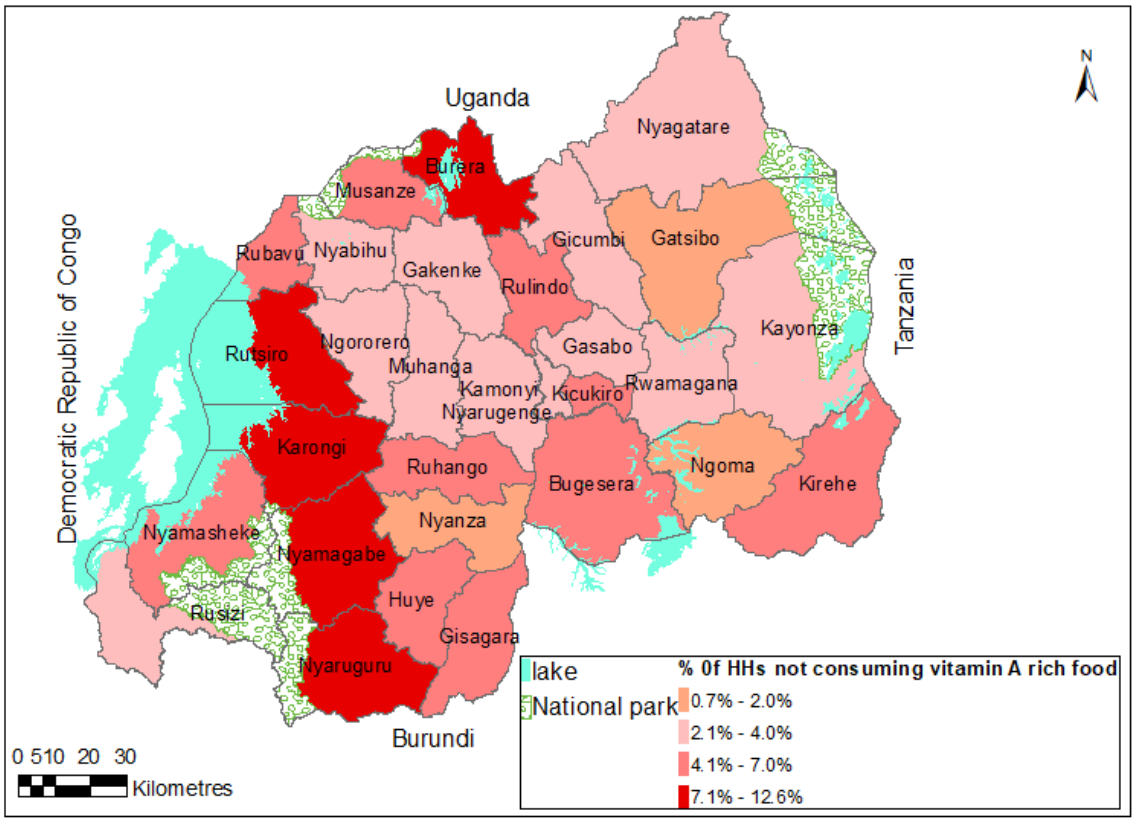
Heme iron deficiency continues to be an issue in Rwanda.[85] The consumption of heme iron-rich food items such as meat, organ meat, and fish/seafood had deteriorated even in food secure households.[86] In 2018, almost 80 percent of households compared to 61 percent in 2015 had not consumed any heme iron rich food items over the last week before the survey. Iron deficiency can lead to anaemia and reduces productivity and quality life.

Figure 36: Percentage of households consuming nutrient-rich food items by food security status

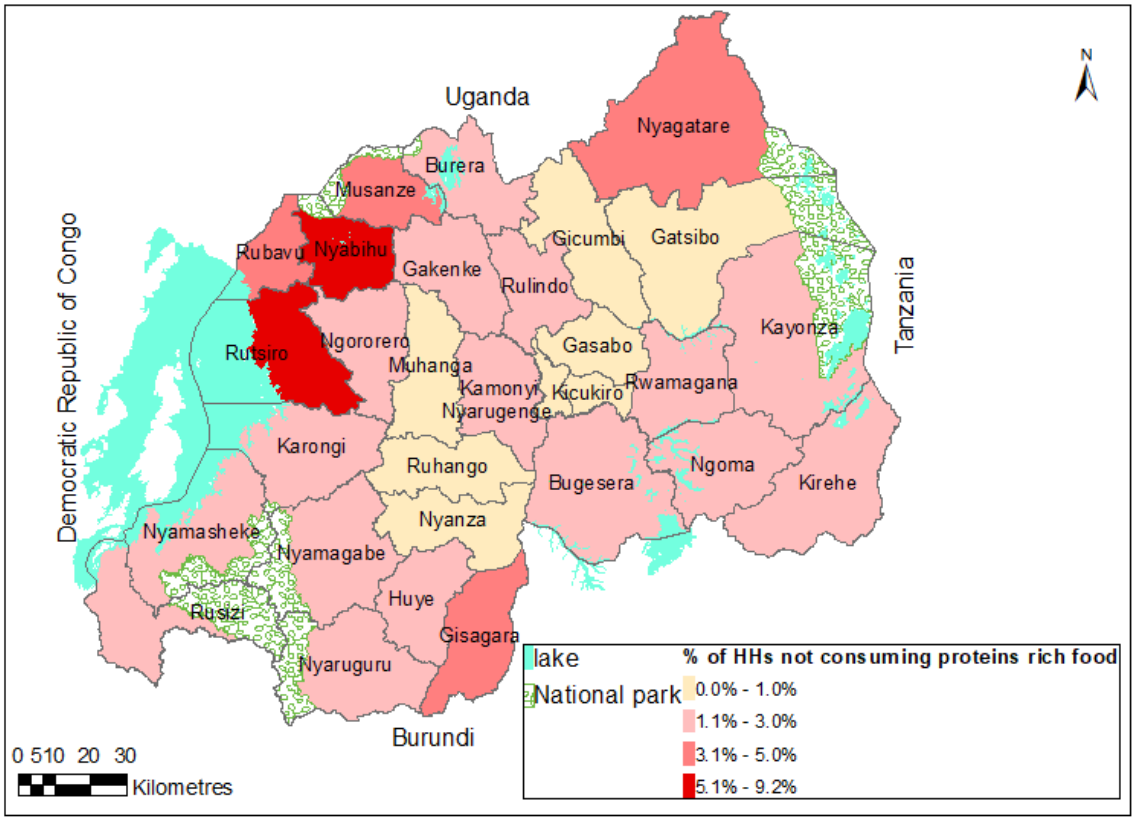


[82] WFP Technical Guidance Note. Food Consumption Score Nutritional Quality Analysis (FCS-N). 2015.
[83] The vitamin A rich foods includes orange vegetables, green leafy vegetables, orange fruits, organ meat, eggs, and dairy products; but in this analysis, plant based vitamin A foods were considered.
[84] Protein-rich food includes pulses, nuts, fish, meat, eggs, and dairy products.
[85] In 2015, 19% of all women between 15-49 years suffered from anaemia as a result of low iron intake (DHS, 2015).
[86] Iron from vegetable sources was not included due to the relatively low concentration of iron in vegetables compared to animal sources.

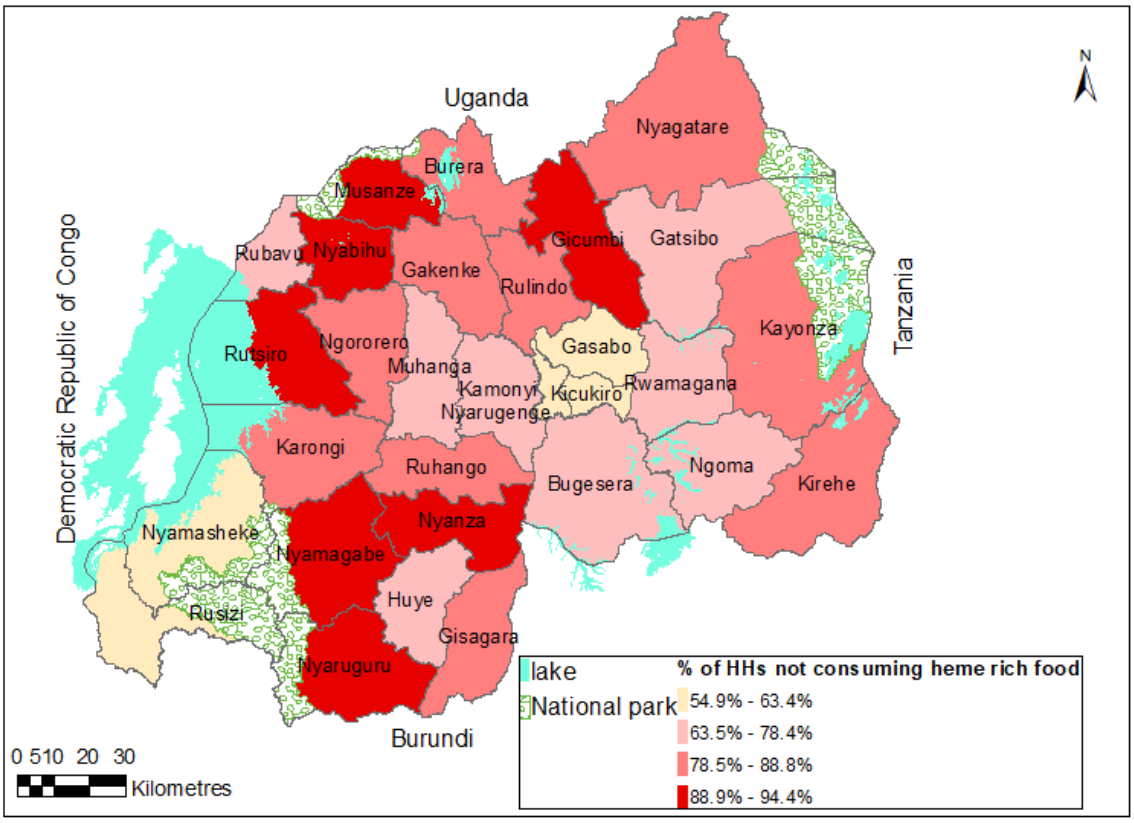
Map 9: Percentage of households with no consumption of Vitamin A rich food in the week before the survey



Map 10: Percentage of households with no consumption of protein-rich food in the week before the survey



Map 11: Percentage of households with no consumption of heme iron food in the week before the survey



In terms of population, around 120,144 households countrywide had not consumed any plant based Vitamin A rich food, 52,563 households had not consumed any protein-rich food and 1,974,870 households had not consumed any heme iron-rich food during the week before the survey (Table 10).[87]

Table 10: Number of households with no consumption of nutrient-rich food in the week before the survey

Provinces	Vitamin A rich food		Protein rich food		Heme iron rich food	
	%	# households	%	# households	%	# households
Kigali city	3.1	10,310	0.2	699	58.5	193,886
Southern	5.4	32,833	1.9	11,202	83.8	506,022
Western	5.8	31,883	3.7	20,210	78.1	425,968
Northern	6.0	25,955	1.8	7,916	87.4	378,578
Eastern	3.1	18,251	2.0	11,571	80.0	471,548
RWANDA	4.8	120,144	2.1	52,563	78.9	1,974,870

[87] Based on a total estimated population of 2,503,004 households according to the survey sampling.

The principle behind FCS-N analysis

The way in which the Food Consumption Score is analyzed does not explicitly provide information on the main macronutrients (carbohydrates, fat/lipids, proteins) and micronutrients (vitamins and minerals) and their adequacy and consequent risk of deficiencies, but the data recorded in the FCS module provided enough information to shed light on the consumption of three key nutrients: Protein, plant based Vitamin A, and Iron (heme iron), chosen primarily for their nutritional importance.

All macronutrients and micronutrients are important to ensure a healthy life, and all nutrients should be represented in sufficient quantity for a balanced diet.

Macronutrients are good sources of energy. A lack in energy quickly leads to acute undernutrition. An insufficient intake of **proteins** (essential for growth) is a risk for wasting and stunting. It also has an impact on micronutrient intake as protein foods are rich sources of vitamins and minerals. Deficiencies in micronutrients, such as **vitamin A and iron,** over a long period of time, lead to chronic undernutrition. Iron deficiency leads to anaemia and Vitamin A deficiency leads to blindness and interferes with the normal functioning of the immune system, growth and

7.1.4 Household dietary diversity

The household dietary diversity score (HDDS) reflects, in a snapshot, the economic ability of a household to access a variety of foods, rather than the nutritional value of food items consumed.[88] The score is calculated based on 12 food groups consumed in each household the day before the survey.[89] Dietary diversity scores and percent households consuming each food group can be used to assess changes in diet before and after an intervention or for ongoing monitoring.

On average, households consumed items from six food groups. Households in the Western, Southern and Northern Provinces consumed items from five food groups, while households in the City of Kigali had a higher dietary diversity with items consumed from seven food groups. Compared to the 2015 CFSVA, the HDDS had decreased by one food group in the City of Kigali and the Northern Province (Figure 38).

The HDDS is significantly correlated to the food security status of the household. Food insecure households consume four or less food groups (mainly tubers and roots, vegetables, condiments, and pulses). Households with a higher dietary diversity are generally food secure and consume, in addition, more cereals, oil, sugar, as well as fruits, milk, and meat (Figure 39).[90]

[88] Studies have shown that an increase in dietary diversity is associated with socio-economic status and household food security. See FAO Guidelines for measuring household and individual dietary diversity, 2013.

[89] The 12 food groups are: cereals, roots, pulses, meat, fish/seafood, eggs, dairy products, vegetables, fruits, oil, sugar, and spice.

[90] While there are no established cut-off points in terms of number of food groups to indicate adequate or inadequate dietary diversity for the HDDS, it has been observed from previous CFSVAs that food insecure households generally consume less than five food groups.

Figure 37: Average dietary diversity score by province

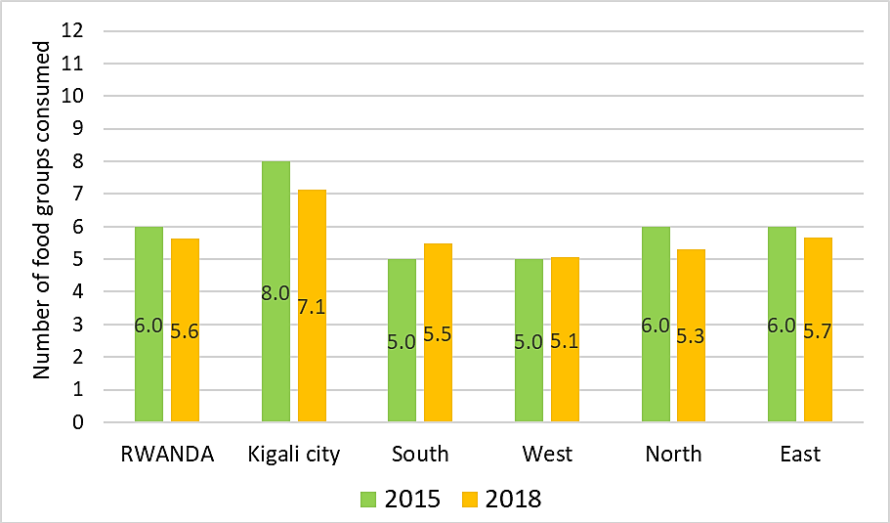
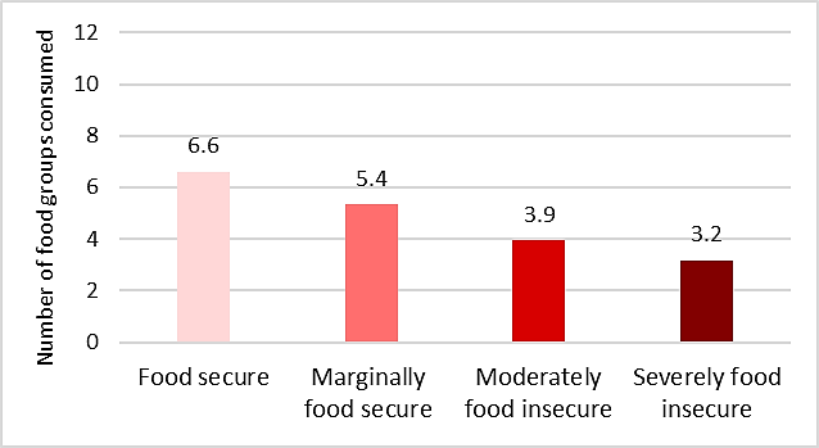


Figure 38: Household dietary diversity score by food security groups



Food consumption score and household dietary diversity score; proxy indicators for diet quality

The food consumption score like the household dietary diversity score does not indicate the quantity of food consumed. Diet varies across seasons and some foods can be available in large quantities and at low cost for short periods. There may be urban/rural differentials in dietary diversity. Variety is often much greater in urban and peri-urban centres where food markets are adequately supplied and easily accessible, physically and economically.

7.2 Household food source

For the 2018 CFSVA, households were asked to provide the main sources for each of the food items consumed during the seven days preceding their interview. The relative importance of various food sources to the overall diet of the household was estimated by combining the frequency of consumption and the sources.

On average, 65 percent of food consumed by a household came from the market, 31 percent from own production, and 4 percent from other sources including fishing, gathering, hunting, exchange,

borrowing, gifts, and food aid (Figure 40). Even though the percentage of food from own production was higher in farming households[91] (Figure 41), these households still sourced between 50 and 60 percent of their food needs from the market. This implies that there is limited diversification of the agricultural production system as well as a lack in post-harvest and storage management at household level.

Figure 39: Food source by livelihood groups

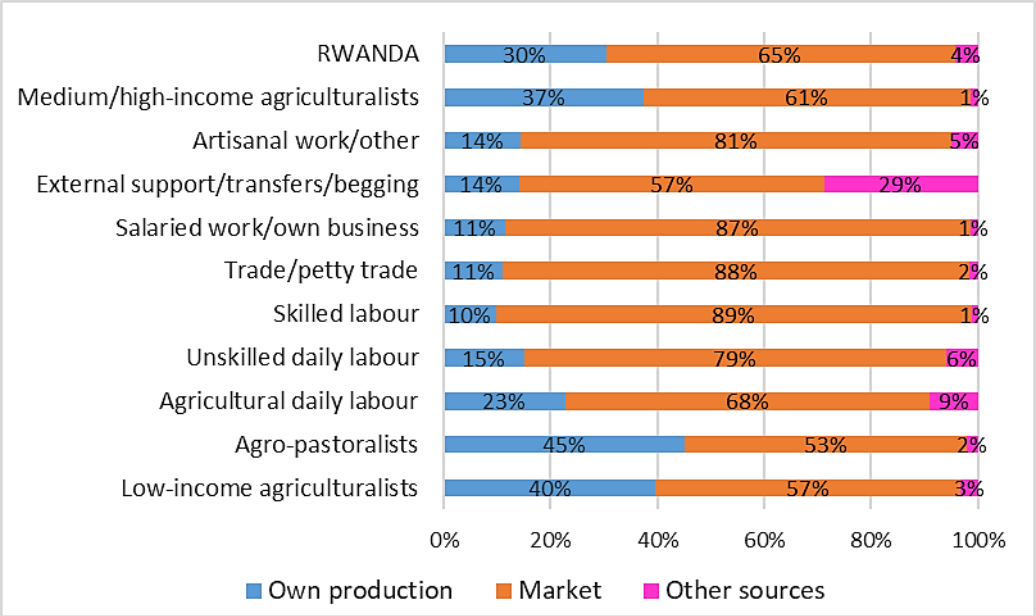
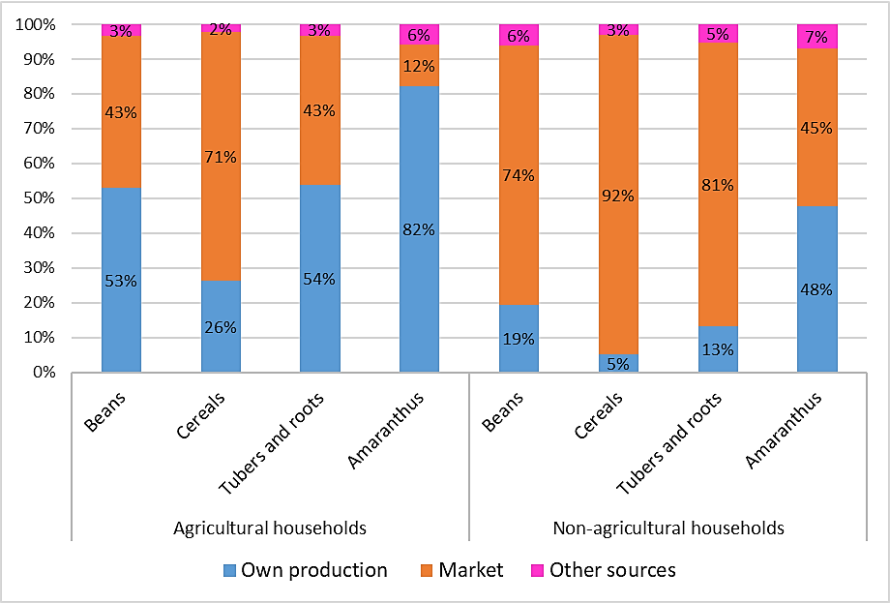


Figure 40: Source of main food commodities by household's main activities



The market is the main source for oil (98 percent), meat (92 percent), milk (61 percent), and fruits (71 percent). Some cereals, roots or tubers (54 percent), and legumes or nuts (50 percent) are obtained

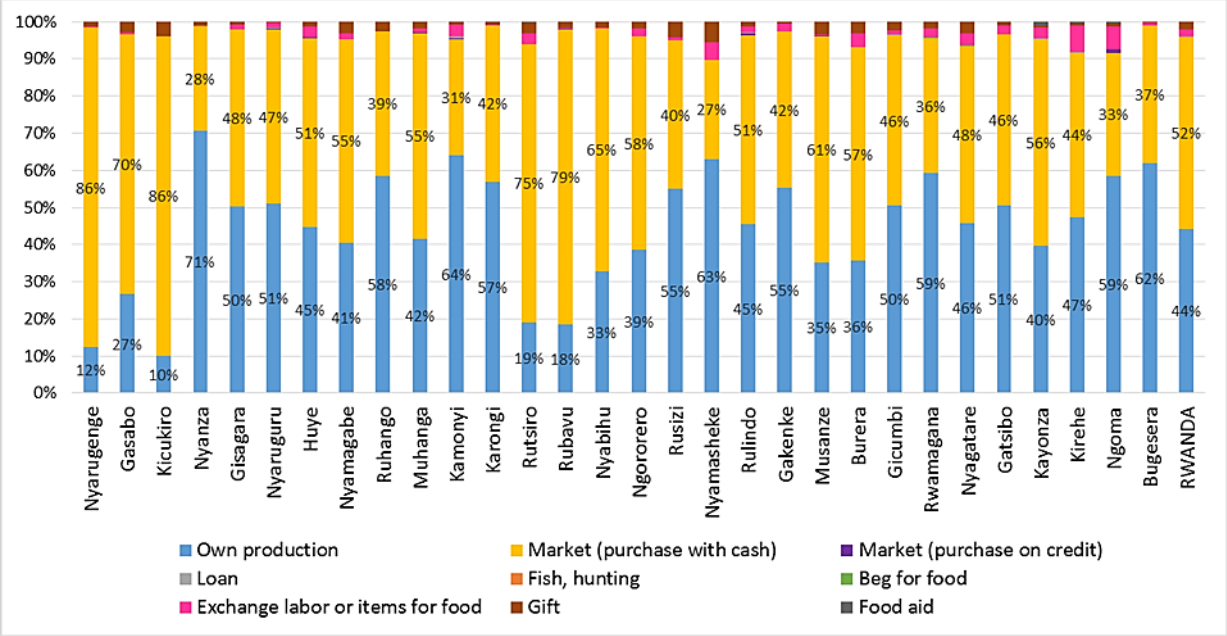
[91] The following livelihood groups were considered as agricultural households: low/medium/high-income agriculturalists and agro-pastoralists.

from the market, with others from own production. Vegetables mainly come from household's own production (65 percent).

Food sources are not static over the year and follow seasonal patterns. The percentage of households sourcing their beans and cereals from their own production peaks in the harvest period (June/July and from December to February) and the percentage of households buying foods from the market increases during the lean season (October/November and March). The source for roots, tubers, and cooking bananas varies slightly over the year.[92]

Figure 42 presents the source of beans during the period of the survey (March-April 2018) by district. During this period, 52 percent of all households relied on the market to obtain beans. This percentage is higher in Rutsiro (75 percent), Rubavu (79 percent), and the City of Kigali (70 to 86 percent). Otherwise, in Nyanza, Kamonyi, Nyamasheke, and Bugesera, more than 60 percent of households obtain beans from their own production.

Figure 41: Source of beans in March-April 2018 by district



[92] Information from 2015 CFSVA.

8. Food accessibility – Market analysis

KEY MESSAGES

- Global food price has decreased since the beginning of 2017.
- Access to markets takes 80 minutes on average and much more in steep landscape areas.
- Overall economic access to food has relatively improved: terms of trade for unskilled daily labour are slightly enhanced compared to 2015.
- In March-April 2018, households spent much less on food (46 percent of the budget) compared to April 2015 (54 percent).
- Food insecure households have less access to credit than food secure ones.

8.1 Food availability on the market

According to the 2014 WFP market assessment, the supply chain for major commodities such as maize and beans tends to be short and is comprised of three main supply channels: (i) collectors and assemblers towards large wholesalers/traders; (ii) local retailers toward local consumers; (iii) cooperatives to government and relief agencies. Perishable commodities (potatoes, roots and tubers, bananas, and vegetables) have a shorter supply chain.

This CFSVA showed that for Season 2018A, around 74 percent of beans produced were kept by households for their own consumption, 10 percent kept for seeds, 12 percent sold, 3 percent given as gift and 1 percent is spoiled. For maize, around 73 percent were kept for own consumption, 4 percent for seeds, 19 percent sold, 3 percent for gift and 1 percent spoiled. Producers sell beans mainly to traders in sector markets (40 percent), directly in village markets (24 percent), and to individual consumers/family/relatives (10 percent). Maize is sold to traders in sector markets (26 percent), in village markets (22 percent), to individual consumers/family/relatives (18 percent) and to purchasers in the field (17 percent).

According to key informants, the availability of beans and maize during the time of the survey was sufficient or moderately sufficient for the main markets in all districts, except for maize in Nyabihu and beans in Nyagatare, where a low availability was reported.[93]

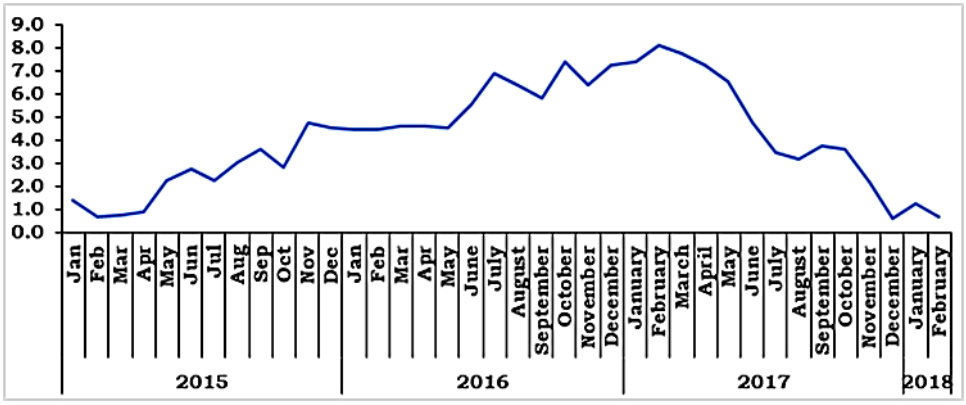
8.2 Market performance

8.2.1 Consumer Price Index (CPI) trends

The country experienced economic pressures from inflation during the financial year 2016/2017 mainly emanating from the reduction in domestic food supply in all East African Community (EAC) countries affected by the drought. Consequently, headline inflation rose from 6.9 percent in July 2016 to 8.2 percent in February 2017, to settle at 4.0 percent in June 2017[94] and at 2.0 percent in January 2018 (Figure 43).[95]

[93] Based on the key informant focus group carried out in each sampled village.
[94] Bank National of Rwanda, Annual Report. 2016-2017.
[95] National Institute of Statistics of Rwanda, Consumer Price Index Report. February 2018.

Figure 42: CPI inflation rate (2015-2017)



Source: NISR, 2017.

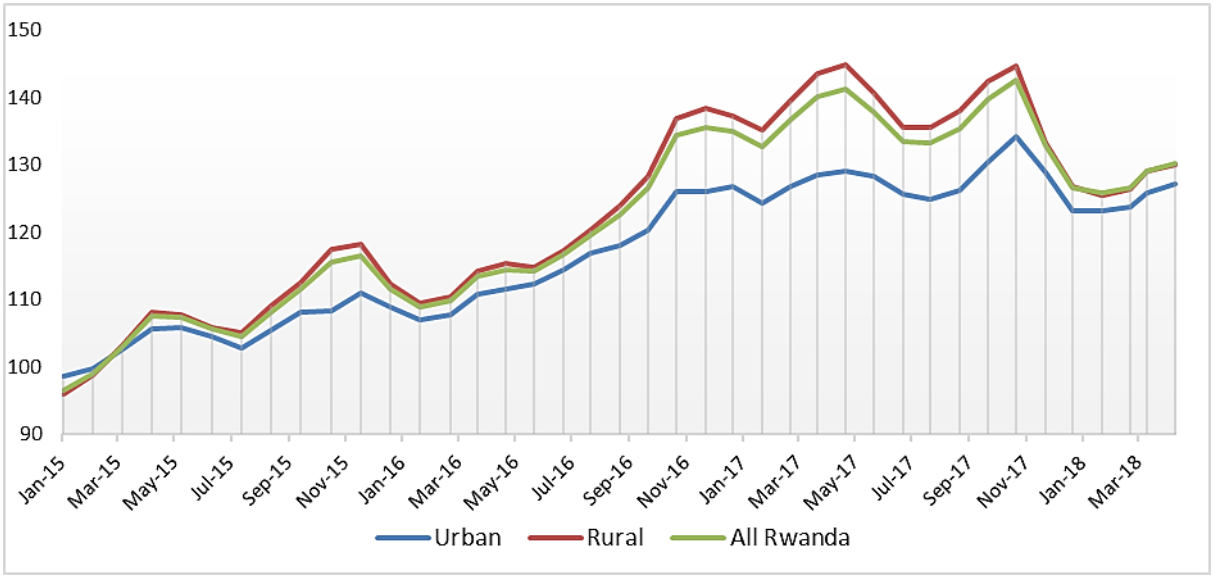
8.2.2 Food price trends

Prices of staple foods started to rise in 2016 due to global inflation and the drought which affected the country and remained high through 2017; however, with regional trade for food supply and the Season 2018A production, there was a relative decline in the food price index despite it is remaining higher than the long-term average. Higher than average prices continued constraining household access to adequate diets, especially for the poor with limited purchasing power. The food CPI also consistently remained lower in urban than rural settings (Figure 44), although rural area experienced relatively lower income levels.

While prices for specific staple commodities in 2017 were higher than their respective 5-year averages, they declined in 2018, aligning more with the average (Figure 45).

Maize grain and flour prices did not seem to follow the same proportional change with marginal prices along the value chain remaining as high for maize flour. Among other challenges, this impacted economic access to food as the majority of consumers prefer to purchase maize flour than grain for home consumption.

