

Sustainable Development Goals in Cibitoke and Kirundo provinces, Burundi

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Draft 1

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List of abbreviations

ECVMB	Enquêtes de Conditions de Ménages et de Vie au Burundi
SDG	Sustainable Development Goal
MPI	Multidimensional Poverty Index
FCS	Food Consumption Score
WFP	World Food Programme
FAO	Food and Agriculture Organization of the United Nations
OPHI	Oxford Poverty and Human Development Initiative
WHO	World Health Organisation
CBMS	Community Based Monitoring System
PEP	Partnership for Economic Policy
PPAs	Programs, Projects and Activities

Executive summary

Introduction

A lot of the text in the introduction has been copy and pasted, the section will be rewritten

A land-locked, low-income country in East Africa, Burundi is one of the poorest countries in the world, ranking 184th out of 188 countries in the 2016 human development index.

The challenge of maintaining sustainability in the context of prevailing patterns of growth and development began to be recognized at the global level since the early seventies. The UN Conference on the Human Environment in Stockholm in 1972 and several influential publications such as Limits to Growth published by the Club of Rome (1972) and World Conservation Strategy: Living Resource Conservation for Sustainable Development (IUCN 1980) brought the issue of sustainable development to the global forefront. The formal definition of the concept of sustainable development was first introduced in the Brundtland Report, Our Common Future, by the World Commission on Environment and Development (WECD) in 1987: Sustainable development is development that meets the needs of the current generations without compromising the ability of the future generations to meet their needs. This intergenerational concept of sustainable development was widely adopted including at the United Nations Conference on Environment and Development (UNCED) in 1992 (Rio Earth Summit).

Overtime the concept of sustainable development has evolved from focusing less on intergenerational needs and more on the holistic approach embracing economic development, social inclusion and sustainability. In 2002, at the World Summit on Sustainable Development (WSSD) in Johannesburg the governments adopted the Johannesburg Plan of Implementation which called upon “the integration of the three components of sustainable development – economic development, social development and environmental protection – as interdependent and mutually reinforcing pillars.” The concept of intergenerational justice remains but is now secondary to the holistic view of sustainable development.

The UN Conference on Sustainable Development held in 2012 to commemorate the twentieth anniversary of the Rio Summit (Rio + 20 Summit) emphasized the three-part vision of sustainable development in the final outcome document, “The Future We Want”. The Sustainable Development Goals called for in the same outcome document were also based on the three-part framework.

The United Nations General Assembly at the 70th session held on 25 September 2015 adopted the outcome document of the UN summit for the adoption of the post-2015 development agenda entitled Transforming Our World: the 2030 Agenda for Sustainable Development and decided on new global Sustainable Development goals (SDGs). At the core of the 2030 Agenda is a list of 17 Sustainable Development Goals (SDGs) and 169 targets to end poverty, hunger and inequality, take action on climate change and the environment, improve access to health and education, care for people and the planet, and build strong institutions and partnerships. The SDGs are unprecedented in terms of scope and significance and go much beyond the MDGs (2001-15) by including economic growth, sustainable production and consumption, sustainable urbanization, innovation, data generation for tracking progress and the importance of peace and justice for all in the agenda. The Agenda calls for action by all countries, poor, rich and middle income. The SDGs are not legally binding, but governments are expected to take ownership and establish national frameworks for the achievement of the goals.

Burundi's engagement in the 2030 Agenda process

Integrating SDGs into the national development agenda

Methodology

In this study, the targets of the Sustainable Development Goals will be measured in the provinces of Kirundo and Cibitoke. In fact, Kirundo and Cibitoke are the two poorest provinces in Burundi. methodology adopted is a Community Based Monitoring System (CBMS) and is supported by the Partnership for Economic Policy (PEP) organization. The data was collected in the year 2018, from Month X to Month X in two provinces of Burundi, Cibitoke and Kirundo. In the province of Cibitoke, data were collected from households in the collines of Rushimabarimyi, Rushiha Gakerekwa and Butaramuka communes of Mugina and Mabayi. In the province of Kirundo, data were collected from households in the collines of Gitwe and Gaturanda from commune of Bugabira. All the households in the above mentioned collines were sampled. In total, 4839 households and 21501 individuals were sampled.