Figure 43: Urban and Rural Consumer Price Index for food and non-alcoholic beverages



Source: Based on NISR CPI data (Base: 2014: Reference: February 2014=100)

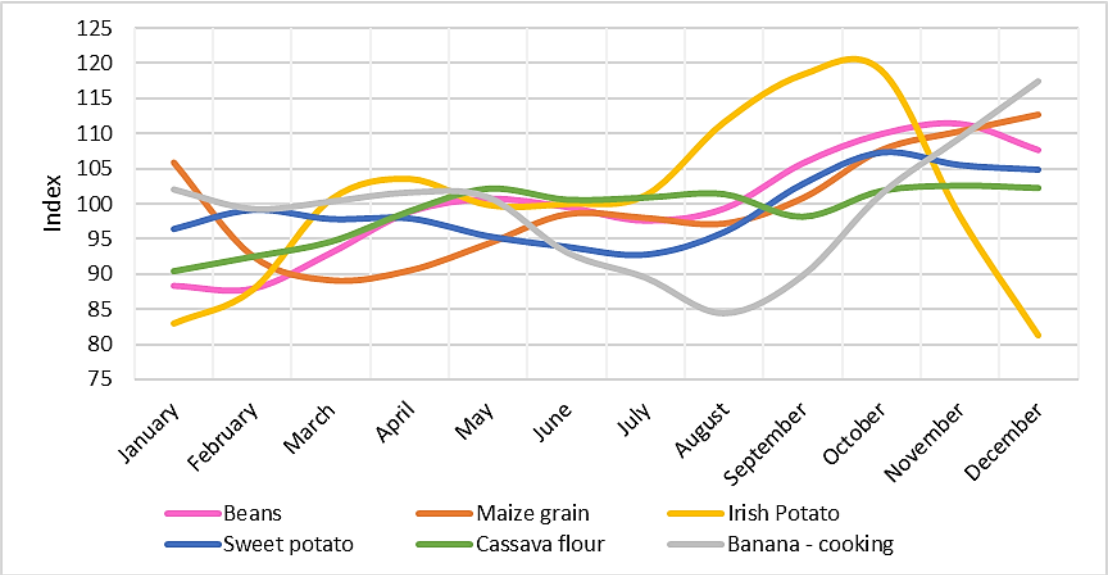
Figure 44: Price trends in RWF/Kg for main food commodities

Source: NISR database

The 2015 CFSVA and other WFP market analyses showed that markets in Rwanda were quite well integrated for beans, Irish potatoes, and maize.[96] The Grand Seasonal Index shows the pattern of seasonal price trends (Figure 46). For most of the crops, price varies following the lean and harvest periods in accordance with the laws of supply and demand on markets. Staple prices increase mainly from September to December during the long lean period until the Season A harvest. Another smaller peak of price increase appears in April/May for beans, irish potatoes, and cooking bananas and later, in June, for maize. Cassava flour price is more constant because of storage practices.

[96] The average correlation coefficient for prices between markets was 0.8 for beans and irish potatoes, 0.7 for maize, and only 0.1 for cassava. The latter is mainly supplied to other parts of the country by south-eastern zones.

Figure 45: Grand Seasonal Index for selected staples (2012-2017)



Source: WFP VAM calculations based on NISR urban market price

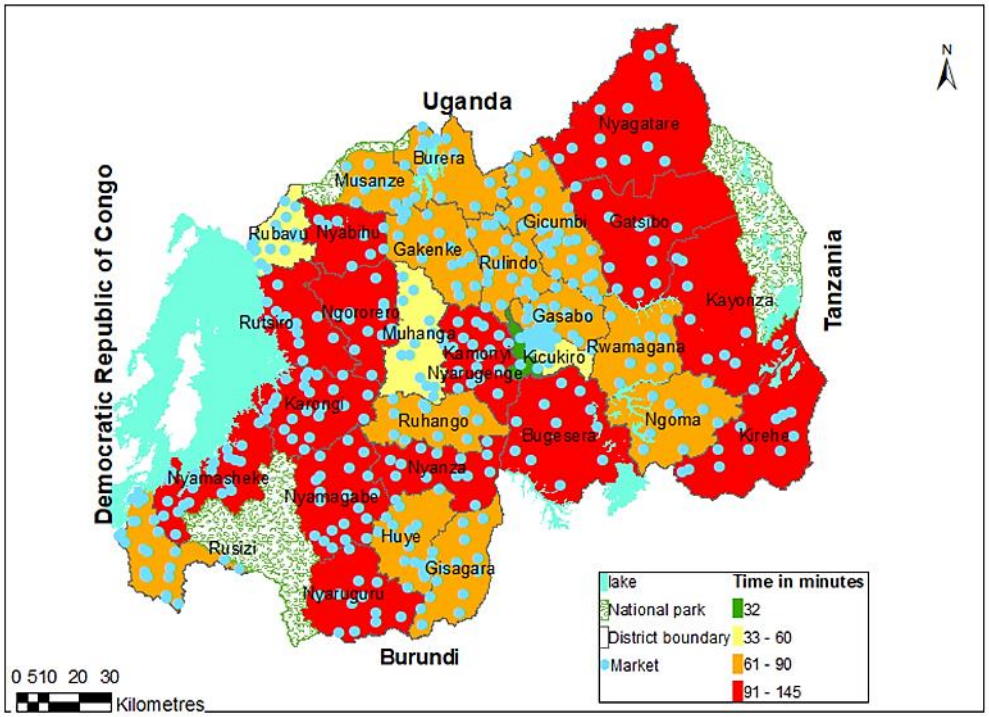
8.3 Household physical access to market

While the number of markets in Rwanda is remarkable (almost 450 in total) with at least one main market in each district, only four percent of the sampled villages had a market at the village level. In villages without a market, it takes 86 minutes, on average, to reach the nearest market with longer time taken in the districts of Rutsiro (145 minutes), Nyaruguru (122 minutes), Nyamasheke (111 minutes), and Kayonza (109 minutes) mainly due to the steep landscape, a lower road distribution or bad road conditions.[97]

Almost two thirds (62 percent) of markets were accessible all year round by using transport other than walking. Accessibility to the market by road was more difficult from villages in Rutsiro, Nyamasheke, Nyabihu, Rusizi, Kicukiro, Gatsibo, Nyamagabe. The main challenges related to access to markets, as reported by the communities, were: the distance, the unusual high food prices; and the high price for non-food items (Map 12).

[97] For 2015 CFSVA, 6 percent of villages sampled had a market. For those that did not, the time to reach a market outside a village was 78 minutes on average.

Map 12: Market location and average time to access the main market by district

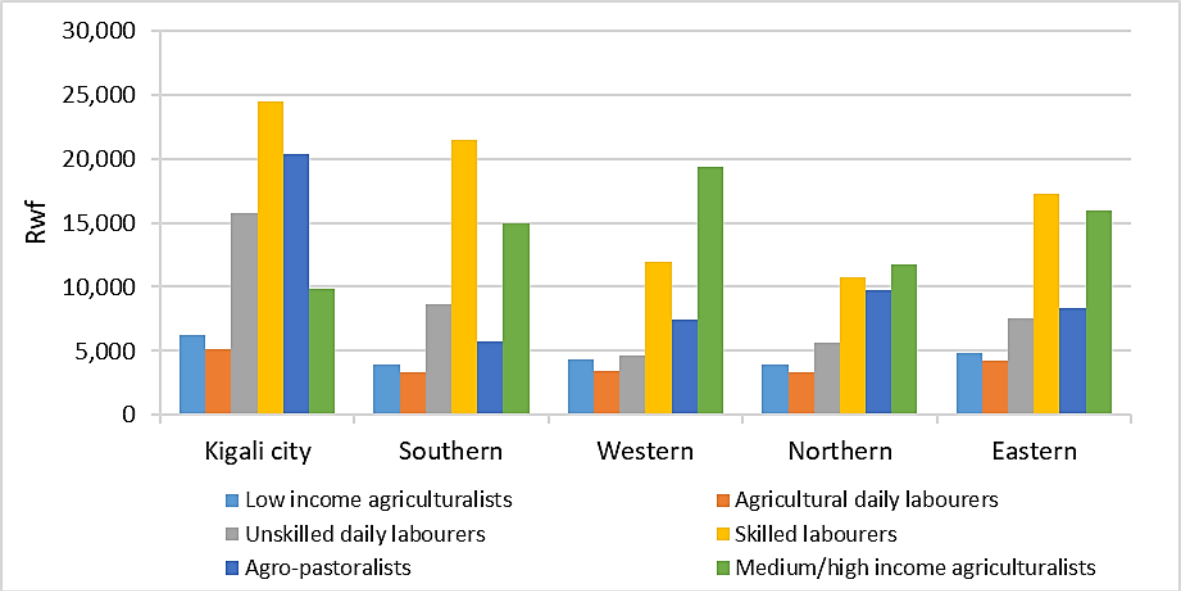


8.4 Household economic access to food

8.4.1 Income sources

Besides the physical accessibility to market, household economic access to food was studied through its direct relation to household income. Households were asked approximately how much money they earned during the last month before the survey. Based on this information, the average per capita income for February 2018 was calculated for each livelihood group. For the same livelihood group, income varied by district, implying that the household's purchasing power also differed (Figure 47). Decisions about the use of household resources (income and cash) were taken mainly by the head of households (in 60 percent of the cases) but also by their spouse (35 percent of the time) and sometimes by their children (4 percent).

Figure 46: Per capita income in February 2017 per livelihood groups and by province



8.4.2 Terms of trade and purchasing power

The diminution of global inflation for staple food price since the second half of 2017 should have increased household purchasing power. For households engaged in agricultural labour, their income in relation to food prices has significant impact on their ability to access food. Households relying on unskilled agriculture daily labour in rural areas have an average wage of RWF 752 per person per day with a minimum wage of RWF 500 and a maximum of RWF 2000. In February 2018, the terms of trade ($wage_{1kg\ beans}$) was almost 2.5, meaning that with the average daily salary, one can purchase 2.5 kilograms of beans to feed a household.[98] In 2015, the terms of trade ($wage_{1kg\ beans}$) calculated for the period March-April 2015 reached 2.0, meaning a decrease in purchasing power, which may have resulted mainly from higher seasonal food price.

8.4.3 Food expenditure

At the national level, the mean expenditure per capita per year is RWF 171,280 with large variation across households.[99] With the national poverty line fixed at RWF 159,375 per year and a food poverty line at RWF 105,034,[100] the budget of the poorest households may not be enough to access the minimum consumer basket, implying that households cannot satisfy their food and non-food needs.

The share of the total budget spent on food can be used as a measure of economic vulnerability. The 2018 CFSVA findings show that in terms of shares, households spend, on average, 46 percent of their monthly budget on food, which is less than in 2015 (54 percent) (Figure 48). The reduction of the budget spent on food might be a consequence of the global food price decline since 2017 and the seasonal effects. Indeed, for the 2015 CFSVA, data were collected during the lean season when food

[98] Information on wages is derived from key informant interviews. Information on price was obtained from NISR database: the price of 1 kg of dry beans in the rural areas in February 2018 was on average RWF 295.
[99] For CFSVA 2015, the per capita annual expenditure was RWF 219,527.
[100] This poverty line was revised in January 2014 from RWF 118,000 to RWF 159,375. National Institute of Statistics of Rwanda. Poverty Trend analysis report 2010/11-2013/14. June 2016.

stock might have been low or run out and food needed to be purchased in market, while in 2018 data was collected after the harvest.

The share of food expenditure decreases as the wealth of the household increases. Households in the very poor quintile spend, on average, 57 percent of their budget on food, while the wealthiest households spend only 36 percent.[101] Agricultural daily labourers, unskilled labourers, and households living from external support or begging spend more than the half of their budget to buy food. Female-headed households also spend a larger share on food (50 percent) than male-headed (45 percent) (Table 11).

Figure 47: Share of food/non-food expenditures in 2015 and 2018

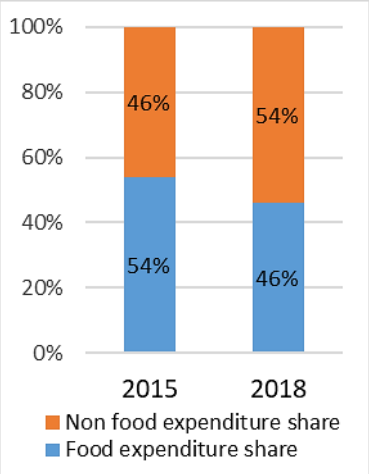


Table 11: Share of food expenditure by livelihood groups, wealth quintiles, Ubudehe categories and gender of head of household

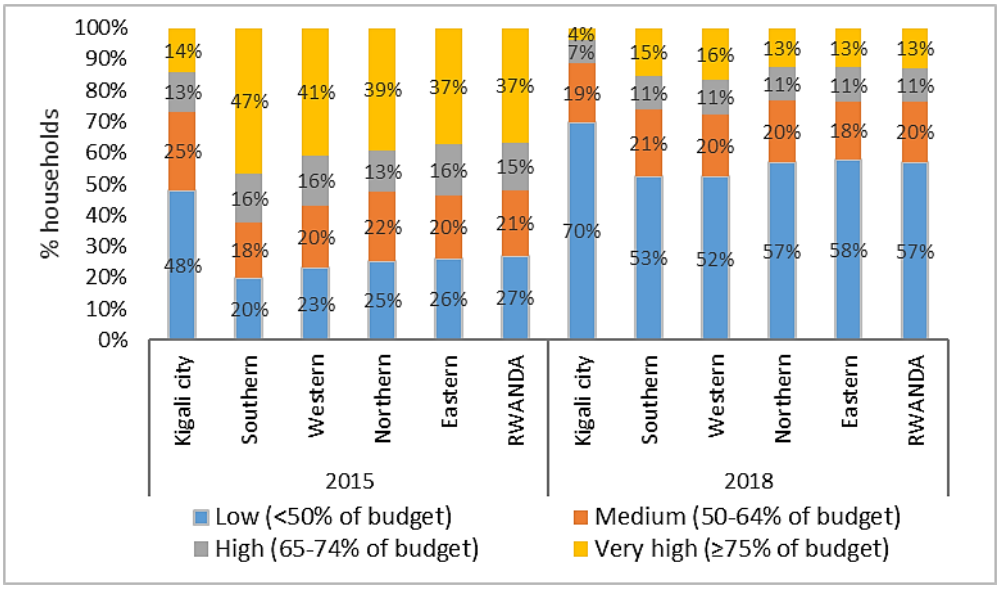
Share of food expenditure (mean)			
Wealth index categories		Livelihood groups	
Poorest	57%	Agricultural daily labour	60%
Poor	50%	Unskilled daily labour	54%
Medium	44%	External support/transfers/begging	51%
Wealthy	38%	Low-income agriculturalists	49%
Wealthiest	36%	Skilled labour	46%
Ubudehe categories		Artisanal work/other	44%
Category 1	55%	Trade/petty trade	41%
Category 2	48%	Agro-pastoralists	38%
Category 3	42%	Salaried work/own business	36%
Category 4	33%	Medium/high income agriculturalists	30%
Not assigned yet	47%	Female headed household	50%
RWANDA	46%	Male headed household	45%

In terms of geographic distribution, households living in the City of Kigali are wealthier and spend a lower share of their budget on food (42 percent) than in other provinces. In some districts, the average food expenditure share is above the national average, such as in Rutsiro (56 percent), Karongi (52 percent), Nyamagabe (52 percent), Gatsibo (50 percent), Burera (50 percent), Ruhango (50 percent), and Huye (50 percent). Food expenditure share gives an indication of the economic vulnerability of the households in these districts.

The CARI console classifies the households into four different groups based on the share of their total budget spent on food: low (<50 percent), medium (50-65 percent), high (65-75 percent) and very high expenditure (>75 percent). On average in 2018, 13 percent of households had a very high share of expenditure of food (with less than 5 percent in Kigali). These households are likely to be vulnerable to economic shocks as they have little additional budget available for any expenses other than their most basic requirements. Compared to the 2015 CFSVA, however, economic access to food has improved, with a higher percentage of households (70 percent in 2018 and 48 percent in 2015) spending less than 50 percent of their budget on food. This might be likely due to the seasonal effect as well as global deflation and/or other internal economic effects (Figure 49).

[101] This follows Engel's Law: As income rises, the proportion of income spent on food falls, even if actual expenditure on food rises.

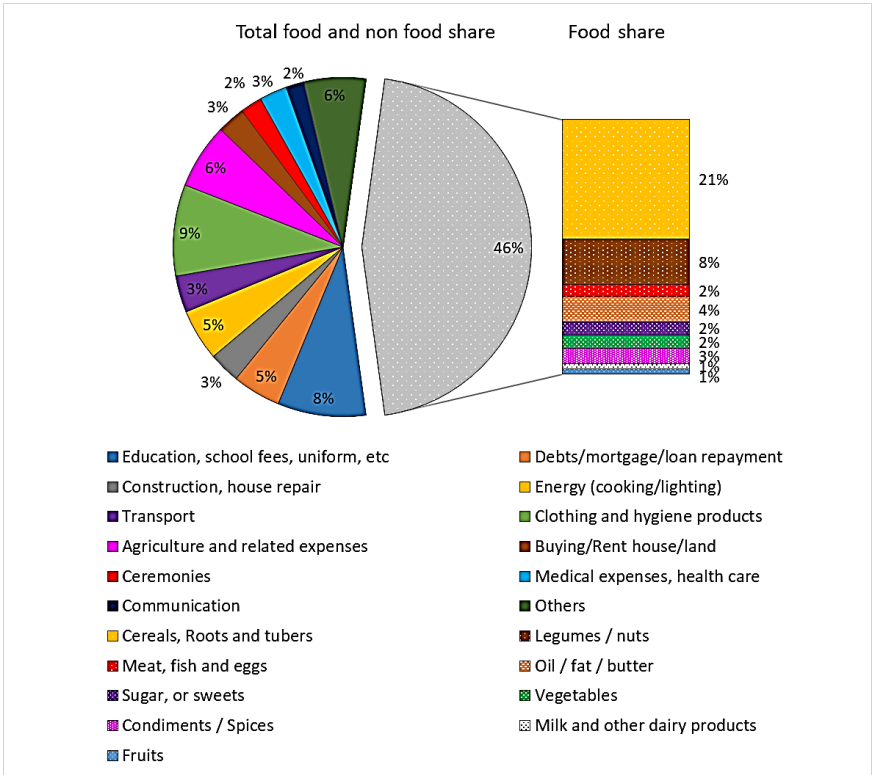
Figure 48: Comparison of the repartition of households by food expenditure share categories between 2015 and 2018 and by province



8.4.4 Food and non-food expenditure dynamics

The main food expenses were on cereals (21 percent of the total budget), or legumes and nuts (8 percent), and the core non-food expenditures were related to clothing and hygiene product (9 percent of the total budget), education (8 percent) and agriculture or related expenses (6 percent) (Figure 50). Decisions about expenditures were taken mainly by the head of household in 56.5 percent of households for food items and in 61 percent for non-food items, or by the spouse.

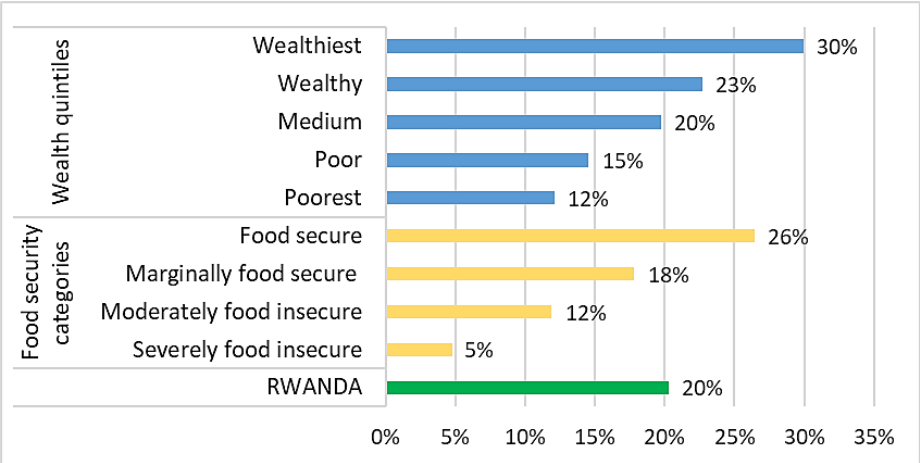
Figure 49: Share of food and non-food expenditures on total budget



8.4.5 Credit

Around 20 percent of households had requested for a loan in the last 12 months with the vast majority (98 percent) having received the loan. Access to credit increased with household wealth. In terms of livelihood groups, mainly the salaried workers, owners of business, some petty traders, medium-high income agriculturalists or agro-pastoralists, requested credit. A lower proportion of the food insecure households (12 percent of moderately food insecure and 5 percent of severely food insecure) asked for a loan compared to food secure households (26 percent) (Figure 51).

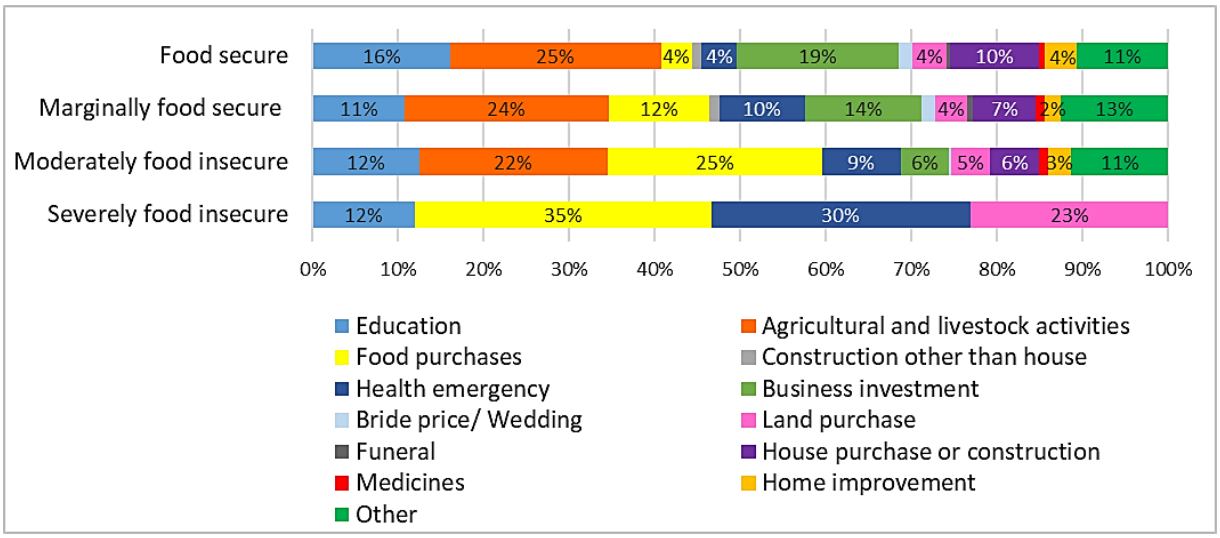
Figure 50: Percentage of households that requested a loan during the last 12 months



Rwandans prefer to use informal credit sources to borrow money, such as the tontine/cooperative system (53 percent) followed by micro-finance institutions, NGOs (22 percent), and banks (18 percent). The proportion of households that rely on informal sources of credit decreased as the wealth of the household increased. For instance, in the City of Kigali, many more households were salaried or owners of a business and they preferred to borrow money from banks (43 percent).

Nationally, the majority of households used credit for agricultural or livestock activities (24 percent of households), for business (16 percent), to pay education fees (14 percent), or to purchase or repair a house (9 percent). The use of credit to buy food, however, was more common among the food insecure households (35 percent of severely food insecure households). For instance, in Rutsiro and Ngororero Districts, 18 percent of the total households used credit to purchase food. Besides food purchase, severely food insecure households also requested a loan for health emergencies (30 percent) or to buy a land (23 percent).

Figure 51: Reasons for loan request by food security status



Other than for the City of Kigali, many more households requested a loan mainly for agricultural activities or land purchase: in Nyabihu (36 percent), Gakenke (33 percent), Burera (33 percent), and Bugesera (24 percent) as well as for health emergencies (Burera) or business investments (Bugesera). Around 60.4 percent of the decisions regarding loans (amount, reason, where, and when) were taken by the head of household or by their spouse (32.6 percent).

9. Shocks and household vulnerability to food security

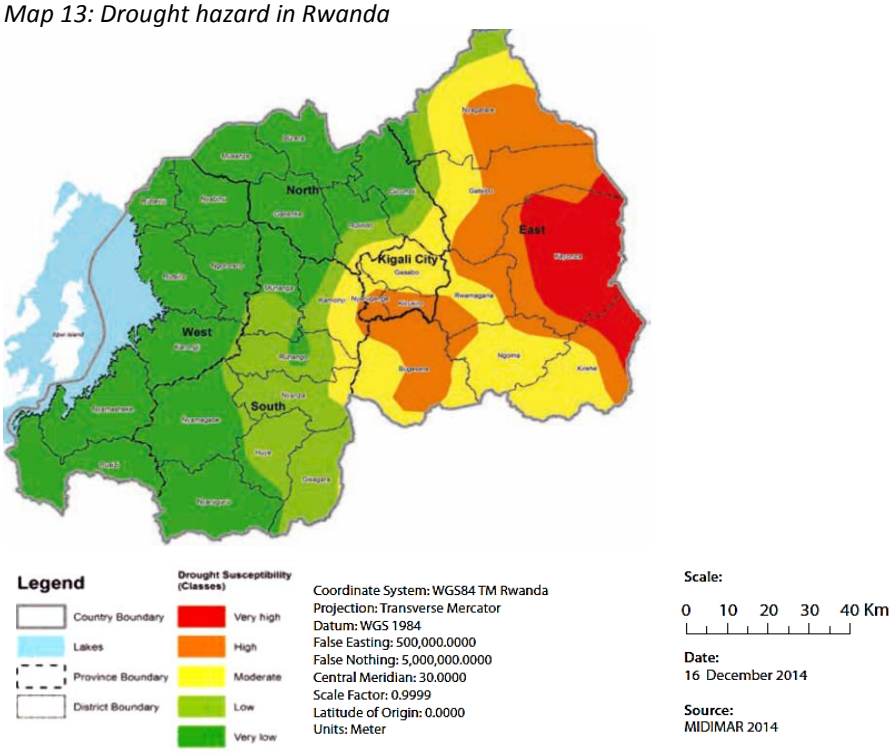
KEY MESSAGES

- 40 percent of households had experienced a shock or unusual situation during the last 12 months, which affected their ability to provide food for household members or eat in their usual manner.
- Shocks were mainly related to weather (including irregular rains or drought, which affected 40 percent of households) or serious accident or illness of a household member.
- Households in the eastern part of the country were more vulnerable to rainfall deficit.
- Two out of three households reported a lack of food or money to buy food for at least one instance during the 12 months prior to the survey; this was indicated as being an uncommon situation for one third of them.
- Households used more livelihood strategies (above all other crisis strategies) during the month prior to the survey to face shocks or food access issues. For instance, around one third of households borrowed food or purchased food on credit during the month before the survey.

9.1 Shocks, hazards and natural disasters

Hazards prevailing in Rwanda include droughts, floods, earthquakes, landslides, storms, forest fires, traffic accidents, diseases, and epidemics that disrupt people's lives and livelihoods, destroy infrastructure, interrupt economic activities, and retard development. Over the last decade, Rwanda experienced high year-to-year differences in rainfall and was affected by El Niño Southern Oscillation (ENSO) events (El Niño and La Niña). Consequently, the frequency and severity of natural disasters,

Map 13: Drought hazard in Rwanda



particularly caused by floods and droughts, significantly increased, rising the toll of human casualties as well as economic and environmental losses.[102]

Disasters from heavy rains and climate change are taking place all over the world, affecting agricultural productivity. Rwanda is not spared. According to CIMA/UNISDR, floods in Rwanda affect 12,000 people every year, mostly in the Western and Southern Provinces, while droughts affect 2.5 percent of the population and 2.8 percent of livestock every year.[103] In 2016, the country was affected by a severe long-term drought, which mainly affected the Eastern Province and some parts of the Southern Province. Over 23,448 hectares of crops were destroyed, lives of cattle were lost, and 47,306 families were affected by drought.[104] The drought resulted in a decrease in production and also impacted the livestock sector due to limited availability of water and feed, particularly in the east and parts of the south, and increased vulnerability to diseases. Production losses to the dairy value chain were most significant in major drought years.

Between January and the end of April 2018, heavy rains and floods damaged crops on 4,560 hectares, killed 705 livestock, and destroyed around 10,000 houses.[105] Also 183 deaths and 215 injuries were recorded by MIDIMAR.[106]

While subsistence farmers were most affected, climate variability affected all agricultural sectors and lowered annual production, value addition, and exports.

9.2 Shocks affecting household assets and food security

In 2018, 40 percent of households, compared to 27 percent in 2015, reported having experienced at least one shock or an uncommon situation during the last 12 months that affected its ability to provide food for itself or eat in a manner it is accustomed to or impacted household ownership.[107] Almost 7.6 percent and 1.2 percent of households experienced two or three shocks, respectively, or experienced an uncommon situation that affected its food security and assets.

Households most affected by shocks were in the Eastern Semi-Arid Agropastoral Zone (67 percent), mainly in the Kirehe district (74.1 percent) and Ngoma district (66.2 percent), but also in other districts, including Ngororero (68.3 percent) and Rutsiro (68.2 percent). Only 19 percent of households were affected in the City of Kigali.

9.2.1 Types of shocks

Shocks may be classified by their impact at the community level or the household level (idiosyncratic shock). The most commonly reported shocks were drought, irregular rains, and prolonged dry spells (reported by 41.1 percent of household as the main shock), followed by serious illness or accident of household member (19.7 percent of households), loss or reduced employment, income for a household member (8.9 percent of households), and unusually high level of crop pests and diseases (7.8 percent of households) (Table 12).

[102] MIDIMAR, National Risk Atlas of Rwanda. 2015.
[103] CIMA, UNISDR. Rwanda Disaster Risk Profile. 2018
[104] MINAGRI, communication. 11 July 2016. http://allafrica.com/stories/201607120348.html
[105] MINAGRI, communication: http://en.igihe.com/news/disasters-will-affect-agricultural-productivity.html
[106] http://midimar.gov.rw/index.php?id=45&tx_ttnews%5Btt_news%5D=166&cHash=9f1b8ff56ce61e5d8e1594e5668cf753
[107] Data are not available for previous CFSVA.

Table 12: Percentage of households reporting the most severe shock in the 12 months preceding the survey (100% is the total households reporting any type of shocks)

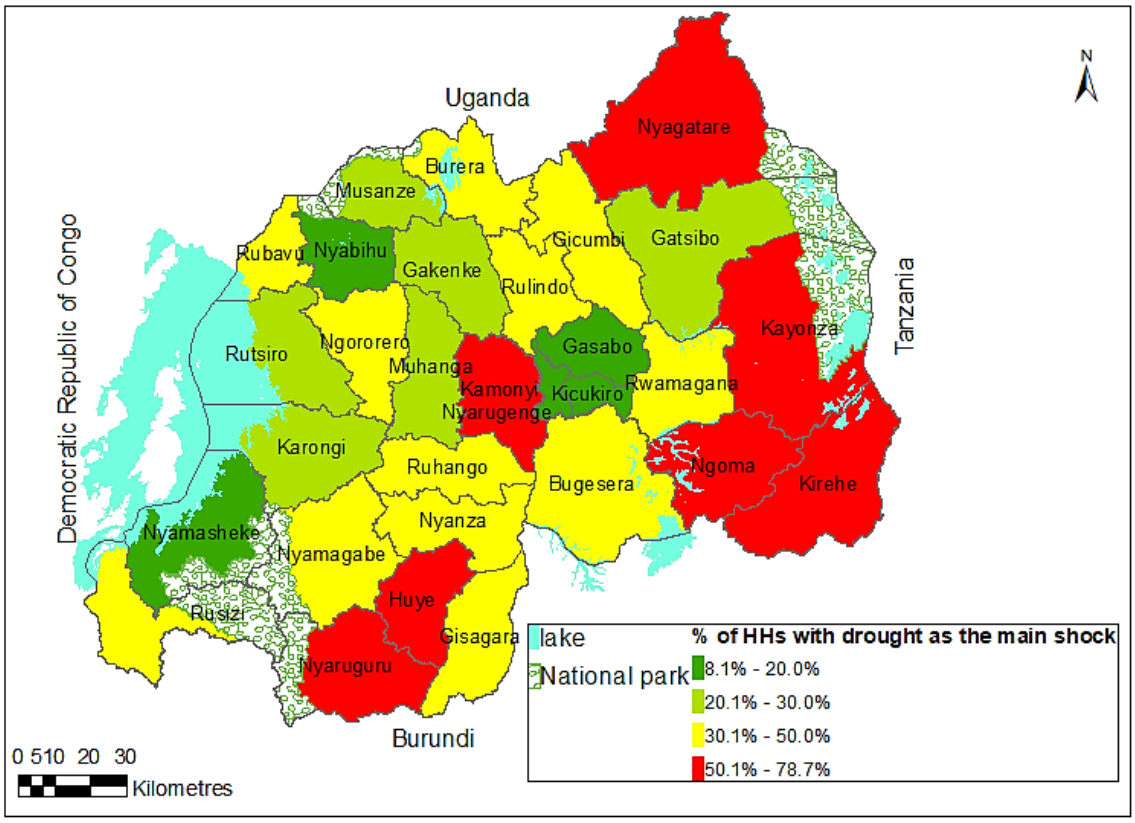
Community level shocks	% HH	Household level shocks	% HH
Natural hazard induced disasters		Loss or reduced employment/income for a household member	8.90%
Drought/irregular rains, prolonged dry spell	41.10%	Serious illness or accident of household member	19.70%
Floods	2.70%	Death of the head of the household	1.10%
Landslides and mudslides	3.60%	Death of a working household member	0.90%
Hailstones	5.30%	Death of another household member	2%
Geophysical disasters		Theft of productive resources	1.10%
Earthquake	0.10%	Fires	0%
Volcanic activity	0%		
Biological disasters			
Unusually high level of crop pests & diseases	4.70%		
Unusually high level of livestock diseases	0.40%		
Unusually high level of human diseases/epidemic	0.70%		
Socio-economic shocks			
Unusually high prices for food	1.30%		
Unusually high cost of agricultural inputs (seeds, fertilizer, etc.)	0.10%		
Insecurity/violence	1.10%		

9.2.1.1 Drought and irregular rains

Drought or irregular rainfalls were the main natural hazards that affected the rural areas during the last 12 months before the survey. The Eastern and Southern provinces were particularly affected.[108] The lack of or irregular rainfalls during the agricultural Season 2018A (September to November 2017) particularly affected households in Kayonza (78.7 percent households), Kirehe (75.1 percent), Huye (65.6 percent), Ngoma (65.5 percent), and Nyagatare (61.1 percent) (Map 14). The agriculturalists and agro-pastoralists households were the main livelihood groups affected.

[108] 59.1% households affected in the Eastern, 47.9% in the Southern, 31.9% in the Northern, and 27.7% in the Western provinces.

Map 14: Percentage of households having reported drought as the most severe shock during the last 12 months



Vegetation development through Normalized Difference Vegetation Index (NDVI) anomaly[109] linked with rainfall temporal profiles have been used to visualize the impact of drought or irregular rainfalls along the agricultural 2016-2017-2018A seasons (Maps 15-16-17). Vegetation development was below the 20-years average in Kirehe, Kayonza, and Nyagatare districts, the City of Kigali, and some parts of the Western Province. For Kirehe and Ngoma, vegetation index might be a direct consequence of rain deficit compared to rainfall long-term average. For Nyagatare district, the below-average vegetation development index might be a consequence of rapid harvest as rains started and ended earlier than in the previous years. In the Western Province, rainfalls were below the long-term average and less than for 2017A season, which resulted in a below-average development index mainly in some areas of the Ngororero, Rutsiro and Nyabihu Districts.

9.2.1.2 Other natural hazards

Besides drought or irregular rainfalls, some households experienced in 2018 other natural hazards as the main shocks. For instance, hailstones caused severe damages to households in Karongi (32.4 percent), in Gicumbi (16 percent), in Nyamasheke (14.3 percent), and in Nyaruguru (12.7 percent). **Floods** affected households in Nyanza (15.6 percent), Karongi (10.9 percent), and Gibumbi (10.8 percent). Landslides and mudslides severely damaged households in Gakenke (25.3 percent).

9.2.2 Idiosyncratic shocks

Serious illness or accident of a household member and the loss or reduced employment and income were the two most common idiosyncratic shocks that affected households during the last 12 months.

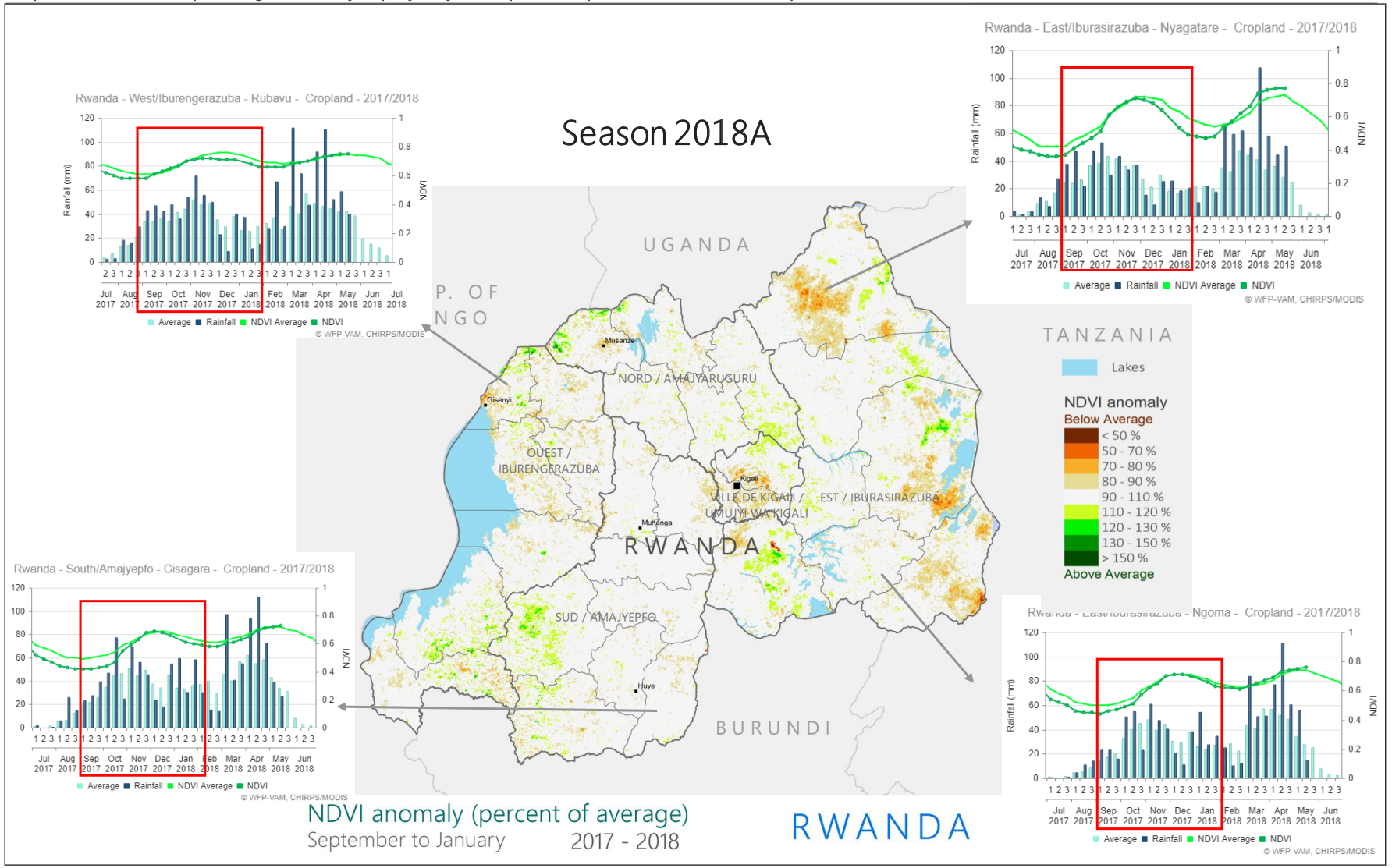
[109] NDVI anomaly is the difference between the average NDVI for a particular month of a given year and the average NDVI for the same month over the last 20 years.

Nationally, 19.7 percent of households considered illness or an accident of a member as the most severe shock affecting them during the last 12 months, but the prevalence reached 32.3 percent in the City of Kigali. Disparities existed between districts, with the highest prevalence of households affected in Gatsibo (39 percent), Kicukiro (37 percent), Rwamagana (35 percent), Nyarugenge (35 percent), Gisagara (34 percent) (Map 18).

Also, 32.2 percent of households in the City of Kigali indicated loss of employment or reduced income of a household member as the most severe shocks during the last 12 months (Map 19). This situation was also reported as the most severe by 18 percent households in Rutsiro and Nyabihu Districts.

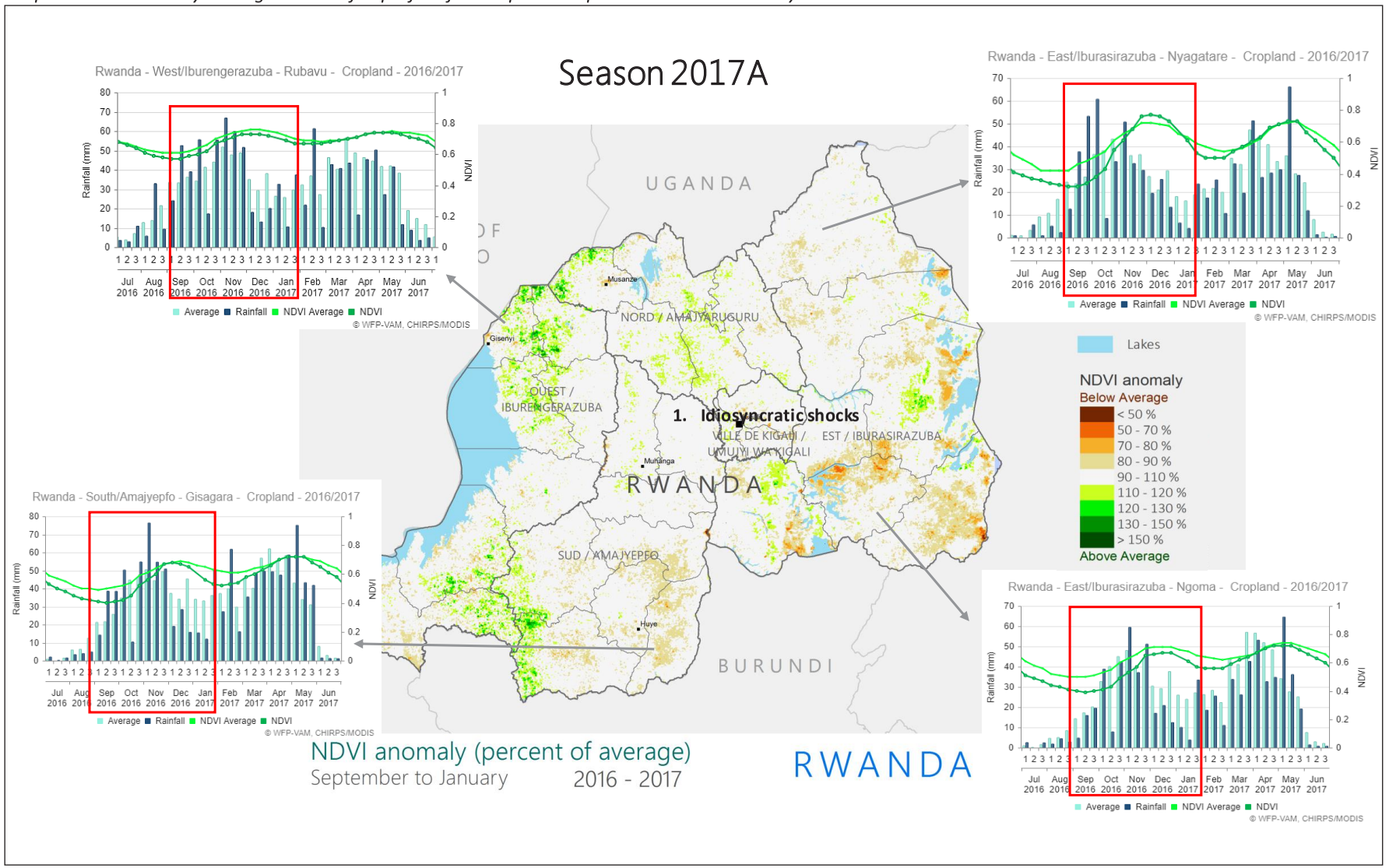
While illness or accident of a household member affected all livelihood groups, the loss of employment or income mainly impacted households of unskilled labourers, artisanal workers, and others involved in similar activities.

Map 15: NDVI anomaly average and rainfall profiles for the period September 2017 to January 2018.

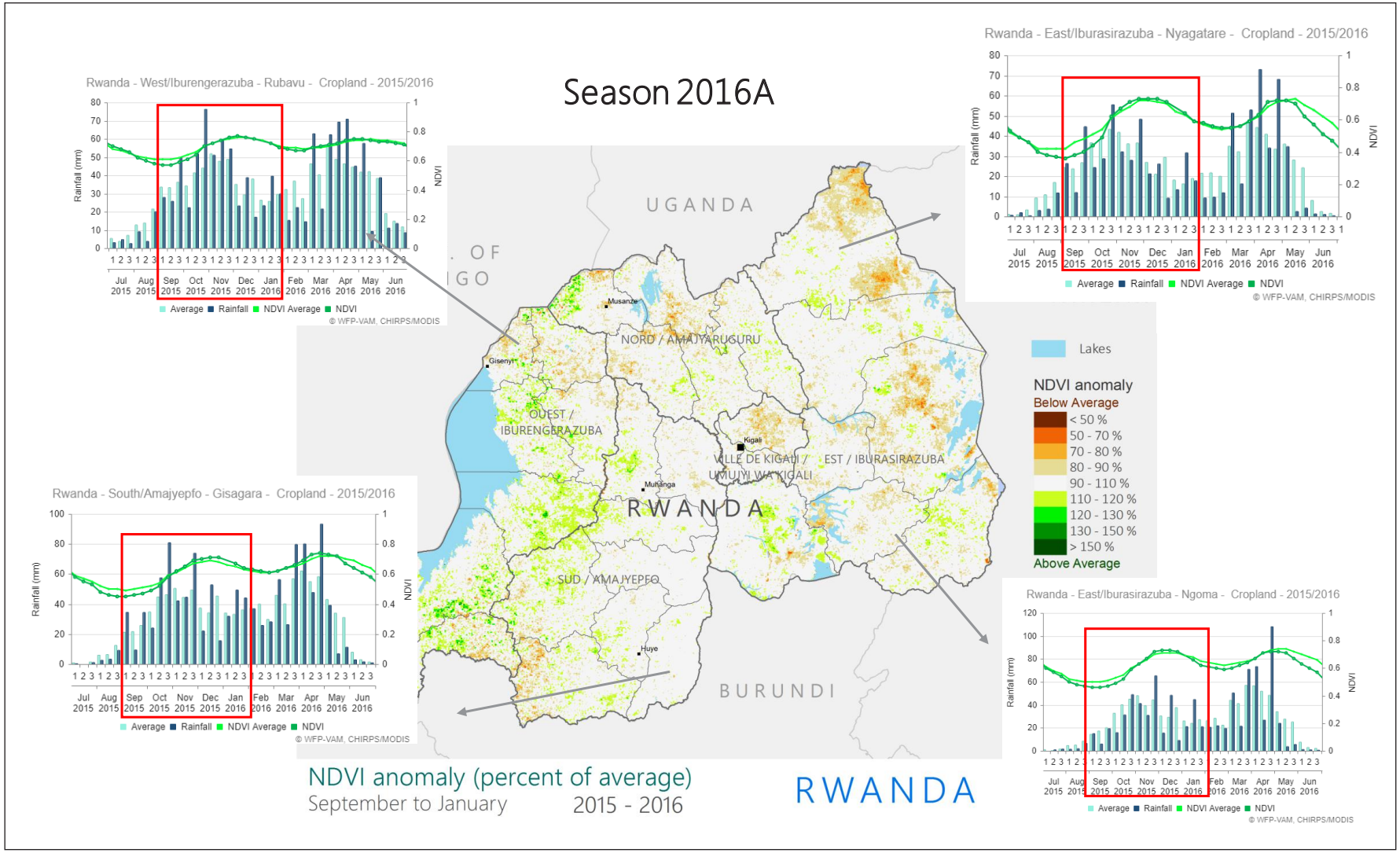


Source: VAM-WFP 2018

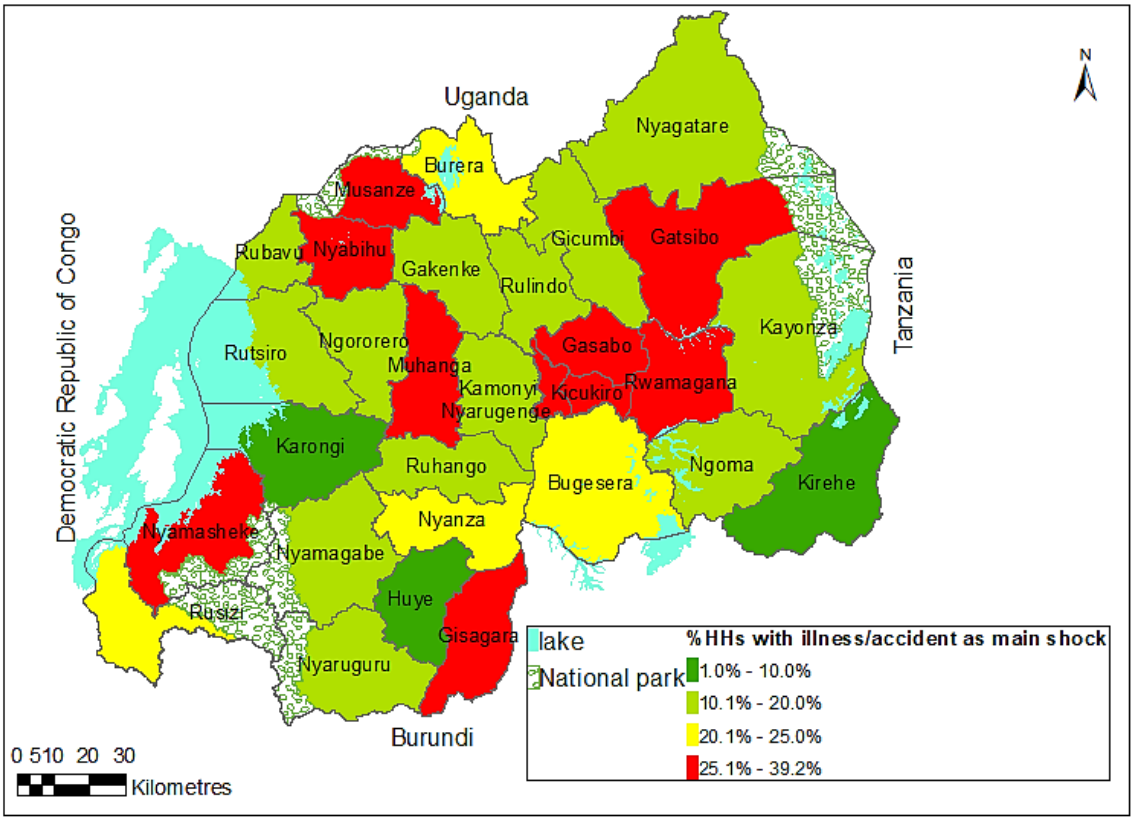
Map 16: NDVI anomaly average and rainfall profiles for the period September 2016 to January 2017.



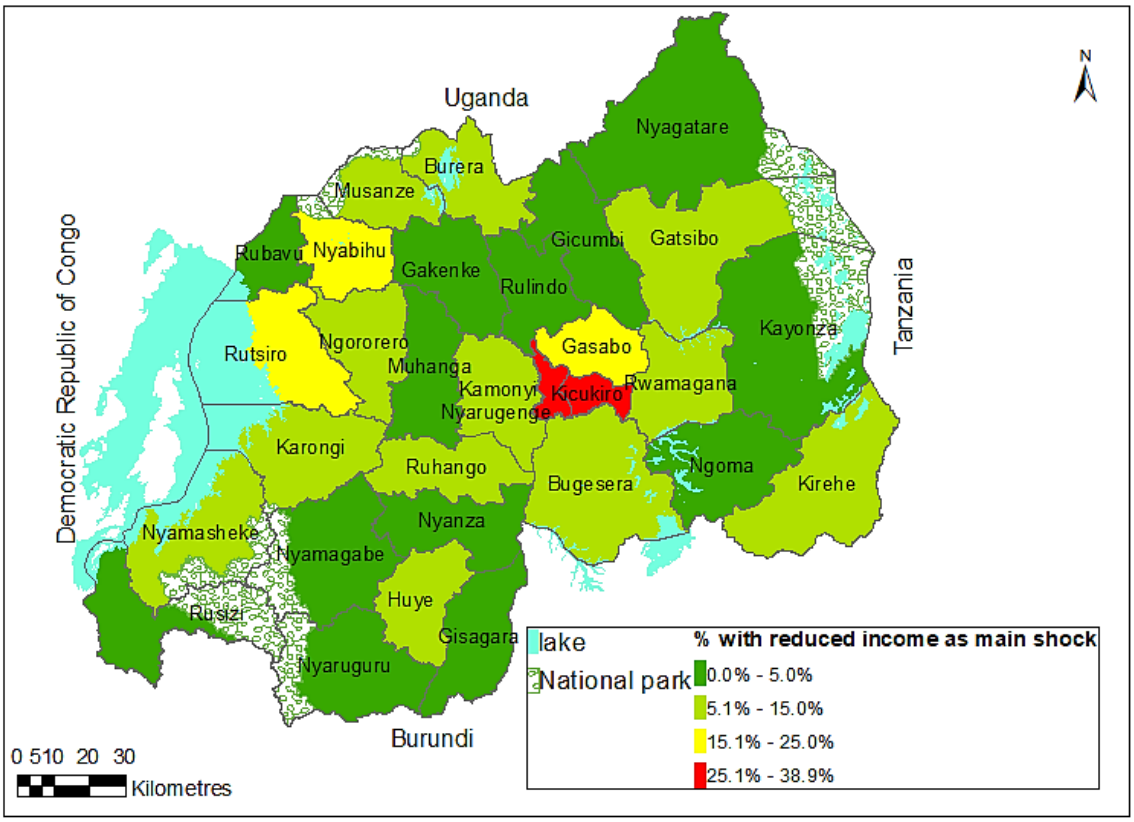
Map 17: NDVI anomaly average and rainfall profiles for the period September 2015 to January 2016.



Map 18: Percentage of households in Rwanda having reported illness/accident of a household's member as the most severe shock during the last 12 months



Map 19: Percentage of households in Rwanda having reported reduced/loss of employment/income of a household's member as the most severe shock during the last 12 months



9.2.3 Shock impact and recovery

Almost all the households (99 percent) impacted by the 2016-2017 drought suffered from a reduction of income and 84 percent of them observed a decrease or a loss of their assets or belongings. At the time of the survey, only 17 percent of households reported to have fully recovered, 68 percent partially recovered, and 15 percent had not at all recovered from the impact of the drought. Consecutive shocks like the 2016 and 2017 droughts may have a deleterious impact on the household's resilience with consequences on productive assets and agricultural production.[110]

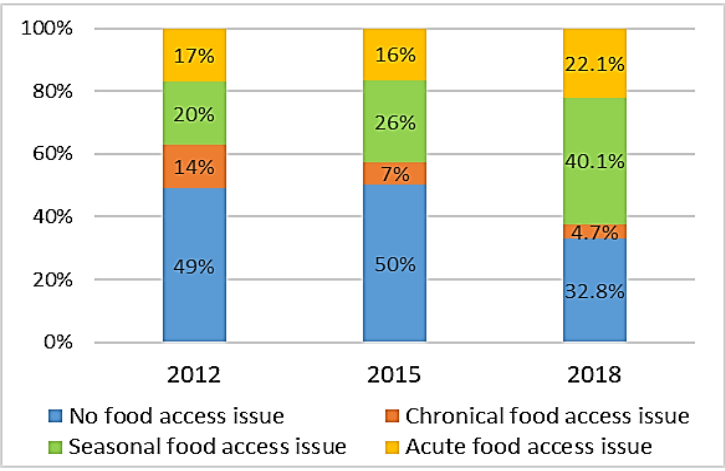
Concerning the most common idiosyncratic shocks (loss of income and illness of a member), more than 98 percent of households observed a reduction of income and 77 percent of households experienced a loss of assets or belongings. About 10 percent of households fully recovered, 50 percent partially recovered, and nearly 40 percent did not recover at all.

9.3 Food access issues

Households were asked if they experienced food access issues, in addition to those related to shocks. Two third of households reported having a lack of food or money to buy food over the past 12 months (+17 percent compared to 2015). Households in the City of Kigali were less affected by food shortage (43 percent).

For the purpose of analysis, food access issues were classified as chronic, seasonal, or acute. Food access issues lasting for at least six months of the year and described as 'usual' were considered chronic. If food access issues were experienced for a total of less than six months a year and reported to be usual, they were considered to be recurrent short-term issues or seasonal food access issues. Unusual food access issues lasting for less than six months a year were considered as acute (Figure 53).

Figure 52: Percentage of households by type of food access issues in 2012, 2015, and 2018



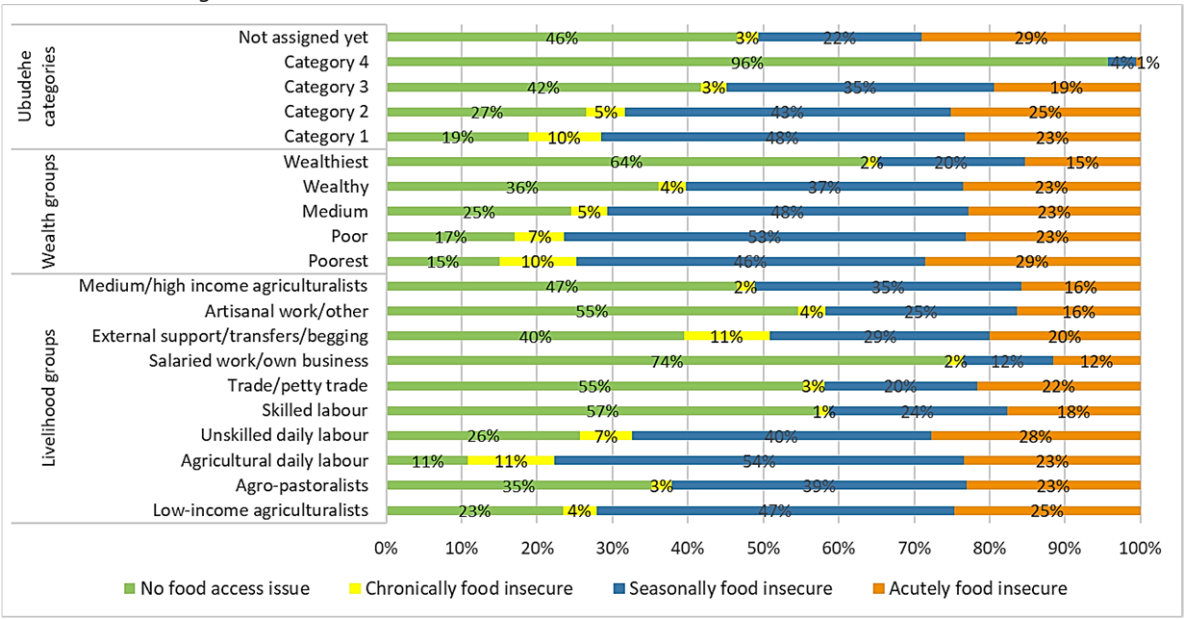
In total, among the 67 percent of households that reported having food access issues, 40 percent had seasonal food access issues, 22 percent had acute food access issues, and 5 percent had chronic access issues. Food shortages mainly occurred during the lean season in April and October-November. The prevalence of households which did not face any food access issues decreased by more than 15 percent. The proportion of households reporting acute food access difficulties increased by 6 percent

[110] The 2018 Seasonal agricultural survey - Season A reported a slight improvement in the overall expected production.

and households reporting seasonal food access issues doubled since 2012. This pattern may reflect a diminution of households' resilience against shocks.

Households having reported usual (chronic or seasonal) food shortages were the poorest households (Ubudehe 1) or those with income earned through daily labour (agricultural or unskilled) or external support. Half (47 percent) of the low-income agriculturalists reported facing seasonal food access issues (Figure 54).

Figure 53: Percentage of households with food access issues by livelihood groups, wealth quintiles and Ubudehe categories



9.3.1 Food consumption-related coping strategies

In the last seven days preceding the survey, 44 percent of households indicated not having enough food or money to buy food. Nationally, 38 percent of those households attributed food shortage to the loss or reduction of employment; mostly reported in the City of Kigali (63 percent of households) and in the Western Province (by 47 percent of households).[111] For 26 percent of the total households facing food shortages during the previous week, the main reason was the low production from the last agricultural season (reported by 35 percent in the Eastern Province) as a consequence of drought and irregular rainfalls.

Households were asked if they applied any of the below food-based coping strategies during the time(s) when they did not have enough food or money to buy food:

- Rely on less preferred and less expensive food;
- Borrow food or rely on help from friends/relatives;
- Limit portion size at mealtimes;
- Restrict consumption by adults for small children to eat;
- Reduce the number of meals eaten in a day.

Most households relied mainly on the following three strategies: 'limit portion size at mealtimes', 'rely on less preferred of less expensive foods', and 'reduce the number of meals per day'. The number of

[111] Loss or reduction of employment was reported as the reason for not having enough food or money to buy food for 35% of households in the Northern, 32% in the Southern and 28% in the Eastern provinces.

food coping strategies and the frequency of use varied according to the type of food access issues and the geographical area. Households facing chronic food access issues engaged more in food coping strategies (Figure 55) - mainly, households in the Eastern and Southern provinces (Figure 56).

Figure 54: Number of days coping strategies were used by households in the 7 days before the survey by type of food access issue

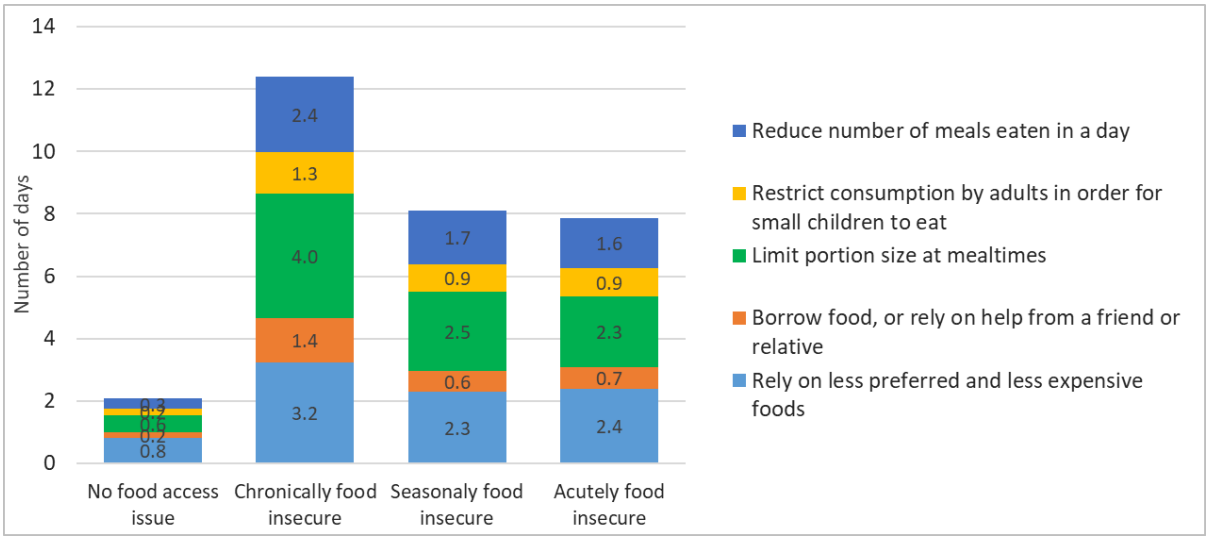
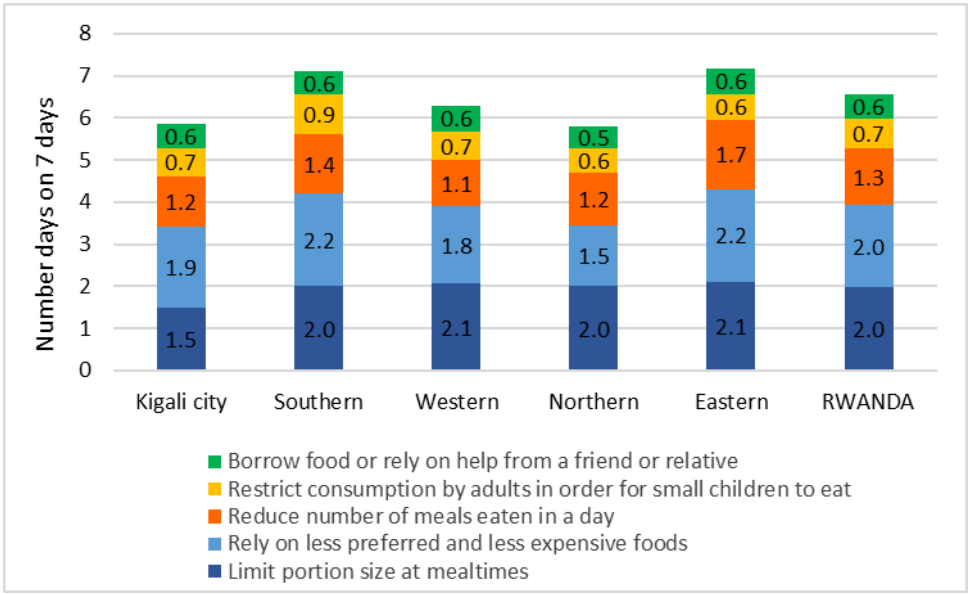


Figure 55: Frequency of use of the food coping strategies by province.



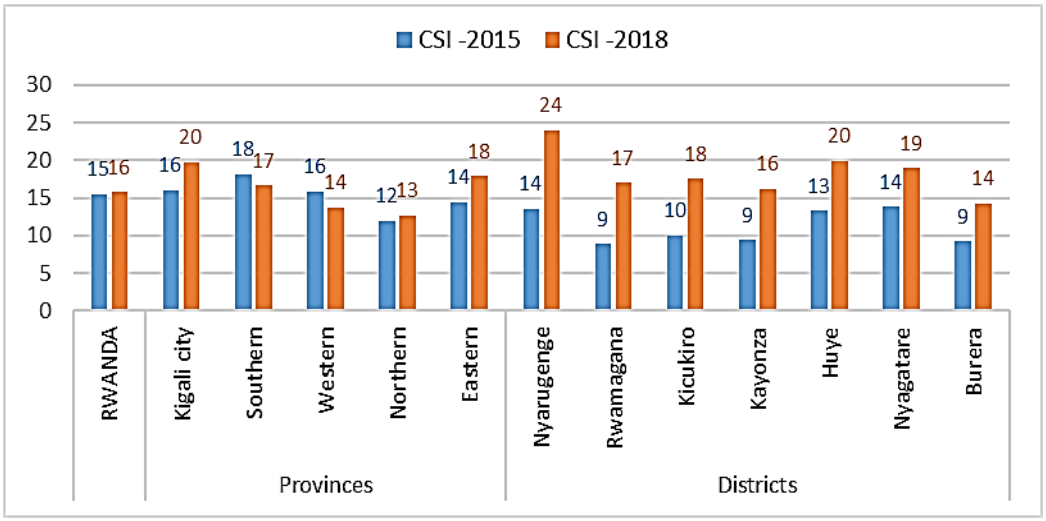
9.3.2 Reduced Coping Strategy Index (rCSI)

Based on the questions asked on coping strategies, the reduced Coping Strategy Index (rCSI) was calculated. The rCSI is a proxy indicator of household food access that helps to understand how households cope when facing food shortages.[112] On average, the rCSI had increased to 15.7, which was not significantly different than in 2015 (15.4). rCSI was the highest in the City of Kigali (19.7), followed by the Eastern Province (17.9). Indeed, rCSI significantly rose in the Nyarugenge and Kicukiro districts

[112] The average rCSI was calculated based on both the frequency of use and the severity of the 5 food-coping strategies; the higher the score, the higher the stress level and the lesser the food security of the household.

within the City of Kigali area, as well as in the Rwamagana, Kayonza and Nyagatare districts in the Eastern Province (Figure 57).

Figure 56: Reduced coping strategy index (rCSI) in 2015 and 2018 per province and per some districts



9.3.3 Asset depletion and livelihood coping strategies

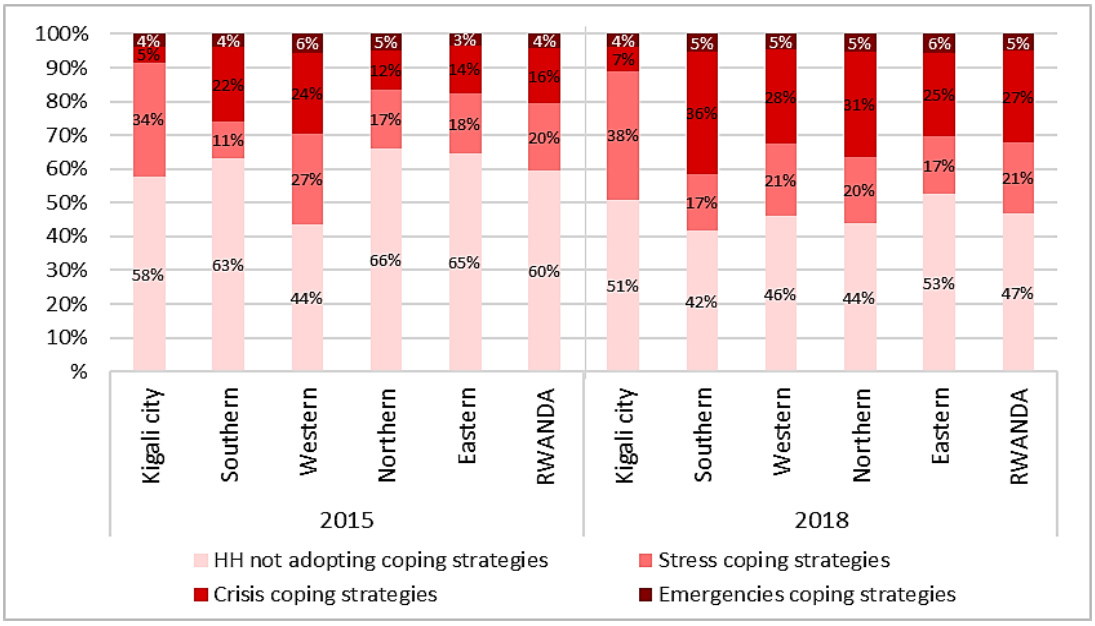
The livelihoods-based coping strategies module is used to better understand the longer-term coping capacity of households. The indicator is derived from a series of questions regarding household behaviours over the past 30 days prior to the interview that lead to asset depletion, such as, selling productive assets or decreasing expenditure on productive inputs. These coping strategies are classified as stress, crisis, or emergency strategies depending on the severity of the strategy and its impact on the household's future coping strategies (Table 13).

Table 13: Stress, crisis and emergency strategies used to classify households

Stress	Crisis	Emergencies
Sold household assets	Harvested immature crops	Sold the last female animals
Spent savings	Consumed seed stock that were to be saved for the next season	Migrated the entire household
Sold more non-productive animals than usual	Decreased expenditure on productive inputs, (fertilizer, pesticide, fodder, etc.)	Begged
Purchased food on credit or borrowed food		

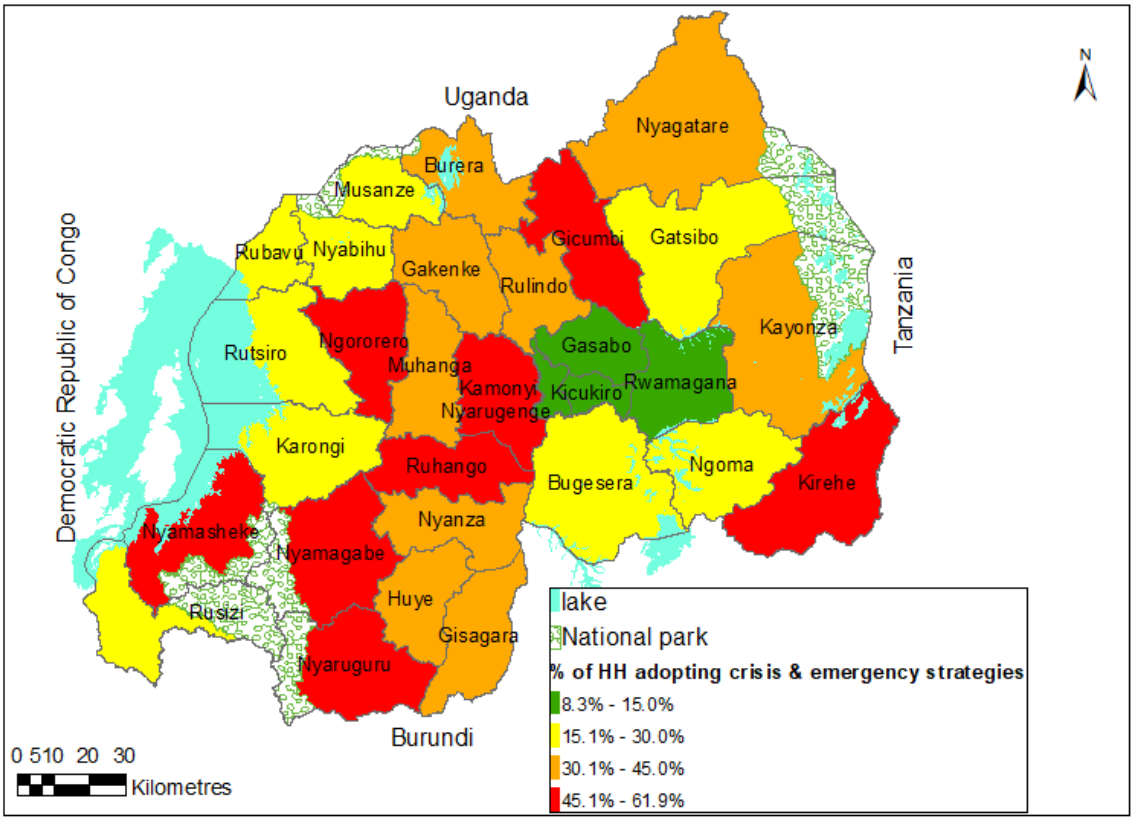
Nationally, more households reported using livelihood strategies and all above-mentioned crisis strategies (+10 percent compared to 2015). The use of these severe strategies was more prevalent in the Southern Province (Figure 58).

Figure 57: Percentage of households using livelihoods or asset depletion coping strategies within the 30 days before the survey, by province in 2015 and 2018.



At the district level, households that employed more crisis and emergency strategies within 30 days prior to survey were located in Ngororero, Nyaruguru and Kirehe (with 57 percent, 54 percent, and 51 percent of households using crisis strategies and 3 percent, 8 percent, and 5 percent using emergency strategies, respectively) (Map 20). For the two latter districts, this situation may be related to the pressure of Burundian refugee influx since 2015. But shocks like the 2016 drought also have a longstanding effect when coping strategies are applied that decrease the resilience of the households. For instance, around 10 percent of households in the Nyagatare and Kayonza Districts used emergency coping strategies like begging.

Map 20: Percentage of households adopting crisis and emergency strategies during the 30 days before the survey, by district



It was clear that poorer households, classified in Ubudehe 1 or Ubudehe 2, relied more on crisis strategies (32 percent and 30 percent, respectively) and emergency strategies (9 percent and 5 percent, respectively) (Figure 59). The strategies most used were 'purchase food on credit or borrow food', 'spend savings' (stress), 'harvest immature crops', and 'consume seeds crops' (crisis) (Table 14). Around 30 percent of households in Ubudehe 1 and 2 were engaged in crisis strategies and around 10 percent of Ubudehe 1 and 5 percent in Ubudehe 2 used emergency strategies like begging. This situation may irreversibly affect household's livelihood and resilience to shock.

Figure 58: Percentage of households adopting coping strategies by poverty status

		Summary of asset depletion			
		No coping strategies	Stress coping strategies	Crisis coping strategies	Emergencies coping strategies
Wealth quintiles	Poorest	35%	17%	38%	10%
	Poor	39%	19%	37%	6%
	Medium	45%	21%	31%	3%
	Wealthy	56%	19%	22%	2%
	Wealthiest	67%	20%	11%	2%
Ubudehe	Category 1	39%	20%	32%	9%
	Category 2	43%	22%	30%	5%
	Category 3	52%	21%	23%	3%
	Category 4	90%	4%	6%	0%
	Not assigned yet	65%	19%	13%	2%
	RWANDA	47%	21%	27%	5%

Table 14: Percentage of households using livelihood coping strategies by Ubudehe categories[113]

		Ubudehe categories		
		Category 1	Category 2	Category 3
Stress strategies	Sell household assets/goods	5%	5%	4%
	Spend savings	15%	19%	18%
	Sell more animals (non-productive) than usual	3%	3%	3%
	Purchased food on credit or borrow food	34%	33%	27%
Crisis	Harvest immature crops	27%	23%	18%
	Consume seed stocks	19%	19%	13%
	Decrease expenditure on productive assets	7%	7%	6%
Emergency	Begging	7%	3%	2%
	Sold last female animals	0%	1%	0%
	Entire household migration	1%	1%	1%

Some households from Ubudehe 3 were engaged in emergency strategies. One percent of households who migrated as an emergency strategy represented 12 households in Rulindo and 1 or 2 households surveyed in other districts. Households who were engaged in begging mainly lived in Rulindo (13 households) and in Kayonza (11 households).

[113] The figures for Ubudehe 4 were not presented here as only 17 households surveyed nationwide were classified in Ubudehe 4.

10. Nutrition status in children and women

KEY MESSAGES

- Nutritional status among children 6-59 months has improved slightly since 2015.
- National stunting prevalence has dropped from 37 percent to 35 percent between 2015 and 2018. Stunting rate has significantly decreased from 24.8 percent to 12.9 percent in the City of Kigali but remains the highest in the Western Province, at 44 percent.
- Wasting prevalence remained at 2.0 percent, underweight increased to 12.6 percent, and overweight decreased to 2.4 percent, as compared with the 2015 CSFVA
- Since 2015, IYCF practices remain poor: only 17 percent of children achieved the minimum acceptable diet (MAD). Rwandan children 6-23 months ate an average of 3 food groups per day twice a day, meaning that at least one more food group and at least one more feeding time per day would be needed to achieve MAD.
- Only half of children aged 6 to 8 months received complementary feeding.
- Breastfeeding rates remain positive, with 80 percent of children up to two years of age still being breastfed.
- Only 28 percent of women meet the minimum diet diversity for women (MDD-W).

Chronic malnutrition occurs when feeding and care required for normal growth during a child's first two years is insufficient, such as when women do not have appropriate nutritional intake during pregnancy and children do not receive adequate foods. The multiple causes of the high rates of chronic malnutrition in children and other nutrition problems also include inadequate household food security that affects almost 20 percent of Rwandan families as well as complications from childhood infections.[114]

The results of the 2012 and 2015 CFSVA showed that stunting rates among children under five years of age dropped from 42 percent to 36.7 percent, while wasting rates decreased from 3.6 percent to 1.7 percent.[115] Food security and child nutritional status primarily deteriorated because of inadequate feeding practices and diseases. Chronic and acute food insecurity were some of the critical underlying factors of child undernutrition.

10.1 Nutritional status in children

For the 2018 CFSVA, 6,170 children under five years old were measured for their age, weight, and height or length in order to determine the levels of stunting, wasting, underweight, and overweight. These four nutritional indicators were expressed in standard deviation (SD) units (z-score) from the median of the 2006 WHO reference standards, with cut-off set as -2 SD for moderate acute malnutrition (MAM), -3 SD for severe acute malnutrition (SAM), and +2 SD for overweight.[116] In addition, the mid-upper arm circumference (MUAC) was measured for all children under five years of age.

[114] National Food and Nutrition Policy. 2013-2018.
[115] The 2014/15 RDHS found 38% stunting, 2% wasting, and 9% underweight in children under five years of age.
[116] Anthropometric measurements were closely overseen by supervisors. Every case with significant results was flagged and re-measured as errors in measurement were likely to increase the standard deviation of the Z-scores and would also decrease the strength of observed associations between nutritional status and other indicators, particularly when observing the mean z-scores.

Nutritional data was collected to explore the linkage between food security and malnutrition. Compared to previous CFSVAs, the sample size of the survey was increased and designed to get a representative sample of malnutrition prevalence at national, provincial, and at district levels.

It was found that the prevalence of chronic malnutrition (stunting) among children between 6-59 months was 34.9 percent global with 10.4 percent severe stunting (Table 15). Although the level of stunting remains 'serious' according to the WHO threshold (30-39 percent),[117] there has been a reduction of stunting prevalence over the last few years, from 43.4 percent in 2012 to 36.7 percent in 2015 and 34.9 percent in 2018 (Figure 60). The average annual reduction rate for stunting decreased from -1.7 percent per year between 2012 and 2015 to -0.6 percent per year between 2015 and 2018.

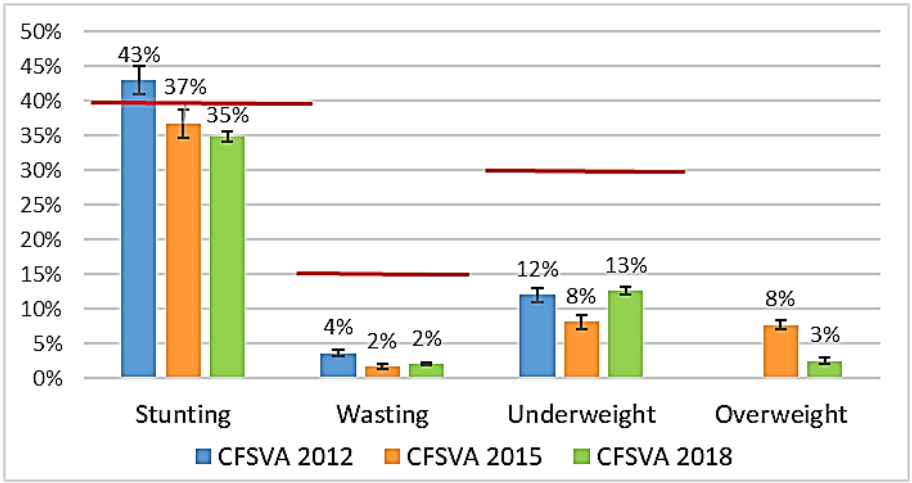
The level of acute undernutrition (wasting) for children under 5 years is 2.0 percent, which is within the WHO acceptable limit. The prevalence of underweight – reflecting both chronic and acute undernutrition – reached 12.6 percent which is still 'poor', although higher than in 2015.

Around 2.4 percent of children under five were overweight; however, this is an improvement from the prevalence reported in the 2014 RDHS (7.7 percent). [118]

Table 15: Prevalence of malnutrition among children under five years

	Moderate			Severe			Global		
	95% CI			95% CI			95% CI		
	%	Lower	Upper	%	Lower	Upper	%	Lower	Upper
Wasting	1.6	1.3	1.9	0.4	0.2	0.6	2.0	1.6	2.4
Stunting	24.5	23.4	25.6	10.4	9.6	11.2	34.9	33.7	36.1
Underweight	10.7	9.9	11.5	1.9	1.6	2.2	12.6	11.8	13.4
Overweight	2.3	1.9	2.7	0.1	0.1	0.2	2.4	2.1	2.9

Figure 59: Trends of national malnutrition prevalence

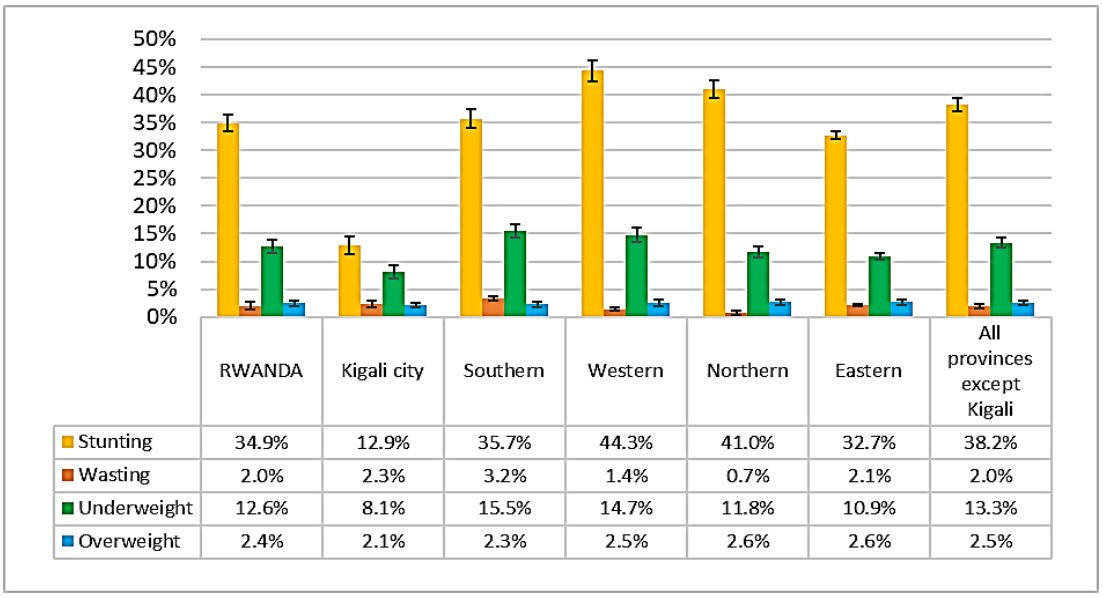


Malnutrition varied across the provinces (Figure 61). Stunting prevalence reached 38.2 percent, on average, in all provinces not including the City of Kigali, where prevalence was 12.9 percent. The stunting rate was above the WHO critical threshold in the Western Province (44.3 percent) and the Northern Province (41.0 percent).

[117] WHO, 1995. Cut-off values for public health significance. http://www.who.int/nutgrowthdb/en.
[118] Overweight was calculated based on weight for height (>2 Z-score for overweight and >3 Z-score for obesity) according to WHO cut-off.

The rate of acute malnutrition or wasting was higher in the Southern Province (3.2 percent). There were no major geographical differences for overweight. Underweight was higher in the Southern Province (15.5 percent) and the Western Province (14.7 percent).

Figure 60: Percentage of malnourished children under five years old per province in 2018

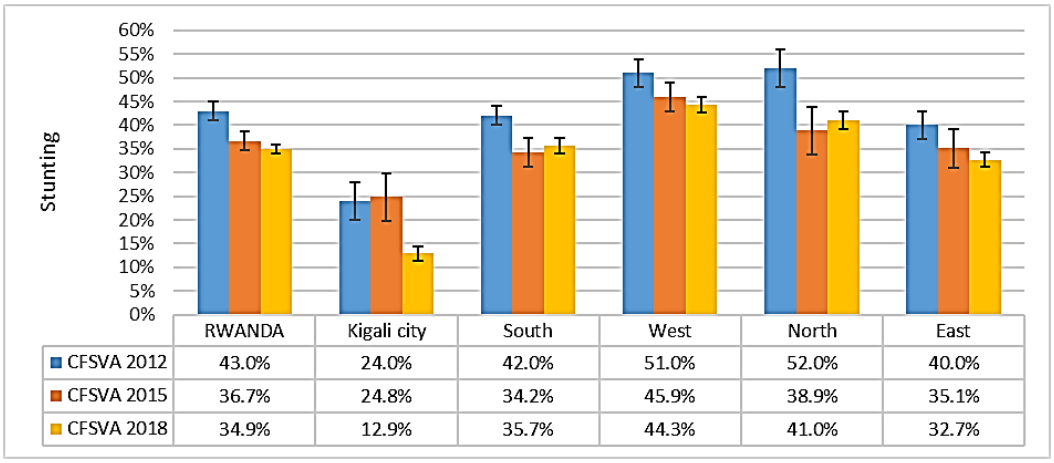


	RWANDA	Kigali city	Southern	Western	Northern	Eastern	All provinces except Kigali
Stunting	34.9%	12.9%	35.7%	44.3%	41.0%	32.7%	38.2%
Wasting	2.0%	2.3%	3.2%	1.4%	0.7%	2.1%	2.0%
Underweight	12.6%	8.1%	15.5%	14.7%	11.8%	10.9%	13.3%
Overweight	2.4%	2.1%	2.3%	2.5%	2.6%	2.6%	2.5%

10.1.1 Stunting prevalence at province and district levels

Compared to the 2015 CFSVA, stunting prevalence decreased by 1.8 percent at national level, with the main change observed for the City of Kigali where stunting prevalence significantly dropped from 24.8 percent to 12.9 percent. Stunting also seemed to have decreased in all other provinces, although this was not statistically confirmed (Figure 62).

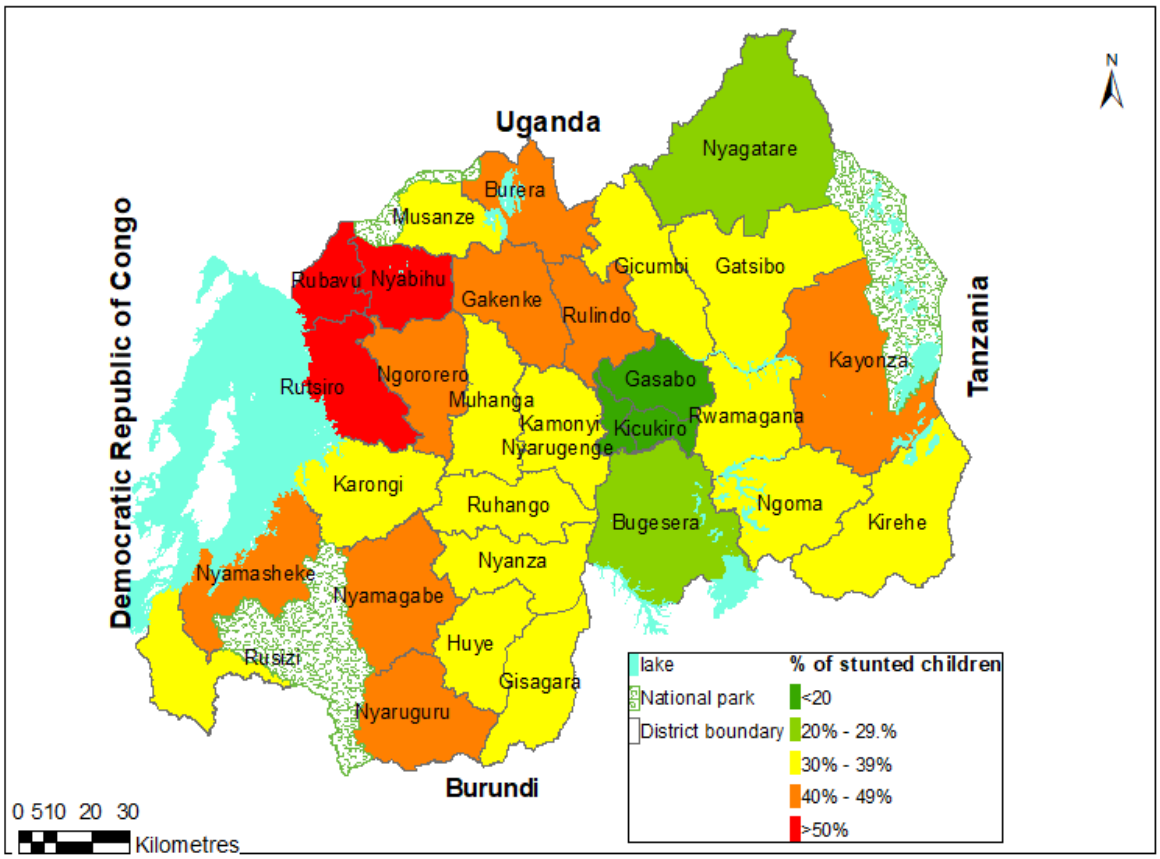
Figure 61: Child stunting per province in 2012, 2015 and 2018 (CFSVA)



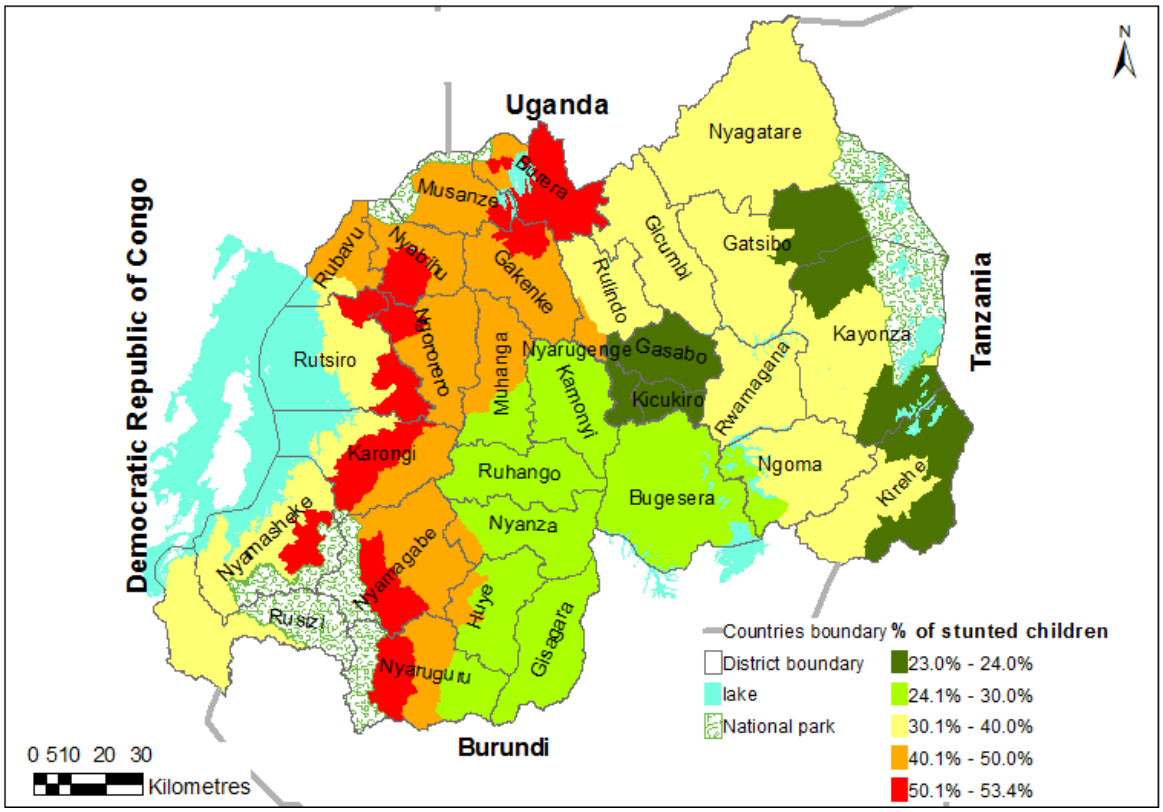
	RWANDA	Kigali city	South	West	North	East
CFSVA 2012	43.0%	24.0%	42.0%	51.0%	52.0%	40.0%
CFSVA 2015	36.7%	24.8%	34.2%	45.9%	38.9%	35.1%
CFSVA 2018	34.9%	12.9%	35.7%	44.3%	41.0%	32.7%

Map 21 presents the stunting prevalence by district. The stunting rate was found to be above the WHO critical threshold (> 40 percent) in eleven districts: Rutsiro (54 percent), Nyabihu (53 percent), and Rubavu (50 percent) have the highest stunting prevalence followed by Burera (49 percent), Ngororero (48 percent), Nyaruguru (48 percent), Nyamagabe (43 percent), Kayonza (42 percent), Nyamasheke (42 percent), Rulindo (42 percent), and Gakenke (41 percent). In terms of livelihood zone, stunting is the highest in the Northern Highland Beans and Wheat Zone and in the Western Congo-Nile Crest Tea Zone.

Map 21: Child stunting prevalence per district in 2018



Map 22: Child stunting prevalence per livelihood zones in 2015



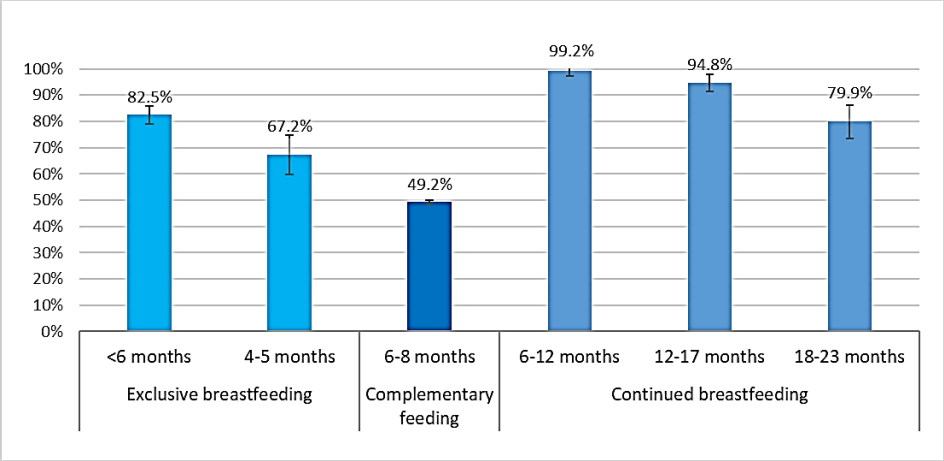
10.2 Child food consumption

10.2.1 Breastfeeding

Almost all Rwandan children (99 percent) under six months of age were breastfed; among them 82 percent were exclusively breastfed. Around 76 percent of children under 6 months received colostrum within 1 hour after birth, 17 percent within 23 hours, and 6 percent after 24 hours.

Almost all children (99.2 percent) from 6 to 12 months were still breastfed. However, only half (49 percent) of children 6 to 8 months were introduced to solid foods as recommended by WHO. Most of these children (51 percent) received two complementary meals per day, 9 percent three meals a day, and 39 percent only one meal, 95 percent of children were still breastfed between 12 to 17 months with the percentage decreasing to 80 percent for children between 18 to 23 months (Figure 63).

Figure 62: Percentage of children breastfed by age

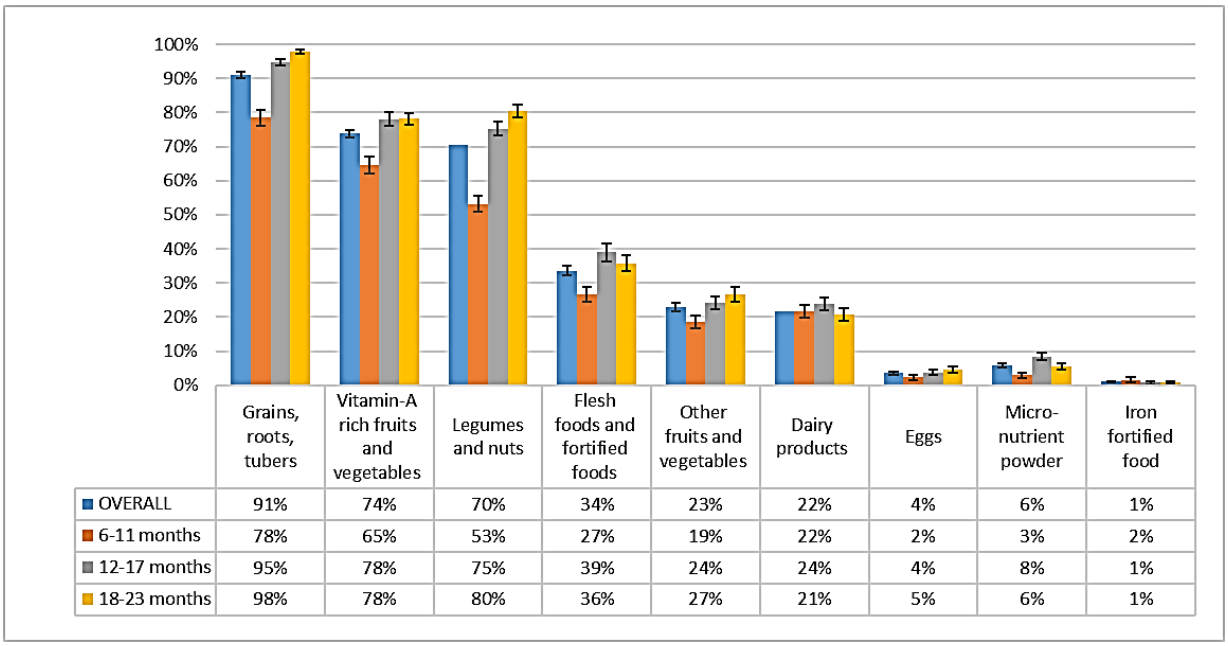


10.2.2 Food consumption

For the 2018 CFSVA, caretakers of children aged 6 to 23 months were asked what the child had consumed in the 24 hours preceding the survey. The most common food groups consumed by children 6 to 23 months were grains, roots, and tubers; vitamin A rich fruits and vegetables; and legumes and nuts. Child food consumption had not changed over the last few years.[119] The consumption of animal food source (dairy products, meat, and eggs) remained low (Figure 64).

[119] In reference to the 2015 CFSVA and 2012 CFSVA.

Figure 63: Percentage of children 6-23 months consuming food groups in the past 24 hours, by age



	Grains, roots, tubers	Vitamin-A rich fruits and vegetables	Legumes and nuts	Flesh foods and fortified foods	Other fruits and vegetables	Dairy products	Eggs	Micro-nutrient powder	Iron fortified food
OVERALL	91%	74%	70%	34%	23%	22%	4%	6%	1%
6-11 months	78%	65%	53%	27%	19%	22%	2%	3%	2%
12-17 months	95%	78%	75%	39%	24%	24%	4%	8%	1%
18-23 months	98%	78%	80%	36%	27%	21%	5%	6%	1%

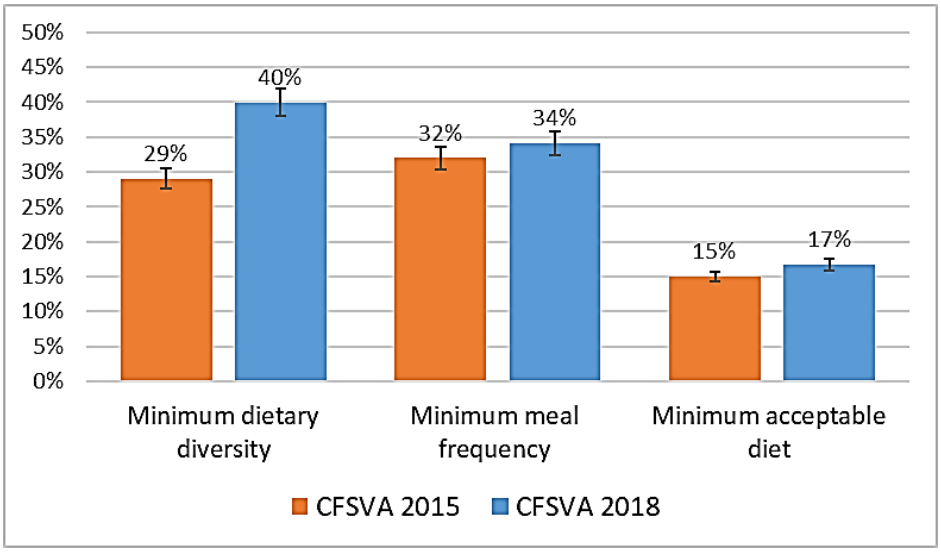
10.2.3 Minimum acceptable diet

The minimum acceptable diet (MAD) among children 6-23 months is a proxy indicator for child food consumption based on the diversity and the frequency of food consumed. The percentages of children meeting the minimum dietary diversity (MDD), which is the consumption of at least four food groups out of seven and the minimum meal frequency (MMF), were calculated.[120]

In 2018, only 17 percent of children 6-23 months (16.3 percent for girls and 17.1 percent for boys) met the requirements for the minimum acceptable diet (+2 percent from 2015), 34 percent received the minimum number of meals required (+2 percent) and 40 percent achieved the minimum dietary diversity (+11 percent) (Figure 65). Rwandan children 6-23 months ate an average of 3 food groups per day twice a day, meaning that at least one more food group and at least one more feeding time per day would be needed to achieve MAD.

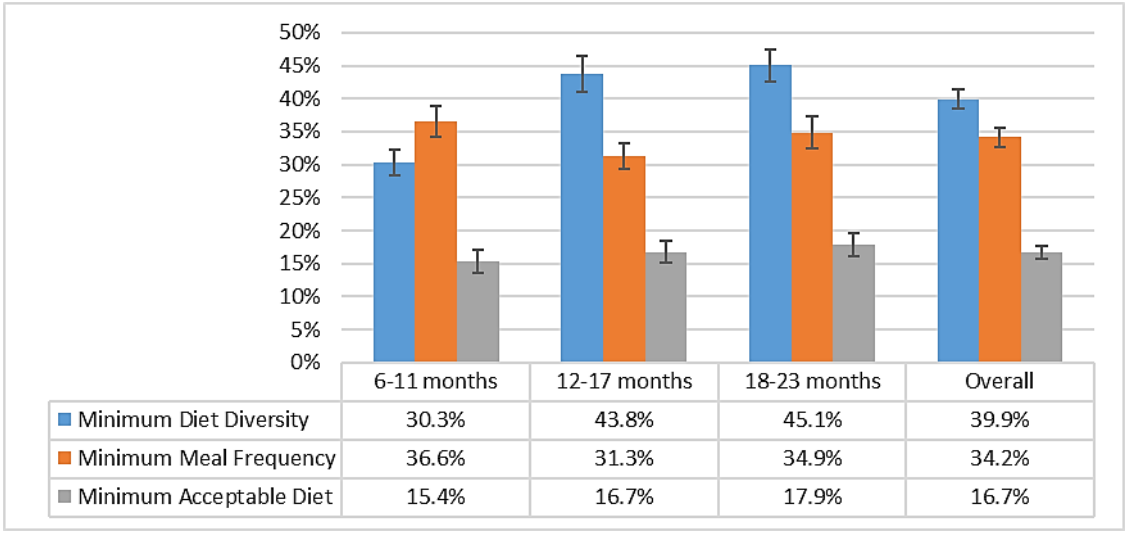
[120] Minimum meal frequency is 2 times per day for breastfed children aged 6-8 months; 3 times per day for breastfed children aged 9-23 months and 4 times per day for non-breastfed children 6-23 months.

Figure 64: Percentage of children aged 6-23 months achieving the level for minimum dietary diversity, minimum meal frequency, and minimum acceptable diet.



The percentage of children achieving the minimum acceptable diet did not significantly vary according to the child's age; however, the percentage of children meeting the minimum diet diversity increased when the child reached one year of age, while the percentage for reaching the minimum meal frequency decreased (Figure 66). The '6 to 11 months age category' corresponded with the critical period for the introduction of complementary food. It was observed that only 49.2 percent of children aged 6 to 8 months received complementary food the day before the survey.

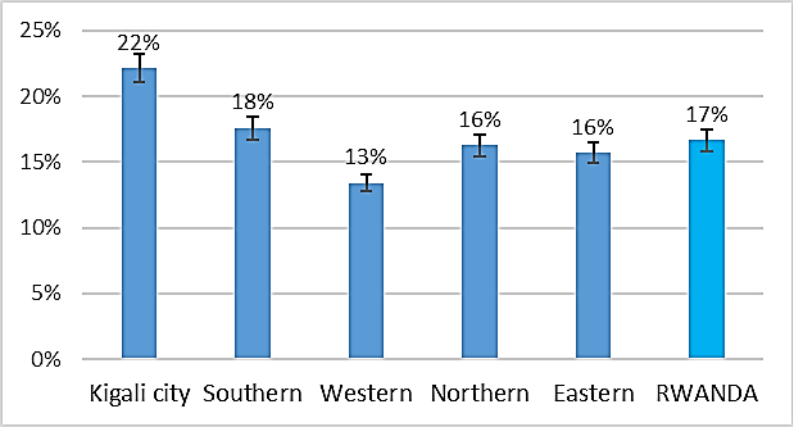
Figure 65: Percentage of children 6-23 months achieving minimum dietary diversity, meal frequency, and acceptable diet



	6-11 months	12-17 months	18-23 months	Overall
Minimum Diet Diversity	30.3%	43.8%	45.1%	39.9%
Minimum Meal Frequency	36.6%	31.3%	34.9%	34.2%
Minimum Acceptable Diet	15.4%	16.7%	17.9%	16.7%

The percentage of children reaching the minimum acceptable diet varied between the provinces, with the lowest in the Western Province (13 percent) and the highest in the City of Kigali (22 percent) (Figure 67).

Figure 66: Percentage of children 6-23 months achieving minimum acceptable diet by province.

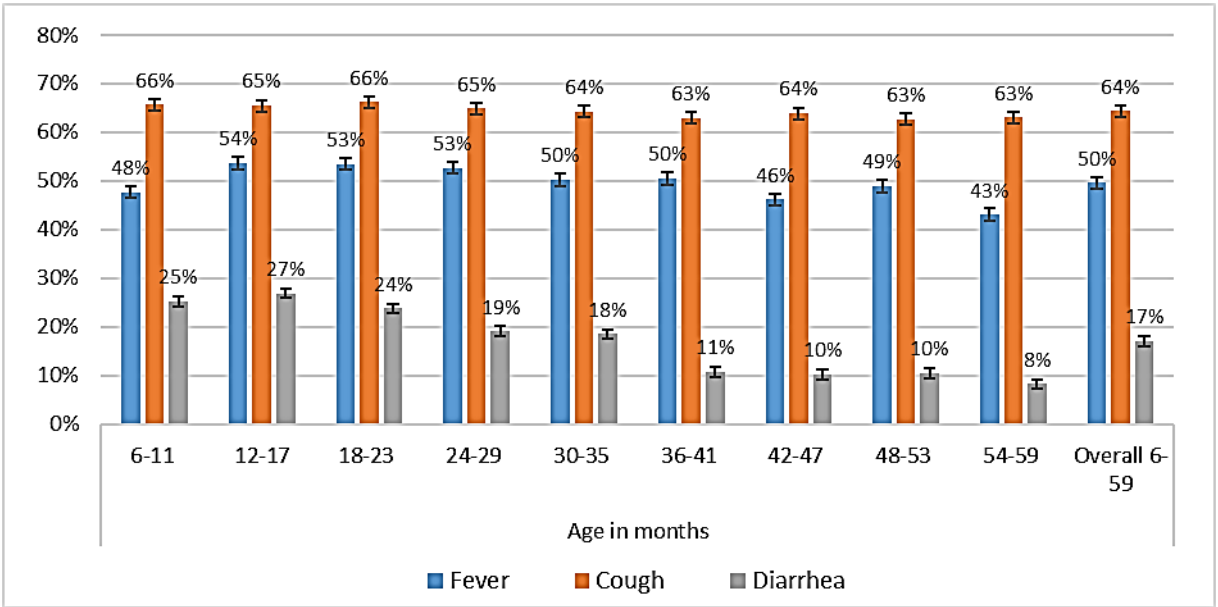


10.3 Child illness

10.3.1 Fever, cough, and diarrhoea

Caretakers were asked if the child had been sick during the last two weeks before survey. Around 50 percent of children 6 to 59 months were reported to have suffered from fever, 64 percent from cough, and 17 percent from diarrhoea (Figure 68).

Figure 67: Percentage of children 6-59 months reported suffering from fever, cough, or diarrhoea during the last 2 weeks before the survey.

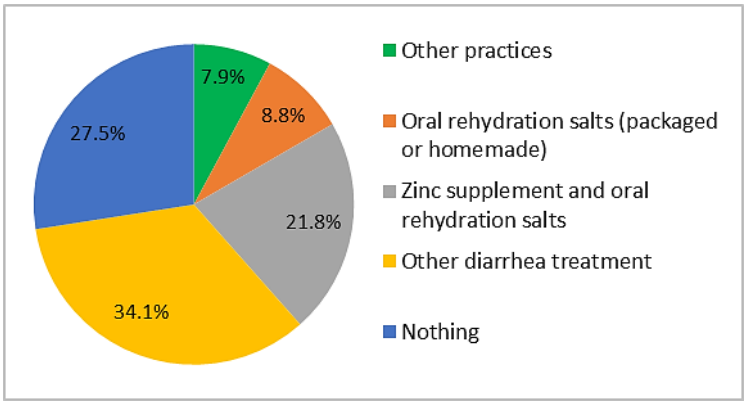


Almost 35 percent of children who had been ill had not seen any healthcare provider (up to 42 percent in the Western Province), while 50 percent had been examined by staff at a health facility, 8 percent by a community healthcare worker, and 8 percent by a traditional care provider. The accessibility to a health facility varied between provinces. On average, it took 65 minutes to access a health facility, with

less than 1 hour to access a health facility in 14 districts and more than 90 minutes in Rutsiro, Ngororero, Nyagatare and Nyaruguru Districts.[121]

Children aged 6 to 23 months were significantly more affected by diarrhoea than the older children (24 to 59 months) (Figure 69). According to child caregivers, 25.7 percent of children suffering from diarrhoea did not get any treatment, 8.8 percent received packaged or homemade Oral Rehydration Salts (ORS), 21.8 percent received ORS with zinc supplement, 34.5 percent other diarrhoea treatment, and 7.9 percent other practices such as more drinks, food, or breastfeeding (Figure 70).

Figure 68: Treatment given to child suffering from diarrhoea (as reported by child caregivers)



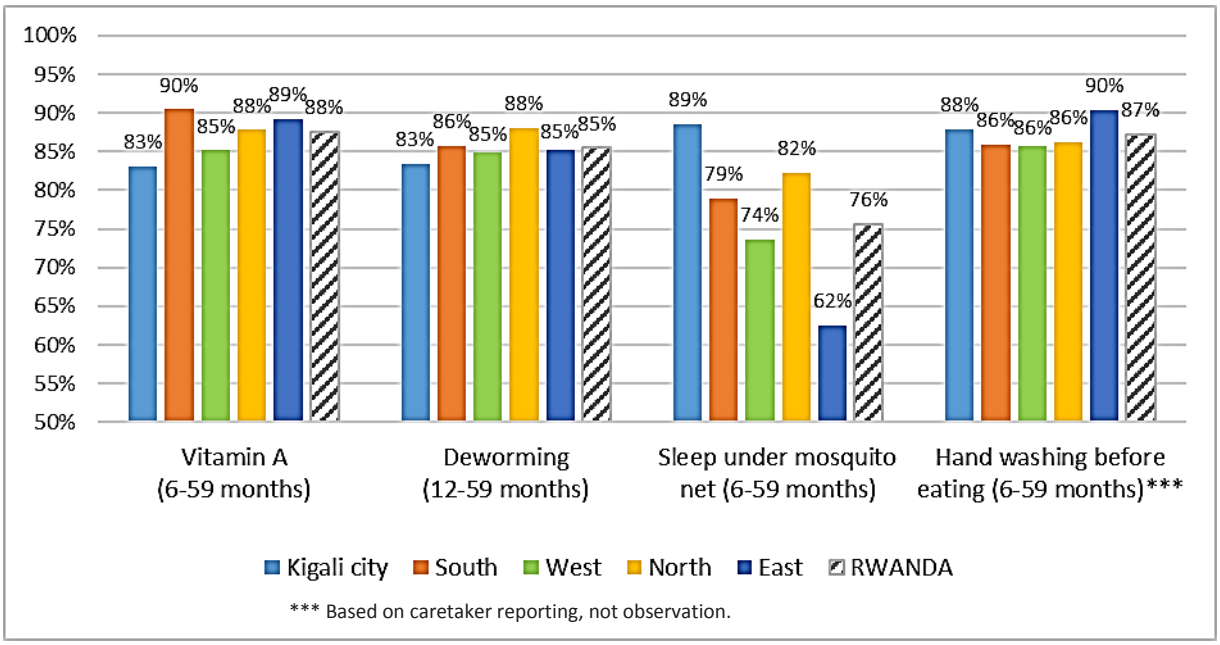
10.3.2 Illness prevention

According to child caretakers, around 88 percent of children 6-59 months received Vitamin A supplementation and 85 percent of children 12-59 months received deworming treatment during the last 6 months before the survey. Almost 75 percent of children under five slept under a mosquito net, with a lower prevalence in the Eastern Province, despite malaria being endemic. Caretakers reported that around 87 percent of children washed their hands before eating[122] (Figure 70).

[121] Data from key informant survey, 2018 CFSVA.

[122] Verification of illness prevention practices by direct observation was beyond the scope of this study.

Figure 69: Illness prevention practices for children under five



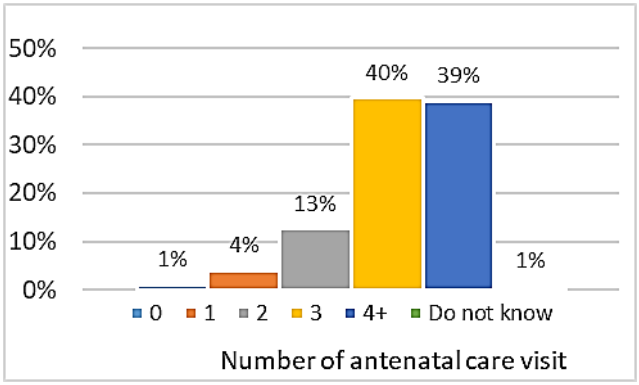
10.4 Women's nutritional and health status

10.4.1 Pregnancy and antenatal care

Approximately 7 percent of women were pregnant and 43 percent were lactating at the time of survey. During their previous pregnancy, 65 percent of women were visited by a community health worker and 97 percent of women received antenatal care.

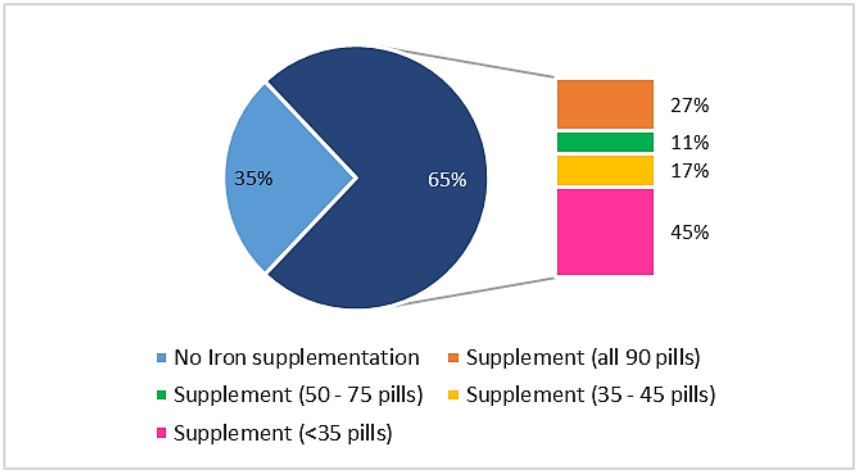
On average, women had 3.8 antenatal care visits which is below the minimum 4 visits recommended by WHO (Figure 71). The first visit is recommended to be conducted within the first trimester, however, women went for their first antennal care visit, on average, at 3.7 months of pregnancy nationally (or at 4 months in the City of Kigali). Antenatal care was provided in the majority of public health facilities (98 percent), with around 12 percent of women in Kigali receiving antenatal care in private health facilities.

Figure 70: Number of antenatal care visits



Almost 65 percent of women took iron supplementation during pregnancy. Only 27 percent of women took supplements during the whole first trimester, with most women taking supplements for less than one month (Figure 72).

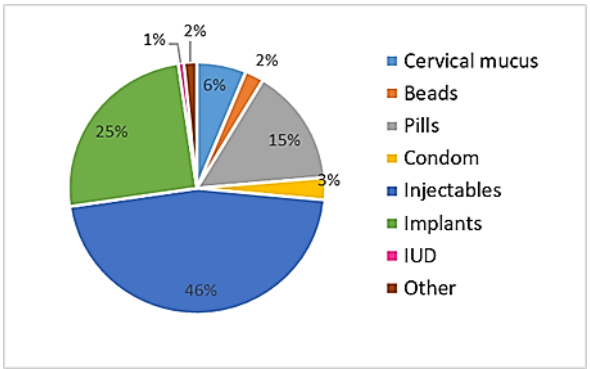
Figure 71: Percentage of women having received iron supplementation during pregnancy



10.4.2 Contraception

Around 42 percent of women sampled used contraception.[123] The most common methods used were injectables (46 percent) or implants (25 percent) (Figure 73). No significant difference was found between the use of contraceptive methods and the level of education of the women.

Figure 72: Contraceptive methods used by women

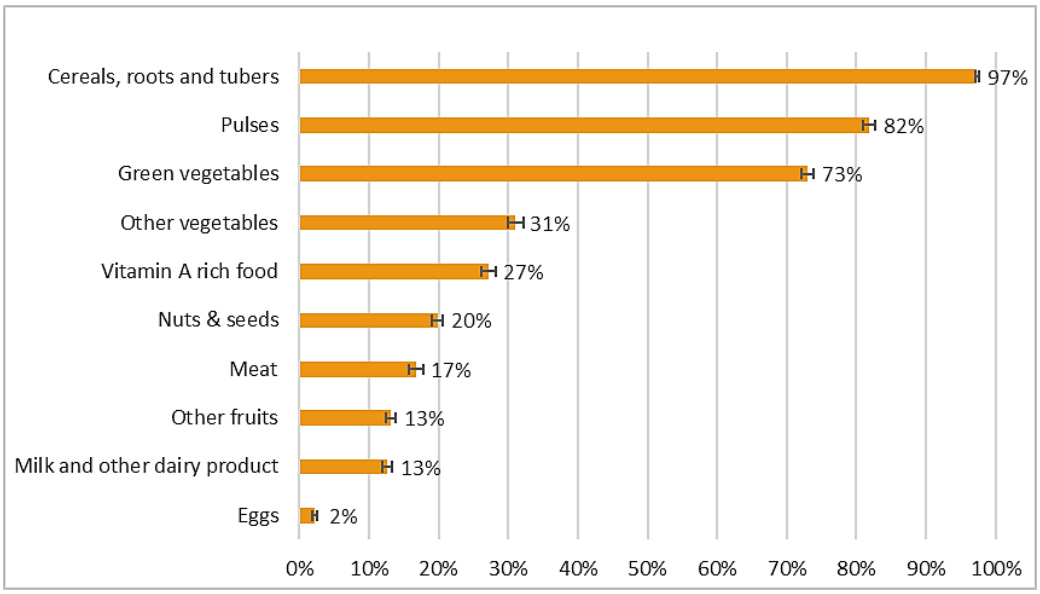


[123] According to 2015 RDHS, 53 percent of married women used some kind of contraceptive method.

10.4.3 Women food consumption

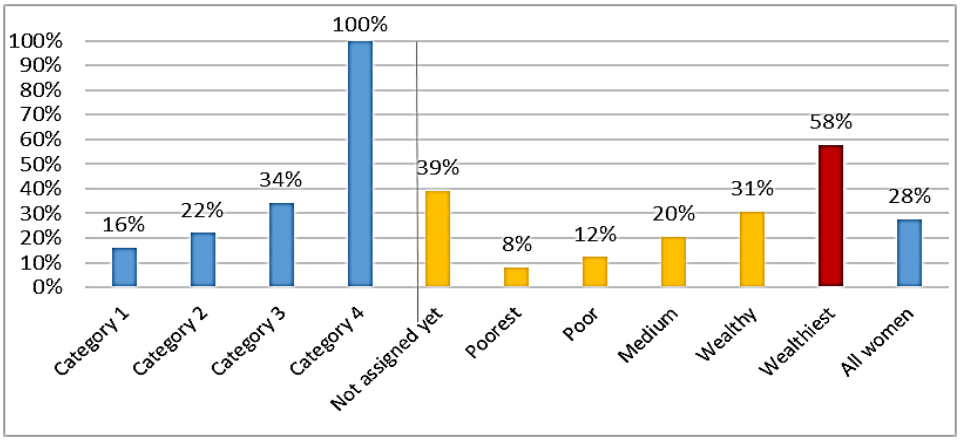
Women 15-49 years old in surveyed households were asked what they had consumed the day before the survey. The food groups most commonly consumed by women were cereals, pulses, and green vegetables. It was observed that there was a very low consumption of vitamin A rich food (27 percent), heme iron food groups like meat (17 percent), and other animal food sources, such as milk (13 percent) and eggs (2 percent) (Figure 74).

Figure 73: Percentage of women consuming different food groups the day before the survey



Only 28 percent of women 15-49 years old met the minimum diet diversity for women (MDD-W), which corresponds to the consumption of five food groups.[124] The percentage increased with Ubudehe categories or wealth status (Figure 75). Most women consumed 3 food groups (30 percent) or 4 food groups (22 percent). It was observed that the consumption of fortified blended food increased the probability to reach the MDD-W. Indeed, 60 percent of women consuming Fortified Blended Foods (FBF) achieved MDD-W against 27 percent for those who did not consume FBF.

Figure 74: Percentage of women who achieved the minimum diet diversity by Ubudehe categories and wealth quintiles



[124] See FAO/Fanta, Minimum Diet Diversity for Women, a guide to measurement. 2016.

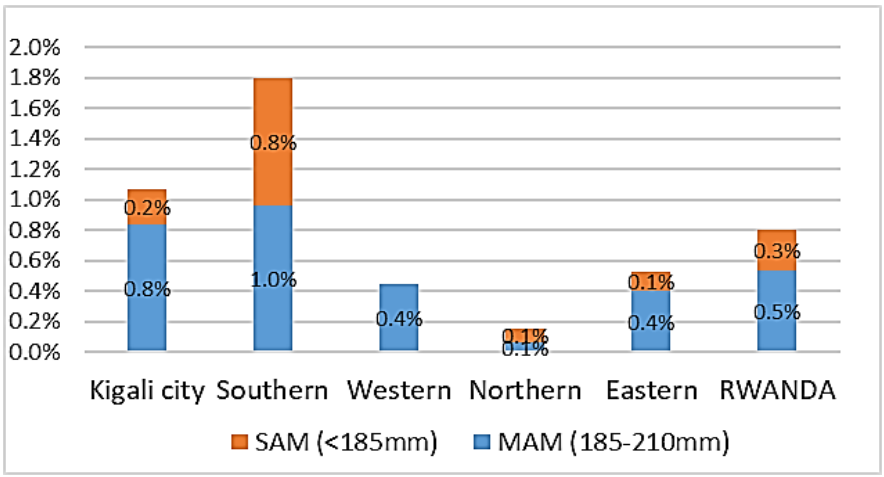
Almost half the women 15-49 years old interviewed (48 percent) from all the provinces and all levels of education received counselling or education on nutrition. The training was provided mainly by health facility workers (61 percent) or health care workers (28 percent). Analysis found out a slight, but significantly, better MDD-W index for women who received nutritional counselling compared to women who did not.[125]

10.4.4 Wasting in women

According to the last 2015 CFSVA, five percent of women of reproductive age (pregnant and non-pregnant) were acute malnourished (wasted). The prevalence of acute malnourished women (wasting) was evaluated through the measurement of the mid-upper arm circumference (MUAC) of 8,543 women between 15 and 49 years old in each sampled household.[126]

Only 0.8 percent of women were detected as acute malnourished (MUAC < 210 mm) for which 0.3 percent severely acute malnourished (MUAC <185 mm).[127] The prevalence of acute malnourished women is a little higher in the Southern Province (1 percent) and mainly in the Districts of Nyaruguru (4.5 percent), Gisagara (4.5 percent) and Kamonyi (3.2 percent) (Figure 76).

Figure 75: Percentage of moderately and severely malnourished women 15 to 49 years old (based on MUAC)



[125] T-test for comparison of means was used. Groups of women who received nutritional counseling had a MDD-W index of 3.7494±0.0005 and the groups of women who did not receive counseling had a MDD-W index of 3.7436±0.00065. No statistical difference was observed between groups of stunted children or according to mother's nutritional education.

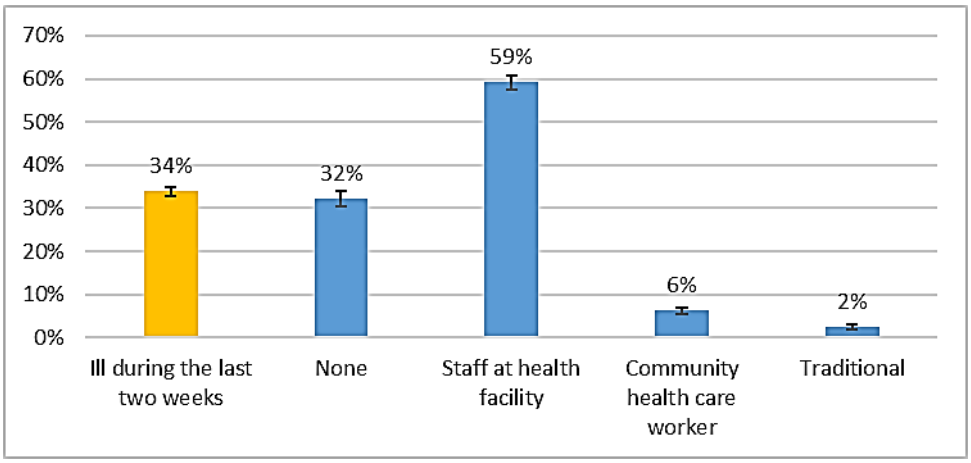
[126] MUAC is a rapid method to estimate wasting. A more precise indicator to estimate women wasting and overweight is the Body Mass Index (BMI), which is based on the measurement of height and weight. Women's height and weight were not collected in this survey.

[127] The thresholds used were from the national protocol diagnosis for acute malnutrition for pregnant and nursing women.

10.4.5 Women health and illness prevention

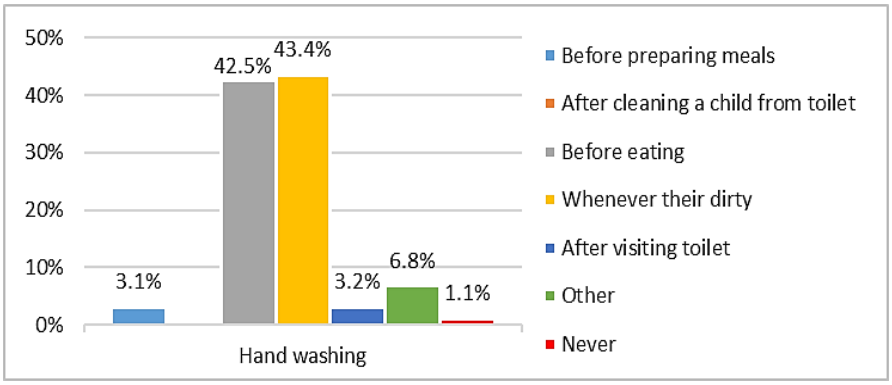
Around 34 percent of women reported having been ill during the last two weeks before the survey. Almost 60 percent of these women consulted staff from a health facility, while 32 percent did not see anyone (Figure 77). No significant difference was observed between women with wasting and illness within the last two weeks before the survey.

Figure 76: Health care services consulted by women who suffered illness during the last two weeks before the survey



Around 73 percent of women in the households sampled slept under a mosquito net, but this percentage decreased to 61 percent in the Eastern Province although malaria is endemic in that area. Most women (85 percent) reported washing and cleaning their hands before eating or whenever they were dirty; however, only 3 percent reported washing their hands after visiting the toilet or before preparing a meal (Figure 78). Almost 75 percent of women reported using soap for hand washing.

Figure 77: Periods of the day when women report washing hands



11. Factors related to chronic malnutrition in children

KEY MESSAGES

- Boys are more likely to be stunted than girls. Stunting rate increased when children reached one year of age.
- Children achieving the minimum acceptable diet are less likely to be stunted.
- Children who suffered from diarrhoea in the two weeks before the survey are also more likely to be stunted.
- More children achieved the minimum acceptable diet if their mother reached the minimum dietary diversity (MDD-W).
- Educated women had fewer stunted children.
- Children in food secure and wealthier households were less likely to be malnourished.
- Households with three or more children under 5 were more prone to have stunted children.

This section looks at the factors which contribute to chronic malnutrition in children, with a focus on stunting. Among the large number of variables, the following were found to be statistically significant to explain child stunting:

- Child age, sex, and size at birth
- Child food consumption
- Mother's level of education and food consumption (MDD-W)
- Household wealth and food security status

11.1 Individual and immediate factors related to malnutrition

11.1.1 Child sex, age, and size at birth

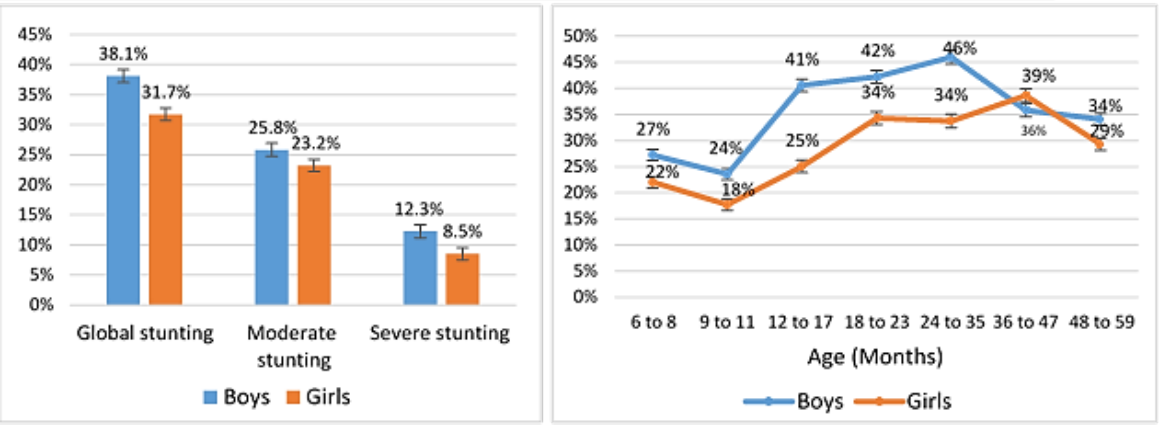
Boys under five years of age were significantly more stunted that girls (Figure 79).[128] Around 38.1 percent of boys under five years and 31.7 percent of girls are stunted.

Chronic malnutrition was also associated with the child's size at birth ($p>0.05$).[129] The smaller the new-born, the more likely it was to be stunted later, confirming that the process of chronic malnutrition occurs when there is inadequate food intake during the first 1,000 days, starting from conception. Almost 14 percent of stunted children under five years of age were born at a weight of less than 2.5 kg.

After birth, stunting increased with age particularly after the first year: children aged 12-17 months were more likely to be stunted than children aged 6-11 months, which emphasized the importance of appropriate complementary feeding.

[128] Results are significant ($P<0.05$ for ANOVA Khi^2 test).
[129] The size at birth is estimated by the weight at birth. The results are significant at Pearson T-test.

Figure 78: Prevalence of stunting for children aged 6-59 months, by sex and by age group (CI: 95%)



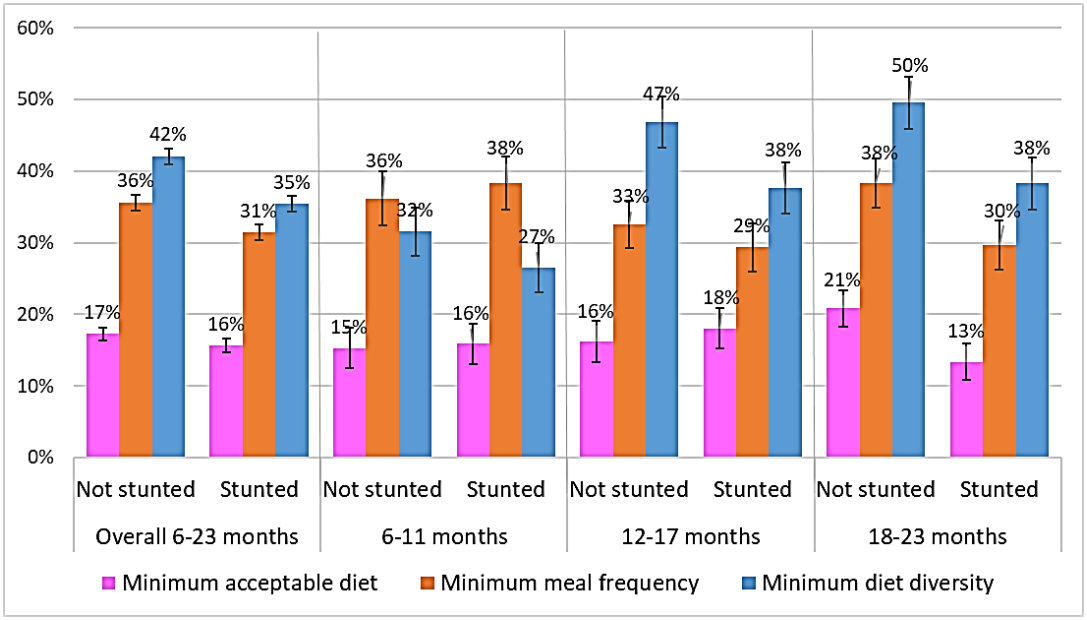
11.1.2 Individual food consumption of children between 6 and 23 months

The food security and nutrition conceptual framework, around which this CFSVA is built, suggests two immediate causes of malnutrition: inadequate dietary intake and unsatisfactory health.[130] Indeed, the type of food consumed by the child the day before can be assumed as a proxy for the food consumed during the last 12 months, and can serve as a significant predictor for stunting.

The prevalence of minimum acceptable diet (MAD) and the prevalence of stunting are correlated ($p < 0.05$)[131] meaning than a child meeting the MAD requirement is less likely to be stunted. Significant differences, however, were only observed in the cohort for children aged 18-23 months, where the percentage of stunted children reaching the minimum dietary diversity, minimum meal frequency and the minimum acceptable diet was significantly lower than the percentage for children who are not stunted (Figure 80).[132]

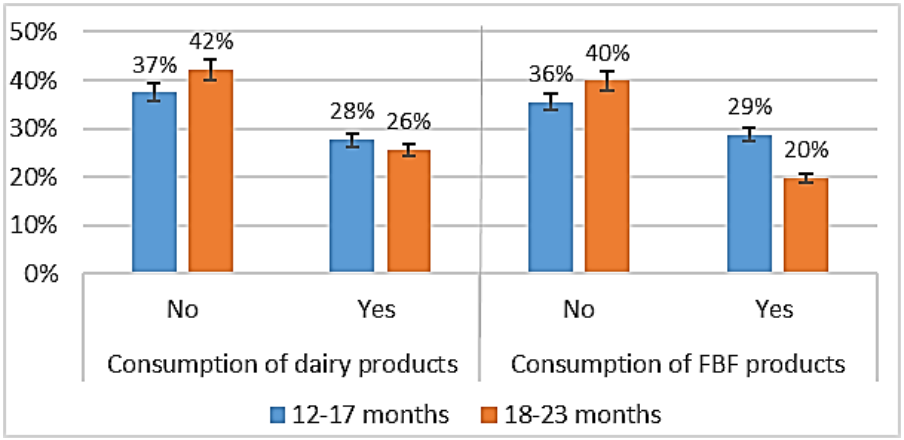
[130] See chapter on methodology.
[131] Pearson Chi² Test.
[132] Looking at the variables by age group restrict the sample size (644 children 6-11 months, 709 children 12-17 months, 687 children 18-23 months) and by consequence increase the confidence interval.

Figure 79: Percentage of children 6-23 months reaching levels for minimum dietary diversity, minimum meal frequency, and minimum acceptable diet by stunting status



The 2012 CFSVA had reflected upon the importance of dairy products for the growth and development of children. In 2018, this statement was reconfirmed. Children 12-23 months who had consumed milk products the day before the survey were significantly less stunted than other children in the same age category (Figure 81).

Figure 80: Percentage of stunted children related to the consumption of dairy products and fortified blended food products



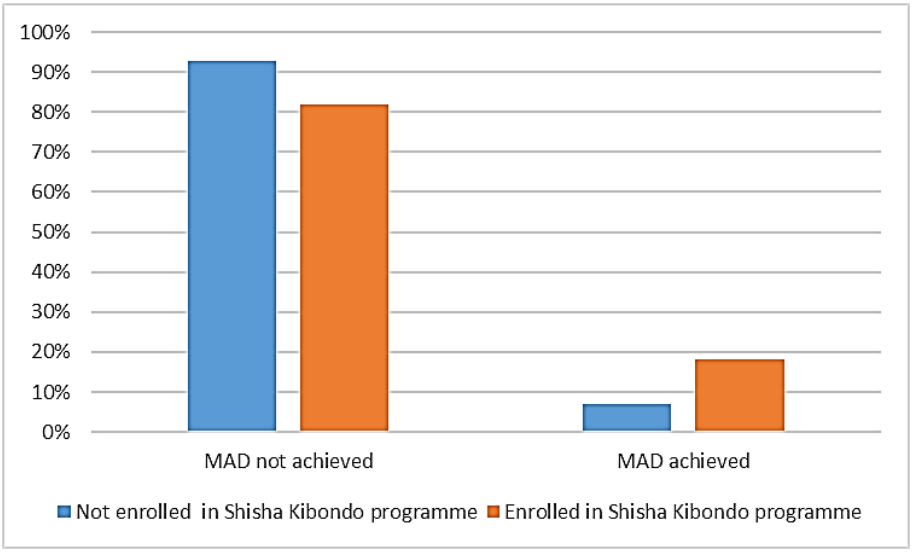
In Rwanda, the Shisha Kibondo programme is designed to fill the gap of inadequate nutrient intake of children 6-23 months through the distribution of FBF to targeted households in Ubudehe 1 and 2.[133] In 2017, 432.42 tons of FBF were distributed, as reported in the last Joint Health Sector Review.

The 2018 CFSVA findings show that more children 6-23 months from Ubudehe 1 enrolled in the Shisha Kibondo programme achieve the minimum acceptable diet than children from the same category who are not enrolled (Figure 82). Moreover, it was observed that children 12-23 months consuming FBF are significantly less stunted. Particularly, for children aged 18-23 months, the consumption of FBF

[133] For households in Ubudehe 2 only 11 districts were targeted.

decreases the prevalence of stunting from 40 percent to 20 percent (Figure 81). These results seem to indicate a significant impact of the nutritional supplementation for children 6-23 months on the food consumption (MAD) and on stunting by consequence. This should be further explored with control groups.

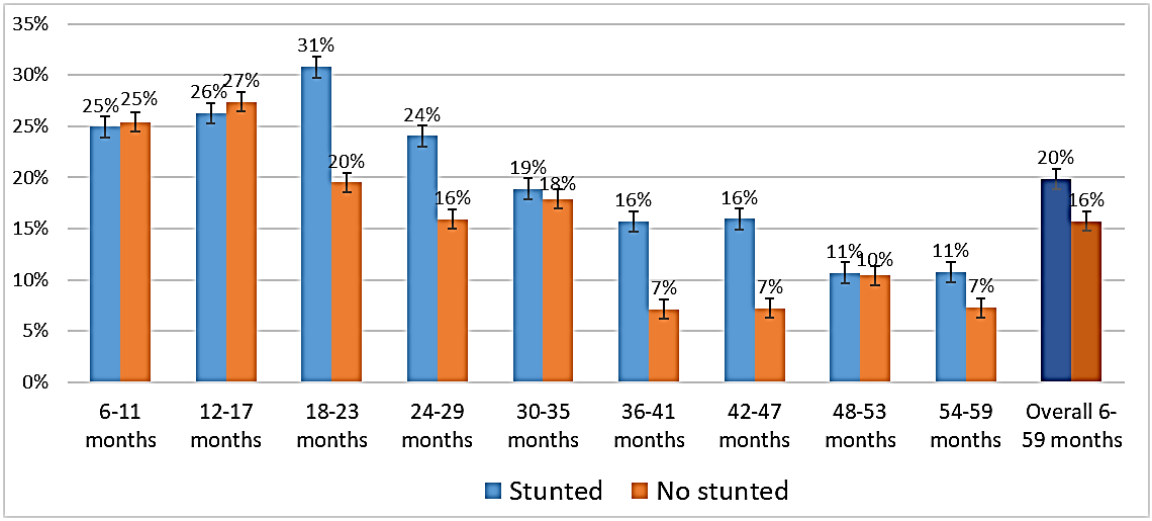
Figure 81: Percentage of children 6-23 months from Ubudehe 1 enrolled in Shisha Kibondo programme achieving the minimum acceptable diet



11.1.3 Child illness

Inadequate dietary intake and disease are immediate causes of malnutrition according to the conceptual framework for undernutrition. Findings from the 2018 CFSVA show a significant difference between the prevalence of stunted children 6-59 months suffering from diarrhoea (20 percent) during the last two weeks prior to survey and children who were not stunted (16 percent). The difference varies depending on the child's age with the prevalence of stunted children who had suffered from diarrhoea much higher for children aged 18-23 months (31 percent) or 24-29 months (24 percent) than for the children who were not stunted in the same age category (20 percent and 16 percent, respectively) (Figure 83). No significant correlation was observed between the prevalence of stunting and children suffering from cough and fever.

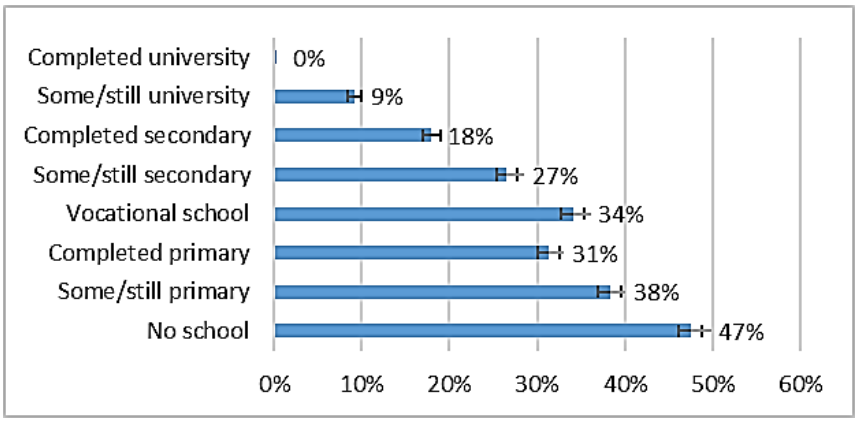
Figure 82: Percentage of children suffering from diarrhoea in the last 2 weeks before survey by stunting and by age categories



11.1.4 Mother's level of education

While the mother's age is not correlated to child stunting, the level of education of the mother is found to be statistically significant ($p < 0.05$). Almost one child out of two whose mother had no education was stunted. The prevalence of stunting fell to less than 20 percent if the mother had finished secondary school (Figure 84).

Figure 83: Percentage of stunting among children 6-59 months by mother's level of education



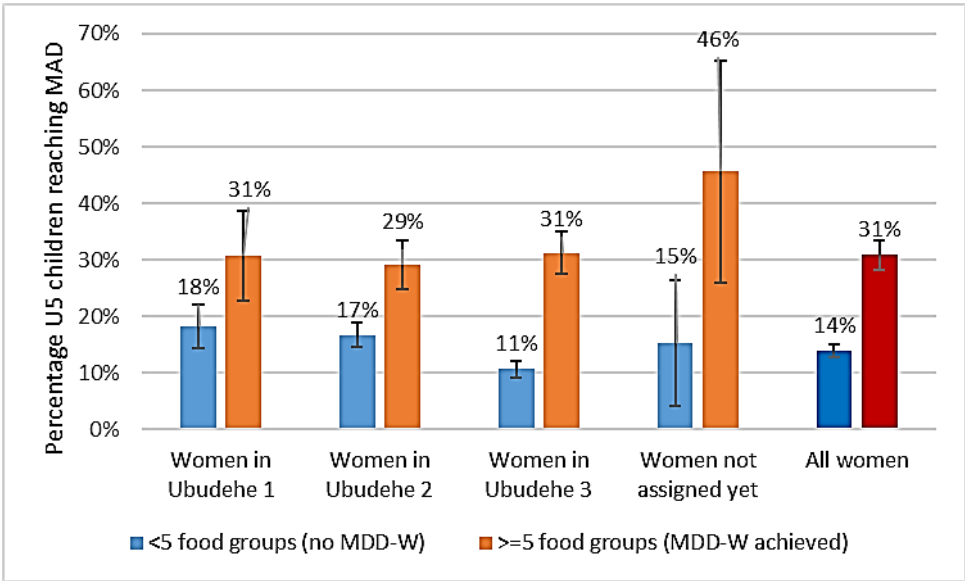
11.1.5 Mother's food consumption (MDD-W)

Mothers' health and nutritional status are extremely important for intra-uterine growth and development of children. Previous CFSVAs highlighted evidence that stunted mothers were more likely to have stunted children and poor nutritional status of mothers impairs physical and cognitive development of the children even before they are born.[134] The 2018 CFSVA findings show that there is a significant correlation between the mother's food consumption and the child's food consumption ($p < 0.05$). Indeed, more children (31 percent) achieved the minimum acceptable diet (MAD) if their

[134] From the 2015 CFSVA, 68% of children born from stunted mother were stunted (70% from the 2012 CFSVA). For the 2018 CFSVA, anthropometric measures except for MUAC were not collected for mothers.

mother had consumed at least five food groups to reach the minimum dietary diversity (MDD-W) compared to children (14 percent) whose mother had a poor dietary diversity (Figure 85). This relationship was observed whatever the household's poverty level (Ubudehe categories). Among other factors, women's education on food diversity may have had a significant impact on children's food consumption, especially for achieving the minimum acceptable diet.

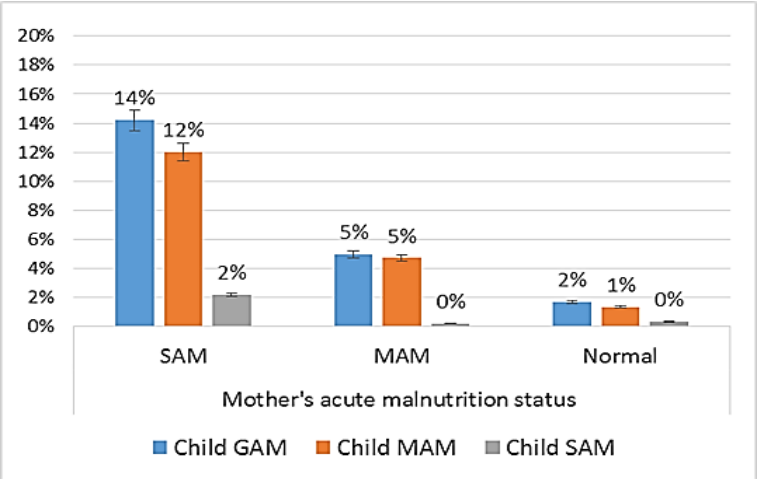
Figure 84: Percentage of U5 children achieving minimum acceptable diet (MAD) according to the mother's minimum diet diversity (MDD-W)



11.1.6 Mother's wasting and children wasting

The prevalence of wasting among women was approximated through the measure of MUAC. The study showed that in the same household, there was a correlation between child wasting and mother's wasting ($p < 0.05$). Around 15 percent of children under five years who were wasted had mothers that were also severe acute malnourished (wasted) against 2 percent of wasted children with a well-nourished mother (Figure 86).

Figure 85: Percentage of acute malnutrition in children by mother's acute malnutrition status

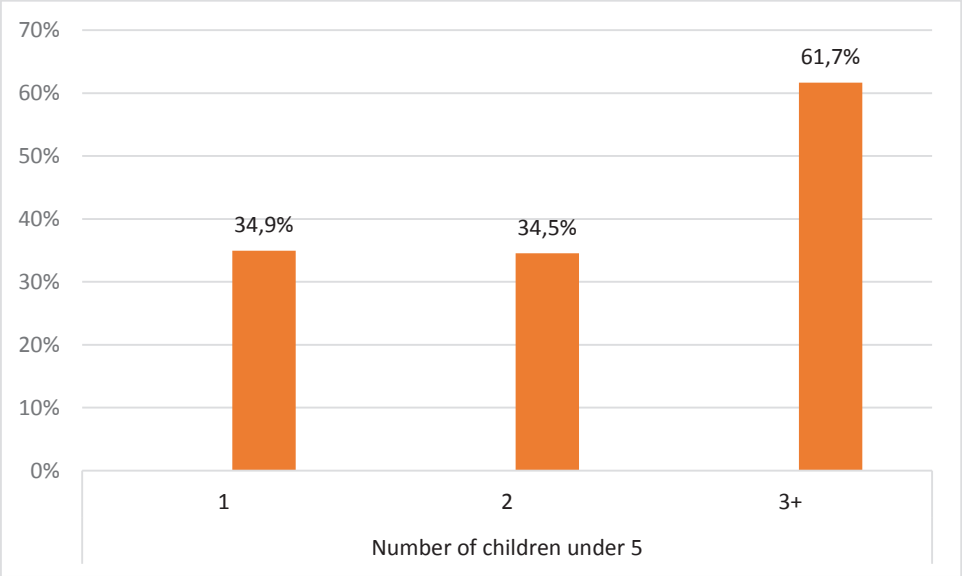


11.2 Household level factors

11.2.1 Household demography

The prevalence of stunting depends on the composition of the household. Stunting is higher when there are at least 3 children under five years of age (p <0.05) (Figure 87), and when the dependency ratio is higher.

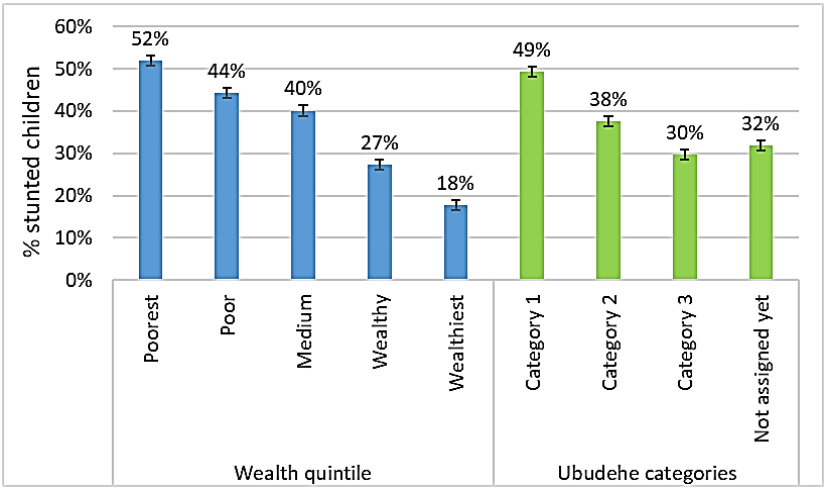
Figure 86: Percentage of stunted children by composition of the household



11.2.2 Household poverty

Prevalence of child stunting increased significantly with the level of poverty of households according to wealth quintile or Ubudehe category (p <0.05). The prevalence of stunting for children under five years of age living in the two poorest wealth quintile households exceeded the WHO stunting threshold of 40 percent (Figure 88). The same trend was observed for the households in Ubudehe categories. More than 40 percent of children were stunted in Ubudehe 1 households.

Figure 87: Percentage of stunted children by household wealth status and Ubudehe categories[135]

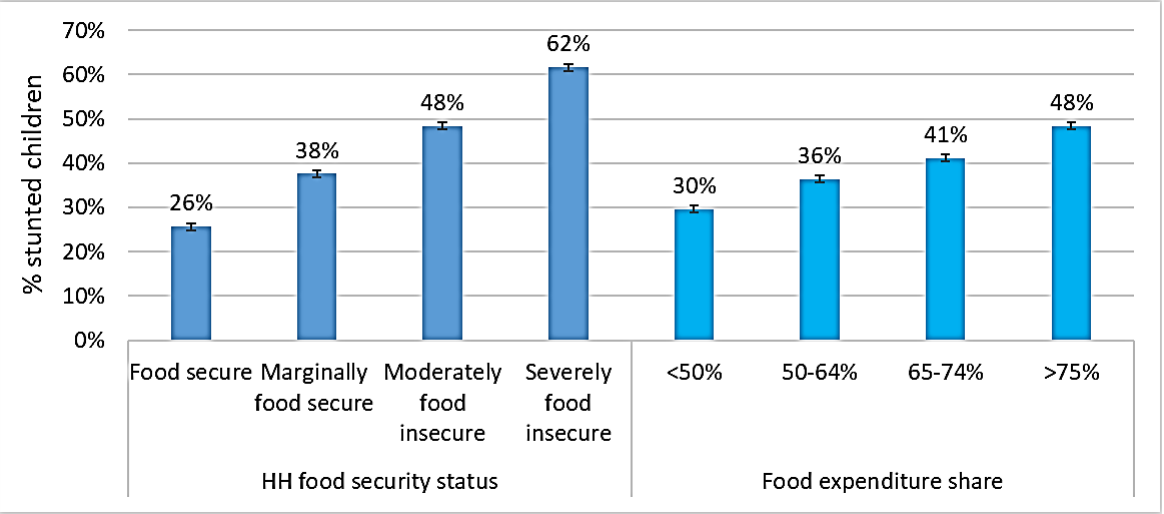


[135] The small number of households reported in Ubudehe 4 makes the results not representative.

11.2.3 Household food security

Global stunting increased when the food security status of a household deteriorated and when the food expenditure share grew (Figure 89). The prevalence of stunting was above 40 percent in food insecure households (severely and moderately). However, even though stunting rate decreased when households were more food secure, there was still 26 percent stunted children in food secure households, which is similar to the results from the 2015 CFSVA.[136]

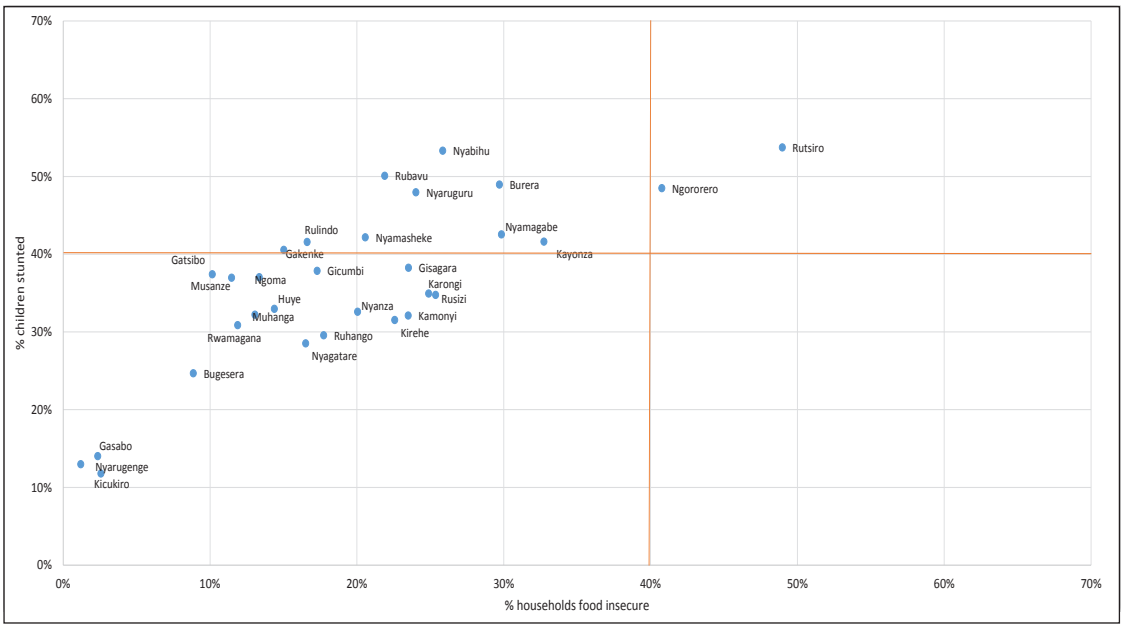
Figure 889: Percentage of stunted children by household food security status and food expenditure share



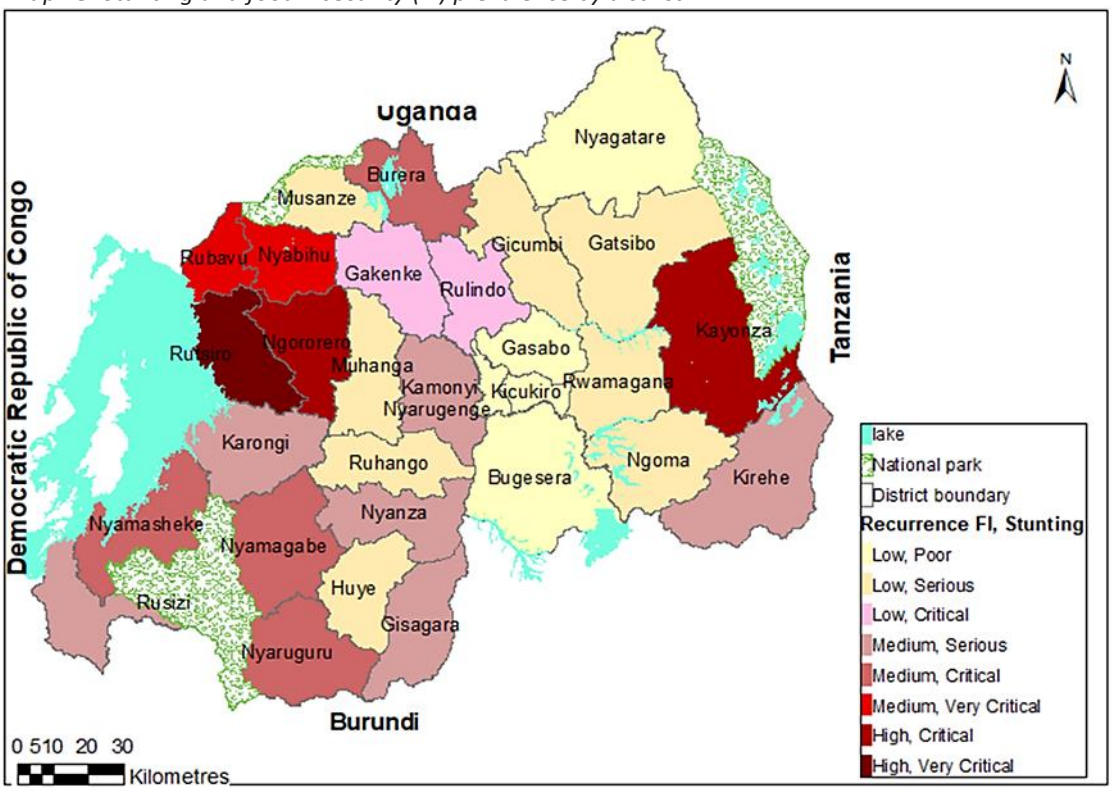
The relationship between household food insecurity and child stunting is clearly depicted in Figure 90. Districts with a higher proportion of food insecure households had a higher prevalence of stunted children. Indeed, the five districts (Rutsiro, Ngororero, Kayonza, Nyamagabe, Burera) with around 30 percent or more of food insecure households also had a stunting prevalence above 40 percent. Inversely, districts with fewer food insecure households (Gasabo, Nyarugenge, Kicukiro, Bugesera) had a lower prevalence of stunting. No statistically significant trends were observed for wasting. Map 23 depicts the combination of food insecurity and stunting prevalence in each district.

[136] For the 2015 CFSVA, there was 29 percent stunting in food secure households and 21 percent in the wealthiest households.

Figure 90: Convergence of food insecurity and malnutrition by district



Map 23: Stunting and food insecurity (FI) prevalence by district



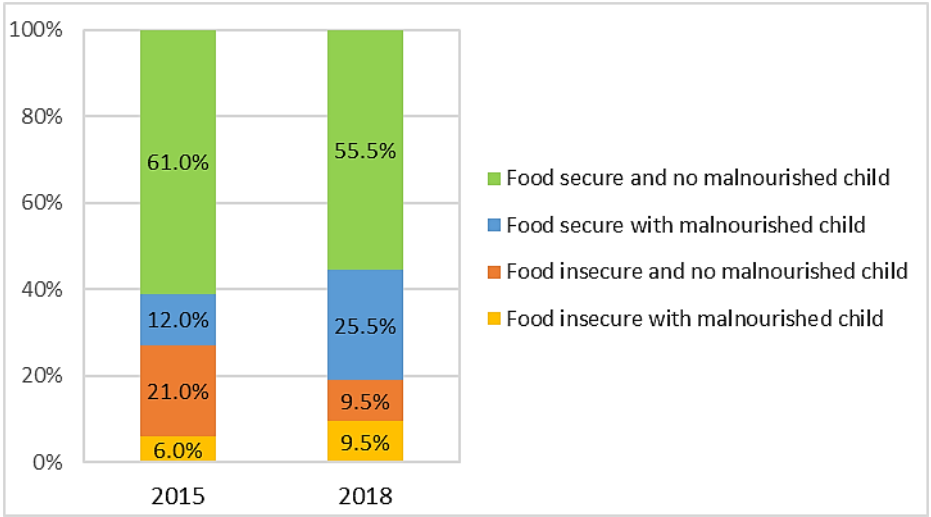
The prevalence of household food insecurity in a district was consistently lower than the prevalence of stunting, indicating that stunting did not depend entirely on household food security. Stunting or chronic malnutrition, is related to an inadequate nutrient intake during the child development process (1,000 days window) while household food security might change rapidly, sometimes following agricultural seasons. It takes a longer time to ameliorate child chronic malnutrition than household food insecurity. The 2018 CFSVA findings suggest that increasing efforts to tackle food security could have an important impact on stunting in Rwanda.

In Kayonza district, since the 2015 CFSVA, food insecurity had increased considerably in Kayonza (+21 percent), mainly as a consequence of the severe 2016 drought and a decrease of household resilience. Stunting prevalence also increased significantly from 33 percent in 2015[137] to 42 percent in 2018.

If not quickly tackled, food security can have a quite negative impact on stunting. The breakdown of food insecure and food secure households with or without a malnourished child is presented in Figure 91.

In total, 36 percent of households sampled had at least one malnourished child. Among these households, 10 percent were both food insecure and 26 percent were food secure. Compared to the 2015 CFSVA, the percentage of food security of households with at least one child had improved (from 73 percent to 82 percent) but among them, the share of food secure households with a malnourished child had more than doubled (from 12 percent to 26 percent). Household food security seemed to improve faster than child stunting.

Figure 891: Percentage of households by food security status and by presence of a malnourished child in 2015 and 2018



[137] 33 percent is an indicative stunting prevalence for Kayonza district as malnutrition rates were only representative at livelihood level for the 2015 CFSVA.

11.3 Community level factors

11.3.1 Water source and treatment

The source and treatment of drinking water are known to influence the levels of stunting. These variables, however, were not found to be statistically significant predictors of stunting for children under five in Rwanda, although a significant relationship at bivariate level was observed.[138]

According to the last EICV 4, 84.8 percent of the population had access to improved drinking water and 83.4 percent had access to improved sanitation facilities. CFSVA data is generally consistent with EICV4 findings although there is some difference.

The 2018 CFSVA findings show that 79 percent of households have access to improved sources of water, which comprise most commonly protected dug well/spring (36 percent) and public tap/piped water (28 percent).[139] Access to an improved water source is the lowest in the Eastern Province (65 percent), where many households still use surface water.[140] In Kigali, 45 percent of households had a tap at home and 35 percent used public taps to obtain water (Table 16).

Table 16: Percentage of households using different sources of water by province

	Improved sources						Unimproved sources				
	Protected dug well or spring	Public tap/ piped water	Water tap at home	Borehole with pump	Rain water	**Total improved sources**	Surface water (Pond, lake, river or stream)	Unprotected well or spring	Vendor	Other	**Total unimproved sources**
Kigali city	4%	35%	45%	1%	0%	**87%**	4%	3%	4%	2%	**13%**
Southern	58%	18%	7%	1%	0%	**85%**	8%	7%	0%	0%	**15%**
Western	45%	25%	8%	0%	1%	**79%**	9%	11%	0%	0%	**21%**
Northern	42%	33%	7%	1%	0%	**83%**	5%	11%	0%	0%	**17%**
Eastern	19%	34%	5%	5%	1%	**65%**	30%	4%	0%	1%	**35%**
RWANDA	36%	28%	12%	2%	1%	**79%**	12%	8%	1%	1%	**21%**

Most households (60 percent) did not treat water before using it, whatever the source. Forty five percent of households used untreated water from an improved source (Figure 92). Around 32 percent of households used boiled or ceramic filtered water from an improved source.

Most households reached the source of water by walking (96 percent). On average, it took 19 minutes to reach the source. Water was mainly fetched by children (58 percent of cases), by the spouse (18 percent), or by the head of household him/herself (13 percent).

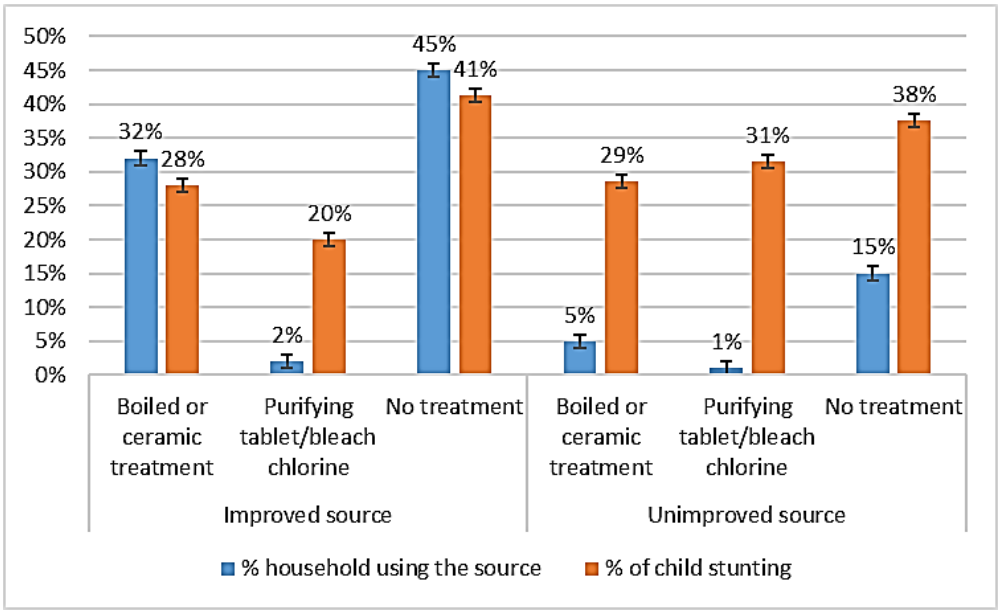
[138] According to the general linear model run to isolate key underlying factors affecting food consumption and nutrition in Rwanda, CFSVA 2012.

[139] EICV 4 (2013/2014) reported 39.2 percent of households obtained their water from a protected well/spring and 34 percent from a public standpipe.

[140] The EICV 4 also reported the Eastern Province as having the lowest access to an improved water source (80.6 percent), with 12 percent of households using surface water.

The prevalence of stunting was significantly lower (20 percent) when households used purifying tablet/bleach chlorine to treat the water from an improved source. Stunting prevalence increased when households used untreated water (Figure 92).

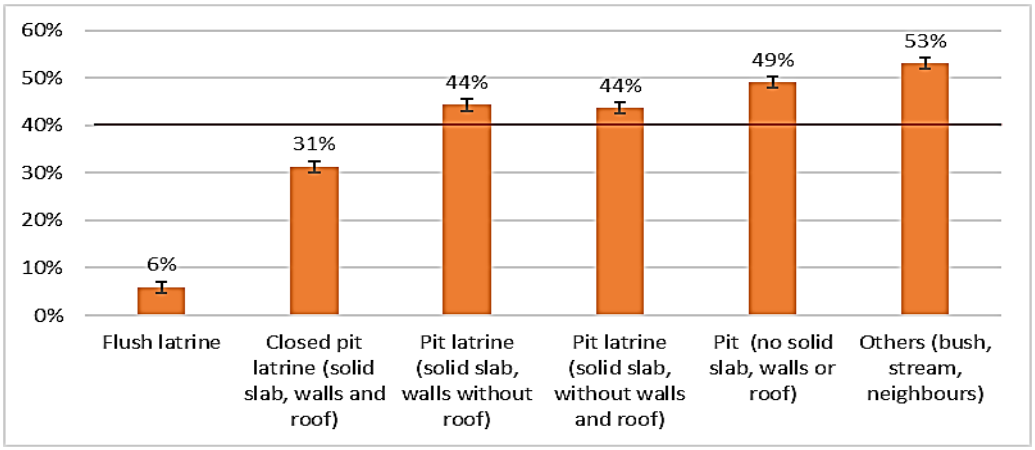
Figure 902: Percentage of use by households and percentage of child stunting, by type of water source and treatment



11.3.2 Sanitation

The prevalence of stunting was significantly lower in households using an improved latrine, such as a flush latrine (6 percent of stunted children) or a constructed pit latrine with a floor, walls, and roof (31 percent). The prevalence of stunting was above 40 percent in households using other types of toilets (Figure 93).

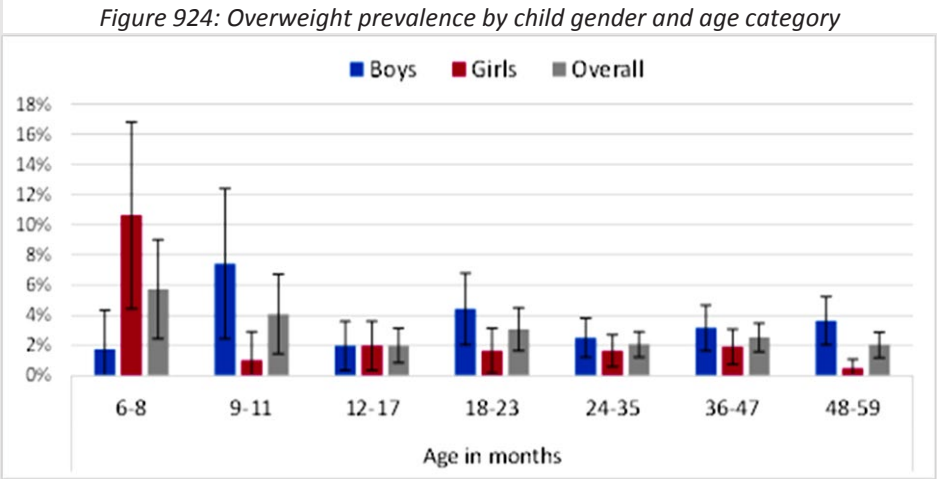
Figure 913: Percentage of child stunting by types of toilet using by households



Overweight among children aged 6 to 59 months

Around 2.5 percent of children aged 6 to 59 months were overweight: 3.3 percent for boys and 2.8 percent for girls. Overweight was also related to the age of the child ($p<0.05$). Figure 94 shows that the prevalence of overweight children is higher for girls aged 6 to 8 months (11 percent) and for boys from 9 to 11 months (7 percent). More than 99.2 percent of children in this age group were still breastfed and 49 percent were introduced to complementary feeding. This feeding practice influenced the weight variation for children. Overweight varied between 2 and 4 percent for children above two years of age.

Figure 924: Overweight prevalence by child gender and age category



Among stunted children 1.7 percent were overweight against 2.9 percent for children not stunted. In other terms, 24 percent of overweight children were stunted. Overweight (like wasting) for very young children can vary within a couple of days and in a larger proportion for stunted children. Overweight is related to the height of a child; the smaller the child, the greater the weight variation.

12. Assistance & priority needs

KEY MESSAGE

- 22 percent of households have received some type of assistance, most commonly financial assistance or medical services.
- Households receiving assistance were relatively well targeted, with most households in Ubudehe category 1.
- The main provider of assistance was the Government, assisted by NGOs for non-food assistance.

This section describes some of the main policies and programmes related to social protection and safety nets that aim to prevent households from falling into poverty, protecting the livelihoods of those in poverty, and assisting households to emerge from poverty.

12.1 Social protection policy and programmes

12.1.1 Ubudehe programme

Ubudehe is a Rwandan practice and a cultural value of mutual assistance among people living in the same area in order to overcome or solve both common and household-level livelihoods problems. In 2001, the Ubudehe programme was re-institutionalized as a national initiative to contribute to poverty reduction. The programme finances interventions targeting either entire communities or individual households. One part of the programme is the Ubudehe credit scheme, in which the beneficiary signs a contract to repay a loan to the community so that others can also benefit from the credit scheme.

Since 2015, households were recategorized by their communities into four categories which take into account several aspects of poverty. The classification is most strongly linked to resources and assets available in the household and the ability to sustain their livelihoods (Table 17).

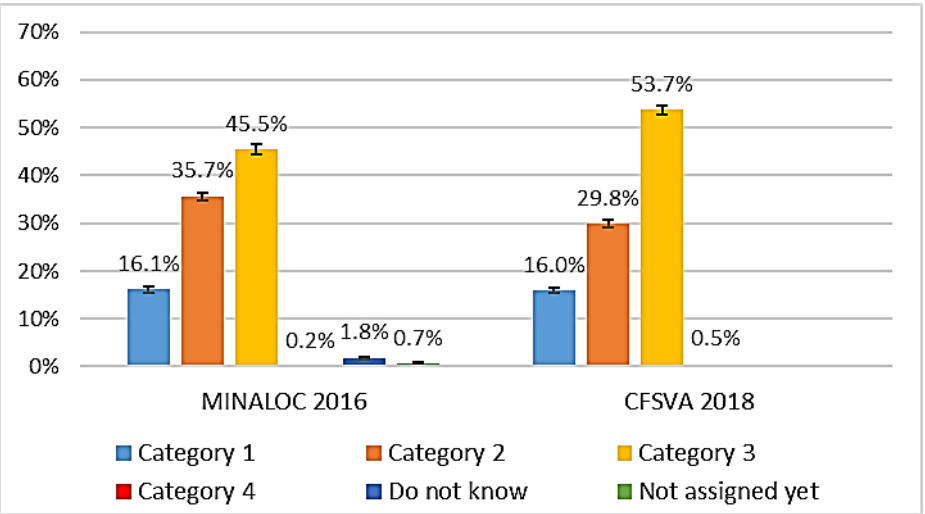
Among households sampled, 16 percent reported to be in Ubudehe 1, 36 percent in Ubudehe 2, 45 percent in Ubudehe 3, and only 2 percent Ubudehe 4 (Figure 95). These proportion were similar to MINALOC figures.

Table 17: Ubudehe households classification criteria

Category	Household Criteria	Remarks and examples
1	a) Without a house b) Without ability to rent a house c) Often struggles to get food d) Struggles to get basic items	Very often struggles to get food: Able to eat at most once a day
2	a) Owns a house b) Able to rent a house b) Often gets food c) Often works for others (wages) d) With an employee in non-permanent job	Often gets food: Able to eat at least twice a day
3	a) With an employee in Public/Private Sector b) With a member self employed c) With business activities d) Farmers with surplus for market e) With a member who is a small trader	May be having varying levels of welfare (e.g., not all public servants have same income, they are further separated by their businesses and their level of asset accumulation).
4	a) With a big trader (whole sales, may be producing locally, in import and export trade) b) With a member who owns a company providing specialized services (transport, etc.) c) With a member who is employed in Public/Private sector at high level d) With a member who has (an) industry(ies) e) With a member who own rental house (s) in big cities or other big businesses like trucks, petrol stations, etc.	Some farmers, traders and employees in Public and Private sector might find way into this category, as a result of their investment levels/Asset acquisition levels.

(source: Revised Ubudehe 2015 households classification categories, LODA, 2015)

Figure 935: Percentage of households in Ubudehe category from MINALOC 2018 and CFSVA 2018 (category 1 the poorest and 4 the wealthiest)



12.1.2 Vision 2020 Umurenge Programme (VUP)

Under the social protection sector policy,[141] Rwanda's main national social protection programme is the Vision 2020 Umurenge Programme (VUP), managed by MINALOC since 2008 in response to the high poverty levels in country. It comprises three components:

- regular cash transfer for very poor households with no labour capacity (VUP Direct Support)
- public works programme for very poor households who can work (VUP Public Works)

[141] Government of Rwanda. EDPRS 2 Social Protection Strategy. July 2013.

- microcredit scheme that provides small loans at low interest rates to individuals or groups (VUP Financial Services).

The eligibility for the programme is based on Ubudehe categories 1 and 2 (the two poorest categories out of 4), which are determined by local communities. According to the EICV4, more than the half the beneficiaries (53 percent) were in the two poorest quintile classes, of which the majority (43 percent) participated in the public works component. 54 percent of the beneficiaries are male heads of household, but the direct support programme mainly benefits female-headed households.

12.2 Assistance received by households

Households were asked if they had received any kind of assistance, and, if so, what type and from what source (MINAGRI, MINALOC, NGOs, or others). Almost 22 percent of all households reported some type of assistance in the 12 months preceding the survey. However, this assistance was especially dedicated to the poorest households. Indeed, 75 percent of the households in Ubudehe 1 reported to benefit from some type of assistance in the last 12 months, against 20 percent of households in Ubudehe 2 and less than 10 percent for other categories (Figure 96).

Households in Ubudehe 1 benefited mainly from financial assistance (42 percent of households), health assistance (35 percent), food assistance (16 percent), followed by other non-food assistance such as construction, water, and sanitation (4 percent), and agriculture or livestock support (3 percent). The financial assistance is mainly VUP public works from MINALOC (35 percent), Girinka programme - one cow per family – from MINAGRI (23 percent), followed by VUP direct support (17 percent) and VUP access to financial services from MINALOC (13 percent) (Figure 97). Most of the food aid provided is free food distribution (59 percent), food for pregnant and breastfeeding women (16 percent) or other types food assistance (20 percent) (Figure 98).

Figure 946: Share of households in Rwanda reporting having received different types of assistance

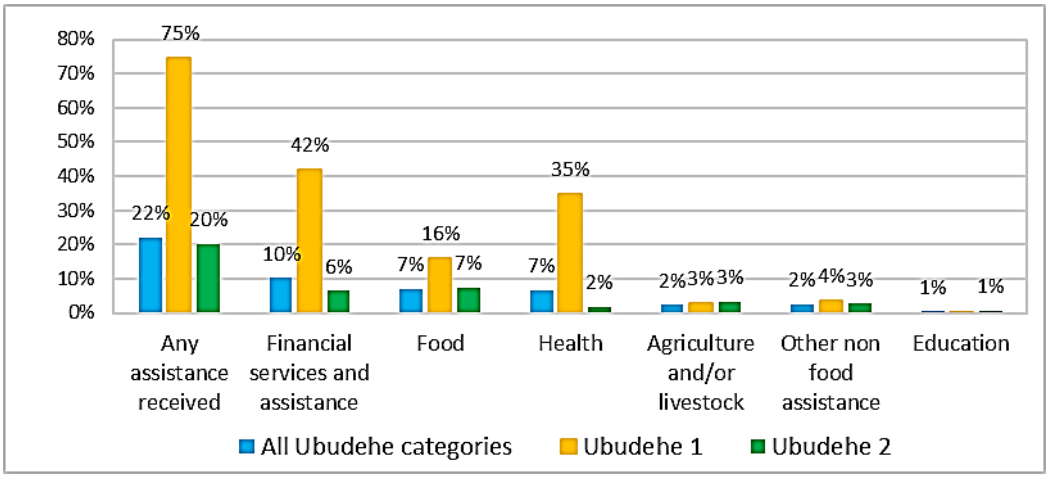


Figure 96 : Food assistance

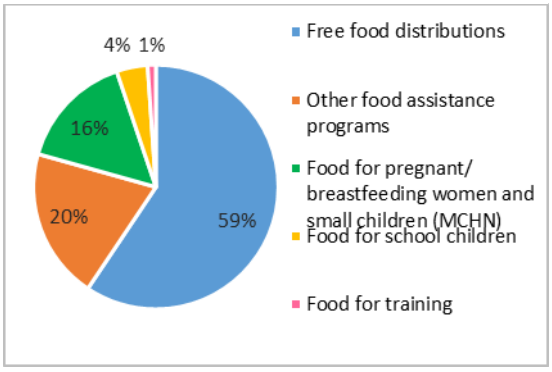
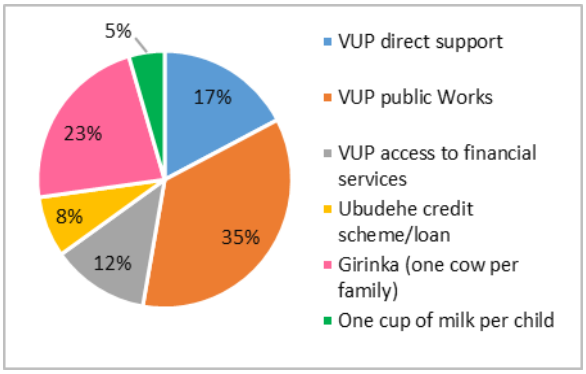


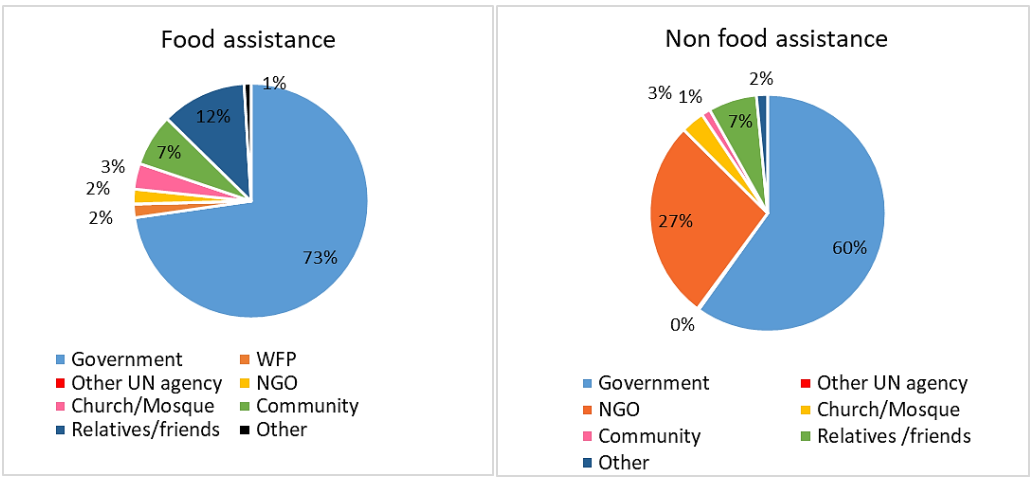
Figure 968: Financial assistance



12.2.1 Main source of assistance

Households were asked from where they received assistance. The Government of Rwanda was, by far, the largest provider of assistance (73 percent of food assistance and 60 percent of non-food assistance, as reported by households). For food assistance, however, households also relied on relatives and friends (12 percent) and community (7 percent), which supported them with free food distribution or food for work. WFP, other UN agencies, and NGOs only covered 4 percent of the food assistance received, according to households. Besides the Government of Rwanda, NGOs were the second main provider of non-food assistance, mainly delivering technical assistance and/or loans in the agriculture and livestock sector as well as the education sector (Figure 99).

Figure 979: Sources of assistance mentioned by households



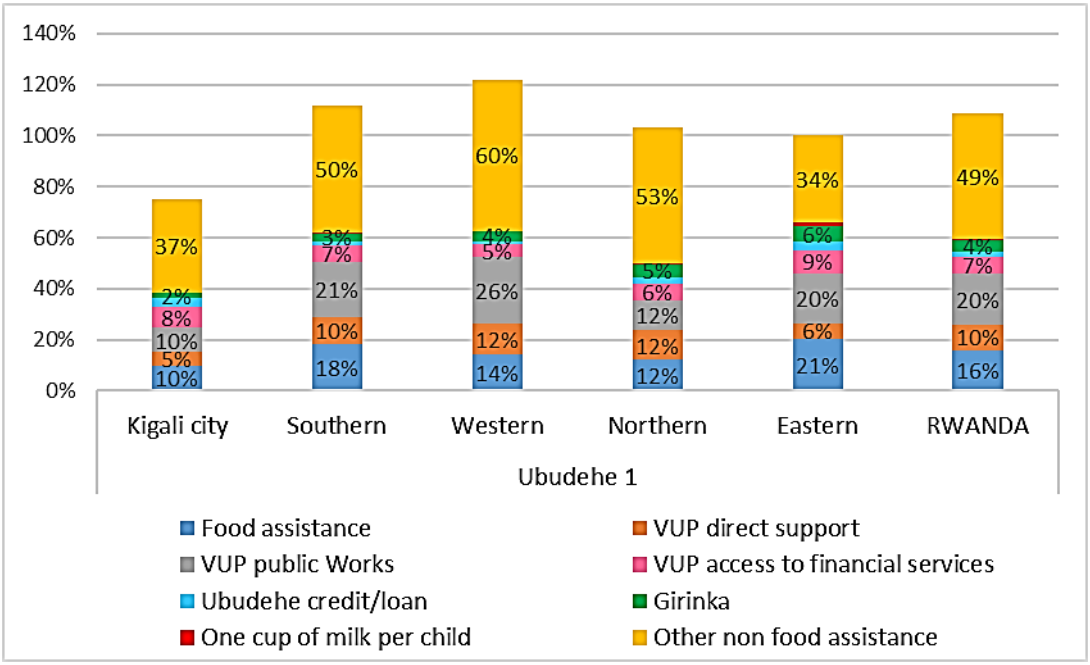
12.2.2 Geographical coverage of assistance

Households in Ubudehe 1 living in the Western and Southern Provinces had benefited more from all different types of assistance, mainly the VUP programme (43 percent of households were covered in the Western Province and 39 percent in the Southern Province). Food assistance was delivered more in the Eastern Province (21 percent). Households in the City of Kigali received the least assistance (Figure 100).

At district level, the highest levels of coverage for all Ubudehe categories included, were reported in Nyamasheke (41 percent), Nyaruguru (40 percent), Ngoma (38 percent), Gisagara (35 percent), and

Nyamagabe (35 percent), mainly for VUP public works and medical assistance, as well as for small livestock distribution in Ngoma.

Figure 100: Type of assistance received by households in Ubudehe 1 by province



13. Conclusions

In 2018, 81.3 percent of all households were food secure and 18.7 percent were food insecure. These proportions had not statistically changed since the last CFSVA in 2015. However, the share of severely food insecure households had significantly decreased by 1 percent and the share of fully food secure households had increased by 2.3 percent.

Kigali had, by far, the highest proportion of food secure households (95 percent), while the Western Province still accounted for the largest number of food insecure households (30 percent). In terms of livelihood zone, food security remained high in the Western Congo Nile Crest Tea Zone, the Lake Kivu Coffee Zone, and the Northern Highland Beans and Wheat Zone. Food security has improved in 18 districts; however, the situation had deteriorated in Rutsiro (49 percent of food insecure households), Ngororero (41 percent of food insecure households), unexpectedly in Kayonza (33 percent food insecure) and to a lesser extent, in Kamonyi (23 percent) and Rulindo (17 percent).

Household food consumption had not steadily changed since 2009 with around one quarter of households having an inadequate food consumption. The nutritional value of food consumed by the food insecure households remains a concern; the consumption of protein-rich food and food containing heme iron is very low.

Food access in Rwanda is mainly driven by seasonal patterns, commodity prices and household purchasing power. Overall, households source 65 percent of their food needs from the market and this percentage increases with depletion of household food stocks. The Season 2018A agricultural production seemed to be satisfactory, with food available at the markets at the time of survey. The global fall in food price observed since the beginning of 2017 might have contributed to the rise in household food purchasing power. At the time of the survey, in post-harvest period, households spent,

on average, less than 50 percent of their budget to purchase food - which is lower when compared to 2015. Nevertheless, while the overall economic access to food seemed to have steadily improved, household reliance on markets made them more vulnerable to fluctuations in food price over the years. Around two-thirds of households reported food access issues in the last 12 months. Compared to the 2015 CFVSA, more households reported to have seasonal food access issues as well as other food access issues due to unexpected events.

Indeed, around 40 percent of all households had experienced one or more shocks that affected their assets or their ability to access food. Shocks were mainly weather-related, such as drought, prolonged dry spell, or irregular rain. The Eastern Province (Kayonza, Kirehe, Ngoma, and Nyagatare) was particularly affected. At the time of the survey, less than 15 percent of households had fully recovered from drought.

Food insecure households were typically poor and dependent on external support, casual labour, or low-income agriculture. They were often located far from a main market. Food insecure households involved in agriculture and land cultivation had no farming land or cultivated very small plots of land, sometimes under sharecropping. They were not involved in a land consolidation plan or in land conservation practices. They grew fewer crops and were less likely to have a vegetable garden and livestock. Their household food stocks were not sufficient to last more than two or three months of the lean season.

Conversely, the more crops a household cultivated and the more livestock it owned, the more likely it was to be food secure. However, households relying on more diversified activities, and especially households not involved in agricultural production, were better off in terms of food security.

Concerning the nutritional status of children under five years, the prevalence of acute malnutrition was 2.0 percent for wasting and 2.4 percent for overweight, while underweight was 12.6 percent. The prevalence of chronic malnutrition (stunting) continued to slightly decrease over the years, dropping from 37 percent in 2015 to 35 percent in 2018. But prolonged efforts are needed to accelerate and continue the positive trends. Indeed, child diet remained poor, with only 17 percent of children between 6 to 23 months meeting the requirement for a minimum acceptable diet based on diet diversity and meal frequency.

Several findings related to child stunting were identified. Boys were more stunted than girls; the smaller the baby at birth, the more likely it was to be stunted later on; and stunting steadily increased starting from age one. Stunted children were more likely to live in a poor, severely food insecure household with more than two children under five years of age. Child feeding practices of children between 6 and 23 months contributed to stunting. In particular, children between 12 and 23 months who consumed dairy products or fortified blended foods were significantly less stunted than other children in the same age category. Stunted children who had mothers with low levels of education were less likely to have a minimum acceptable diet. Thus, nutritional education for mothers should be emphasized to better tackle child malnutrition.

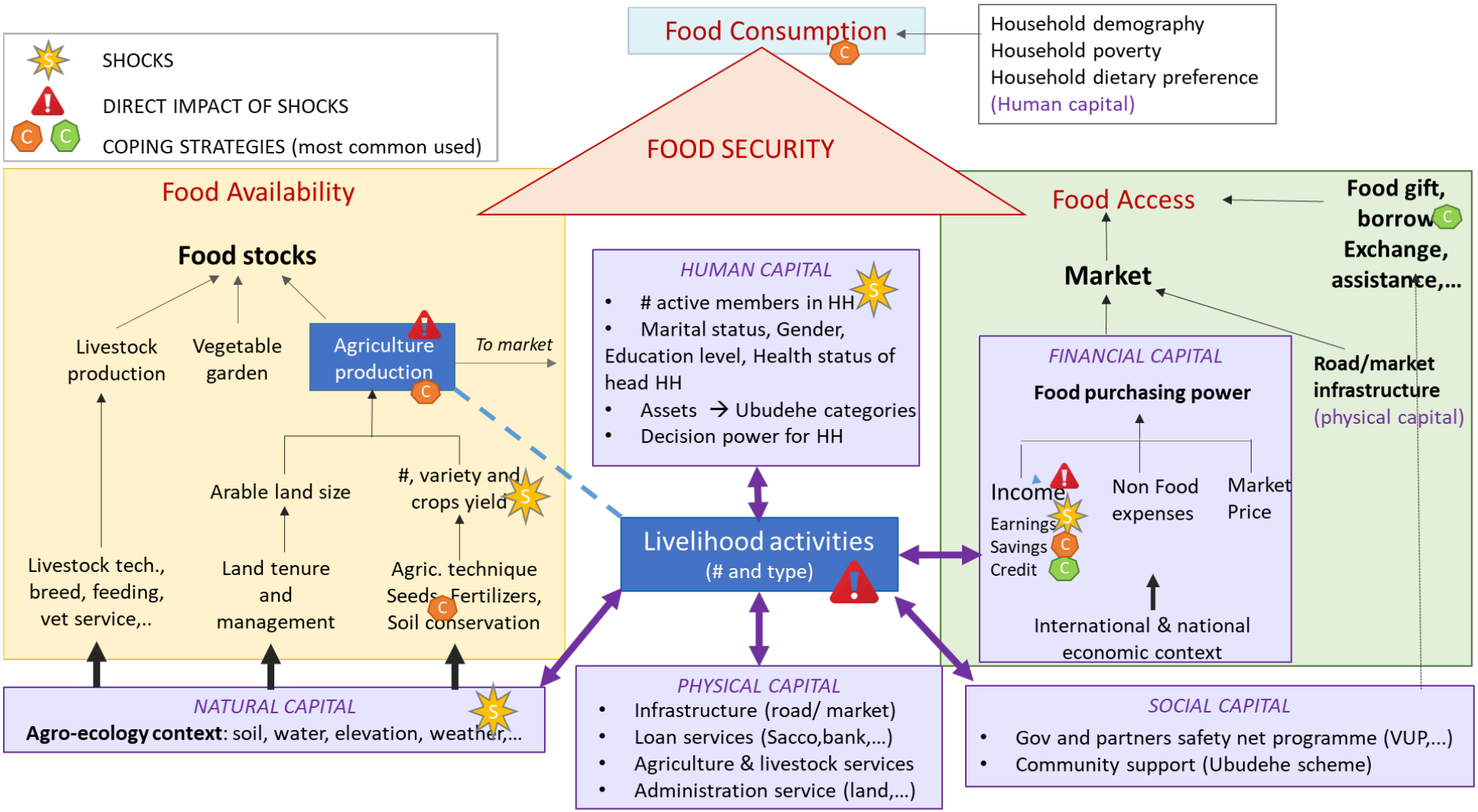
Malnutrition prevalence was representative at the district level. Stunting prevalence was highest in Rutsiro (54 percent), Nyabihu (53 percent), and Rubavu (50 percent) and above the WHO critical threshold in eleven districts. The combination of household food insecurity and child stunting prevalence depicts a very critical situation in Rutsiro, Ngororero, Kayonza, as well as in Rubavu and Nyabihu. Even though evidence proved the correlation between child stunting and household food insecurity, findings showed that in 2018, almost one out of four stunted children lived in food secure households.

The Government of Rwanda and its partners engaged in many efforts over the last years to develop social safety net programmes for the poorest people in the population. Around 22 percent of all households received some kind of assistance over the last 12 months. Poorest households were the more benefitted with 75 percent of households in Ubudehe 1 receiving any type of assistance against 20 percent of households in Ubudehe 2 and much less for other Ubudehe categories. The type of assistance was mostly financial (VUP from MINALOC) or medical support and mainly provided by the Government.

Table 18: Main indicators by district

	CARI FOOD SECURITY INDICATORS				NUTRITION	HEAD HOUSEHOLD		LIVELIHOODS		WEALTH INDEX
	Moderately/ Severly food insecure	Poor/ Borderline Food consumption	Very high food expenditure (>75%)	Crisis/ emergency coping strategies	Child U5 stunting	Household head without education	Female headed households	Contribution: Agriculture & livestock	Own land smaller than 0.5 ha	HH in two poorest wealth quintiles
Nyarugenge	1%	2%	5%	11%	13%	11%	28%	8%	14%	12%
Gasabo	2%	4%	4%	13%	14%	9%	30%	23%	16%	11%
Kicukiro	3%	9%	4%	8%	12%	10%	23%	8%	6%	3%
Nyanza	20%	24%	19%	36%	33%	25%	29%	83%	66%	46%
Gisagara	24%	31%	10%	31%	38%	34%	36%	71%	70%	61%
Nyaruguru	24%	25%	14%	62%	48%	46%	27%	83%	57%	77%
Huye	14%	16%	15%	33%	33%	25%	31%	50%	45%	45%
Nyamagabe	30%	33%	20%	47%	43%	32%	27%	71%	70%	65%
Ruhango	18%	20%	14%	46%	30%	25%	33%	68%	50%	54%
Muhanga	13%	16%	16%	34%	32%	20%	28%	53%	48%	28%
Kamonyi	23%	29%	15%	47%	32%	24%	20%	72%	74%	36%
Karongi	25%	36%	18%	19%	35%	34%	26%	68%	49%	52%
Rutsiro	49%	63%	29%	27%	54%	34%	23%	51%	63%	51%
Rubavu	22%	29%	16%	18%	50%	27%	27%	30%	49%	40%
Nyabihu	26%	31%	15%	26%	53%	26%	23%	60%	66%	52%
Ngororero	41%	50%	12%	59%	48%	32%	24%	61%	79%	54%
Rusizi	25%	35%	14%	21%	35%	32%	32%	68%	51%	42%
Nyamasheke	21%	26%	11%	49%	42%	30%	30%	66%	63%	38%
Rulindo	17%	19%	10%	44%	42%	31%	29%	68%	70%	44%
Gakenke	15%	20%	13%	33%	41%	24%	20%	63%	77%	47%
Musanze	11%	16%	12%	17%	37%	24%	27%	45%	61%	49%
Burera	30%	36%	20%	42%	49%	29%	22%	64%	73%	46%
Gicumbi	17%	20%	8%	47%	38%	31%	22%	61%	85%	53%
Rwamagana	12%	17%	12%	10%	31%	28%	29%	49%	53%	36%
Nyagatare	17%	22%	12%	39%	29%	32%	26%	57%	31%	44%
Gatsibo	10%	15%	17%	16%	37%	28%	24%	72%	67%	48%
Kayonza	33%	38%	13%	38%	42%	37%	26%	67%	48%	49%
Kirehe	23%	30%	11%	55%	32%	26%	23%	64%	51%	40%
Ngoma	13%	22%	11%	25%	37%	26%	30%	83%	65%	41%
Bugesera	9%	12%	12%	23%	25%	29%	27%	69%	69%	34%
RWANDA	**19%**	**24%**	**13%**	**32%**	**35%**	**27%**	**27%**	**57%**	**55%**	**43%**

Figure 981: Causal diagram of food insecurity in Rwanda based on 2018 CFSVA



14. Recommendations

In 2018, the Ministry of Gender and Family Promotion in partnership with WFP carried out Country Strategic Review of Food and Nutrition Security in Rwanda which identified several gaps in the national strategies, policies and programming response. Based on collaborative contribution of experts, the Country Strategic Review proposed concrete recommendations for addressing the gaps and challenges to meet the national targets for food security and nutrition.

This 2018 Comprehensive Food Security and Vulnerability Analysis provides updated and comprehensive information about the situation of the food security and nutrition of Rwandan households and globally confirmed the situation depicted in the Country Strategic Review of Food and Nutrition Security. The following recommendations are aligned with those presented in the CSR. They presented in regards with CFSVA findings.

1. Improve and diversify food production			
2018 CFSVA findings	**2018 Recommendations**	**Target group**	**Lead institutions**
• Food insecure households mainly depend on agriculture daily labour or on their own agricultural production. • They have a land sized below 0.5 ha, few of them access inputs and do not practice farming techniques which improve crop productivity.	1. Increase investments in programmes that enhance the sustainability of crop productivity for smallholder farmers such as small scale irrigation, land-husbandry, mechanization, agroforestry, and integrated soil fertility management practices. This includes the introduction of high value nutritive crops, the promotion of risk mitigation technique for staple crop production, diversification, mixed cropping technique, crop rotation, diversification of calendars.	Smallholder, low-income farmers in sensitive agro-ecological area	MINAGRI (PSTA 4 – Outcome 2.1)
	2. Develop counter-season, or off season cropping and a seasonal livelihoods programing approach to mitigate food availability and access and guaranty the stability.	Farming households	MINAGRI (PSTA 4 – Outcome 2.1)
	3. Revise the existing input subsidy scheme through improved targeting of programme beneficiaries with a focus on vulnerable farmers and increased their access to quality seeds, fertilizers and limes.	Smallholder, low-income farmers,	MINAGRI (PSTA 4 – Outcome 2.1), MINALOC
	4. Promote the local production and use of fertilizers blends that fit the requirements of specific crops (maize, Irish potato, etc.) and soils and expand the use of secondary and micro-nutrients to optimize productivity and value-cost ratios and raise farmer income levels. This will imply an agricultural service support to farmers to evaluate soil quality.	Cooperative, farmers involved in CIP	MINAGRI (PSTA 4 – Outcome 2.1), MINALOC, ISAR

	5. Strengthen and expand proximity extension services focusing on reaching the poorest households and on the involvement of private service providers.	All farming households, Agri-daily labourers,	MINAGRI (PSTA 4 – Outcome 1.2)
• One quarter of households have an inadequate food consumption with unbalanced diet devoid of animal proteins and fruits. • National consumption of heme iron is highly insufficient. • Livestock ownership and vegetable garden contribute to food security.	6. Expand the range of priority crops under the crop intensification programme with new crop varieties that have high nutritional value, benefits and ecological sustainability (stress-tolerant, climate-resilient).	Farming households	MINAGRI (PSTA 4 – Outcome 2.1)
	Improve the quick and effective adoption of biotechnologies (plant-breeding, biotechnology).	MINAGRI, Agro-service providers	MINAGRI (PSTA 4 – Outcome 1.1)
	7. Strengthen research programme on bio-fortified crop varieties like iron-, provitamin A carotenoid- or protein-biofortification on sweet potato or bean. The strategy should also focus on a dissemination plan for these varieties. 8. Scale up fruit tree value chain as a source of diversified income for urban markets and home food source with policy priority at district level.	MINAGRI	NECDP, MINAGRI (PSTA 4 – Outcome 4.2), MOH
	9. Scale-up existing programmes (Kitchen garden) that promote the production and consumption of nutrient dense and vitamin-rich diverse foods like orange fleshed sweet potatoes, 3P (papaya, pumpkin, passion fruit), bio-fortified iron beans, mushrooms, fruits trees along with renewed political attention, production support and land access and specifically in district most affected by malnutrition and stunting.	Poor/food insecure households with children U5 and with pregnant and lactating women	NECDP, MINAGRI (PSTA 4 – Outcome 2.3), MINALOC
	10. Scale-up existing programmes that promote the production and consumption at household level of low cost animal proteins source (poultry, duck, rabbits, guinea pigs,) and on improving access and consumption in the poorest households. 11. Promote the production and consumption of eggs with a focus on the poorest households. 12. Promote the consumption of milk at household level and moreover in homestead production to avoid the sale of the entire milk production to milk		

	collection center. (For example, farmers supplying milk collection centres might go back home with 1 litre of milk).		
	13. Scale up the related animal genetic improvement and animal feed research and development, including research on potential of grasses and sorghum as risk averse animal feed, use of non-food production land for animal feed production	MINAGRI, Agro-service providers	MINAGRI (PSTA 4 – Outcome 1.1)
	14. Strengthen programmes that promote access to energy-dense and to specific nutrient rich foods, especially for children 6-59 months and pregnant and lactating women groups. 15. As an interim strategy until consumption of nutrition dense foods increases, strengthen programmes addressing micronutrient deficiencies including increasing consumption of micronutrient powders (Ongera) in children 6-23 months, vitamin A in children 6-59 months and iron-folic acid of pregnant and lactating women. Consider expanding iron supplementation to adolescent girls.	Households with children U5 and with pregnant and lactating women	NECDP, MINAGRI, MOH, MINALOC.
Household food stock last longer in food secure households than in food insecure ones.	16. Promote and support the development of post-harvest management, storage and processing technologies (like low-cost silos, solar dehydrator) at the household level with a focus on smallholder famers and supported by agro-service providers. This might include education programme on post-harvest management for the target groups.	Smallholder, low-income farmers, Agro-service providers	MINAGRI (PSTA 4 – Outcome 2.1)
2. Mitigate risk and improve households resilience			
2018 CFSVA findings	**2018 Recommendations**	**Target group**	**Lead institutions**
Around 40 percent of households were affected by a shock which was mainly	1. Develop mechanisms to mitigate effects of shock on affected households, e.g. through social protection schemes and government food reserves.	Government and partners	MINEMA and partners, MINAGRI LODA

weather-related (Mainly irregular rains or drought but also hailstones, floods and landslides).	2. Introduce an early warning system to better follow natural hazards and their impacts and rapidly share information with all stakeholders to improve response mechanisms. (who has been affected, under which conditions and how recovery happened)	Government, decision makers and partners	MININFRA (RMA), MINEMA, NISR, MINAGRI (PSTA 4, Outcome 2.5-Increase resilience)
• A quarter of households faced **food shortage.** • Almost half of households in Ubudehe 1 and low-income farmers reported **seasonal** food access issues. • The main reason of food shortage was the **low production** from the last agricultural season mainly because of drought and irregular rainfalls.	3. Facilitate access to improved seeds which are drought tolerant, early maturing, pest-resistant varieties that are nutritious (millet, sorghum, iron fortified beans and orange fleshed sweet potato) in agro-ecological zones vulnerable to climate shocks. 4. Promote of crop risk mitigation techniques for staple crop production, diversification, mixed cropping technique, crop rotation, diversification of calendars, agroforestry, focus on small scale irrigations, land husbandry like progressive terracing and agroforestry complement with comprehensive climate smart soil and integrated watershed management.	Farmers in area most affected by shocks	MINAGRI (PSTA 4 – Outcome 2.1 and 2.5)
	5. Operationalize the existing crop protection strategy that provides guidance on how to monitor and cope with emerging diseases and pests. 6. Develop regular and timely information bulletins for farmers which include a consolidate weather forecast (from RMA information) and any relevant agricultural information like a crop pest and disease monitoring system or disasters communications and create effective response systems to problem and crisis.	Farming households, cooperative, MINALOC	MINAGRI in collaboration with Rwanda Meteorology Agency, MINEMA, MINALOC, etc.
	7. Scale-up the existing government subsidy scheme on small-scale irrigation and water-harvesting equipment.	Farmers in drought sensitive area	MINAGRI (PSTA 4 – Outcome 2.1, 2.3, 2.5)
	8. Scale up Agriculture insurance scheme.	Natural hazards-sensitive area	MINAGRI (PSTA 4 – Outcome 3.2)

	9. Develop mechanisms to mitigate seasonal food access issues for affected households, e.g. through social protection schemes and government food reserves. 10. Increase access to agriculture credit.	Vulnerable households affected by shocks	MINAGRI in collaboration with MINALOC, etc.
One third of food access issues were unexpected.	11. Increase the capacity of the National Strategic Grain Reserve.	Districts, private dealers	MINAGRI (PSTA 4 – Outcome 2.5), MINICOM
	12. Promote and support the household food storage.	All farmers	MINAGRI (PSTA 4 – Outcome 2.1)
	13. Strengthen the operational preparedness of District with the development of a Nutrition and Food Security emergency plan	All districts	NECDP, MINEMA
Households with more livelihoods activities or engaged in non-agricultural activities have more regular and higher incomes and are more food secure.	14. Promote entrepreneurship and a business oriented mindset among rural households and with a focus on young people in order to diversify their income sources through off-farm job opportunities including increasing access to saving and credits, e.g. through community based savings and lending groups, with a focus on including the poorest households. 15. Promote value addition innovations targeting nutrient-rich foods (e.g. fruits, vegetables, milk, fish, beekeeping, etc.) and their marketing. 16. Promote linkage between local farming and school market through home grown school feeding.	Young people, smallholder, low-income farmers, agri-daily labourers	MINALOC, MINAGRI (PSTA 4 – Outcome 3.1),
3. Facilitate access to structured markets			
2018 CFSVA findings	**2018 Recommendations**	**Target group**	**Lead institutions**
• Households purchase 65% of their food on market. • They spend half of their budget on food making them vulnerable to change in food price.	1. Promote intra-country trade of grains, meat, fish, eggs, fruits and vegetable and investing in storage and transportation facilities	The whole country	MINICOM, MINAGRI (PSTA 4 – Outcome 3.1)
	2. Continue monitoring food price and expand existing initiatives that allow farmers access to market information on commodity trade and develop an effective Market Information System to help producers (and consumers) to deal with changes in commodity prices throughout the entire year.	All farmers, traders	MINAGRI (PSTA 4 – Outcome 3.1)

• Physical access remains an issue in some area of the country. • Market food supply and food price follows agricultural season patterns.	3. Expand investments in and/or optimize market infrastructure and market supply like feeder roads development, transport facilities, community silos, cold chain infrastructure, and collection centers (for milk, vegetables, fruits, honey, etc.). 4. Develop innovations to increased market integration of smallholder farmers.	Markets in remote and poor rural area (Western province)	MINICOM, MINAGRI (PSTA 4 – Outcome 3.1)
4. Improve food consumption and nutrition through behaviour change			
2018 CFSVA findings	**2018 Recommendations**	**Target group**	**Lead institutions**
• Food insecure households mainly depend on agriculture. • Food insecure households are more often headed by a person with a low level of education. • The mother's food consumption and level of education influence child food consumption.	1. Strengthen the multisectoral District Food and Nutrition Steering Committee and the implementation of the District Plan to Eliminate Malnutrition (DPEM).	Agri-service providers	NECDP, MINALOC
	2. Strengthen community-level programmes that build household's capacity, knowledge, and accountability to synergistically address food utilization, sanitation and hygiene 3. Increase social behaviour change communication (SBCC) and counselling efforts to promote consumption of animal protein source, fruits and nutrient dense vegetables to improve key nutrition indicators such as minimum acceptable diet in children and dietary diversity among women of reproductive age.	Poor, food insecure households, and with malnourished children	NECDP, MOH, MINAGRI (Outcome 2.4) and MINALOC
	4. Develop a national communication plan and conduct mass campaigns on good practices on nutrition and hygiene. 5. Establish national food based dietary guidelines to inform consumers on food choices and facilitate nutrition.	The whole country	NECDP, MOH, MINALOC, MINAGRI (PSTA 4-Outcome 4.2 and 4.5)

	6. Develop specific behaviour change communication materials to improve nutrition through dietary diversification, sanitation and hygiene and gender empowerment. 7. Develop materials to promote optimal cooking practices to preserve nutrients in the food (legumes and vegetables) and integrate these into existing SBCC activities.	Beneficiaries of training in food security and nutrition	NECDP, MINAGRI (PSTA 4-Outcome 4.5), MOH, MINALOC
	8. Invest in the capacity development of agricultural extension agents on nutrition related matters, gender-equal nutrition sensitive food production and input uses and develop appropriate SBCC activities for farmers to improve the link between food production and nutrition security.	Agricultural extension agents	MINAGRI (PSTA 4 – Outcome 1.3)
	9. Integrate a nutrition & hygiene education component into all relevant agriculture programmes and projects to improve production and consumption of high nutritive crops among producing farmers.	All MINAGRI programme	NECDP, MINAGRI (PSTA 4 – Outcome 4.1)
	10. Integrate a nutrition education component in the curricula of primary and secondary public/private schools, TVET and University. 11. Mobilise schools (primary and secondary) for kitchen gardens establishment.	MINEDUC	NECDP, MINEDUC
Rwandan children 6-23 months ate an average of 3 food groups per day twice a day meaning that at least one more food group and at least one more feeding time per day would be needed to achieve the minimum acceptable diet.	12. Ensure consistency in implementing the Essential Nutrition Actions and promote efficient geographic targeting across the 30 districts of the country.	All districts, Health centers	NECDP, MOH, MINALOC, MINAGRI
	13. Continue and enhance targeting for supplementary feeding for children 6-23 months with nutrition counselling in poorest households (Ubudehe 1 and 2). 14. Increase coverage of the home fortification programme using Ongera for children 6-23 months.	Vulnerable households with children under 2	NECDP, MOH, MINALOC
	15. Conduct regular training sessions for health care givers (including CHWs) in nutrition-specific interventions such as maternal infant and young child nutrition (MIYCN), management of acute malnutrition, and management of diet-related non-communicable diseases, etc, …	Health care givers	MOH, NCDP

Children who suffered from diarrhea in the two weeks before the survey are more likely to be stunted.	16. Improve access to quality water through safe water storage, health services, hygiene and sanitation (WASH) and promote the integration of WASH in all community-level food and nutrition security programmes.	All districts, focus on area with high prevalence of food insecurity and stunting	MININFRA, MOH, MINALOC
5. Improve targeting and assistance for the most vulnerable through integrated safety nets			
2018 CFSVA findings	**2018 Recommendations**	**Target group**	**Lead institutions**
• Food insecure households are among the poorest (32% in Ubudehe 1 and 19% in Ubudehe • Most of them depend on agricultural activities.	1. Strengthening cross-sectoral collaboration and align social protection, agricultural and health priorities to deliver food security and nutritional interventions at scale, through the established "Joint Imihigo" framework at national and district level. 2. Establish a strong partnership between MINAGRI and MINALOC to ensure a coordinated approach when targeting agricultural asset transfer schemes and agricultural extension services to poor and vulnerable population groups. 3. Ensure employment and income opportunities for poor households are sustained even during off-season agricultural periods.	All 30 districts, local governance	MINALOC, MINAGRI
Most of food insecure households have no access to land and no livestock.	4. Improve the resilience of landless households in Ubudehe 1 by exploring the possibilities of organizing extremely poor and landless households into groups, which participate in joint food production on allocated communal plots. 5. Strengthen the Girinka Programme and other livestock programmes to achieve impact at scale, including through the distribution of small livestock to poor and vulnerable households.	Poor and food insecure households	MINALOC, MINAGRI
Female-headed households are more prone to be food insecure.	6. Ensure that women-headed households which are among the most food insecure get equitable access to extension services. 7. Ensure that programmes targeting women's role in agriculture include other support services such as time saving technologies that support women's time use for children and nutrition.	Poor female headed households	MINAGRI Outcome 4.2), MIGEPROF

VUP Public Work is the main financial programme whose benefitted households in Ubudehe 1.	8. Expand and reinforce the harmonization of stand-alone sector targeting under Public Works programmes from VUP and MINAGRI in order to efficiently respond to the needs of extremely poor households and communities exposed to natural disasters.	Households in Ubudehe 1 and 2 most exposed to disasters	MINALOC, MINAGRI,
Stunted children are more likely to be in food insecure households.	9. Improve household's level screening and early identification for children at risk of malnutrition.	CHW	NECDP
6. Food security and nutrition monitoring and analysis			
2018 CFSVA findings	**2018 Recommendations**	**Target group**	**Lead institutions**
Food security status of a household deteriorates and when the food expenditure share increases.	1. Carry out deeper oriented studies (like Optifood Analysis) on how to better identify and fill the nutrient gap in current diets consumption at household level and reduce the food basket price (study the link between food needs, food preference, food production and food cost).	Food insecure households	NECDP, MINAGRI, MOH, MINALOC
No data on the appraisals of programmes linked to food security and nutritional programme in Rwanda	2. Appraised programme/project supporting homestead production to make them nutrition sensitive.		NECDP, MINAGRI, MOH, MINALOC
No sufficient data on food security in Rwanda	3. Carry out seasonal/annual national food availability assessments like the food balance sheet and market assessment.	NISR	NISR

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16. Annexes (included in the Flash Disk)

1. Definitions and computation of main indicators
2. Detailed tables with key indicators
3. Questionnaires
4. Food security

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