The data was collected via a survey where a household questionnaire was addressed to the household heads and community questionnaire addressed to the chairperson of the colline. The

household questionnaire consisted of the following modules: household member roster, education, employment, child's health, household characteristics, mosquito nets, food consumption, food security and deaths in the household. The modules for the community questionnaires are: demographic characteristics of the colline, service institutions and infrastructure (health and education facility), facility and input dealer (service facility, agricultural facility, input dealer, public transport), road network, water supply, credit institutions, registered business firms & non-agricultural activities, energy facility and PPAs (Programs, Projects and Activities) implemented in the last year.

In this paper, the some of the targets of the following Sustainable Development Goals are measured for the collines, communes and the 2 provinces for which the data was collected in Burundi.

The section of the methodology below has to be moved to the annex or we can just put the Data Requirement matrix in the annex as suggested by Jas

The method and formula used to measure each target are also described below:

SDG 1: End poverty in all its forms everywhere

Indicator 1: Proportion of the population living below the international poverty line of \$1.25 and \$1.90 and national poverty line

Data for total income of the household has been collected using a revenue approach. The following formulas are used are used to compute the poverty rates as per international and national poverty line.

Formula:

$$= \frac{\sum_{h=1}^n h}{n} \quad \text{and} \quad = \frac{\sum_{h=1}^n (h - \$1.25)}{n} \quad \text{and} \quad = \frac{\sum_{h=1}^n (h - \$1.25)}{n}$$

$$= \frac{\left(\sum_{h=1}^h h \right) (\sum_{h=1}^h h) (\$1.90)}{\sum_{h=1}^h h (\sum_{h=1}^h h) (\$1.90)}$$

$$= \frac{\left(\sum_{h=1}^h h \right) (\sum_{h=1}^h h) (1744)}{\sum_{h=1}^h h (\sum_{h=1}^h h) (1744)}$$

Indicator 2: Proportion of multi-dimensionally poor households

The Multidimensional Poverty Index (MPI) methodology developed by Alkire-Foster is used to measure multidimensional poverty amongst households in the two provinces. The dimensions and indicators used to calculate the MPI are the same as the global MPI and is shown in Table 1.

Table 1: Dimensions and Indicators used to measure the Multidimensional Poverty Index (MPI)

Dimension	Indicator	Threshold of deprivation for each indicator	Weight
Education	School attainment	No household member has completed a least 6 years of schooling	1/6
	School attendance	A school-age child (up to grade 8) is not attending school	1/6
Health	Nutrition	A household member (for whom there is nutrition information) is malnourished, as measured by the body mass index for adults and by height-for-age z-score for children under age 5	1/6
	Child mortality	A child has died in the household within the five years prior to the survey	1/6
Standard of living	Electricity	Not having access to electricity	1/18
	Drinking water	Not having access to clean drinking water or having access to clean drinking water through a source that is located 30 minutes away or more by walking	1/18
	Sanitation	Not having access to improved sanitation facilities or having access only to shared improved sanitation facilities	1/18
	Cooking fuel	Using "dirty" cooking fuel (dung, wood or charcoal)	1/18
	Dwelling	Having a home with dirt, sand or dung floor	1/18
	Assets	Not having at least one asset related to access to information (radio, television or telephone) or having at least one asset related to information but not having at least one asset related to mobility (bike, motorbike, car, truck, animal cart or motorboat) or at least one asset related to livelihood (refrigerator, arable land or livestock)	1/18

A household will be considered as poor if that household is deprived in at least one third of the total weighted indicators. The indices of deprivation namely the poverty headcount (H), intensity of deprivation (A) and the Multidimensional Poverty Index (MPI) will be calculated.

SDG 2: Zero hunger

Indicator 1: Proportion of households with Score of Food consumption: Poor Limit and Acceptable

This indicator is measured by the Food Consumption Score (FCS). The FCS is an index that was developed by the World Food Programme (WFP) in 1996. The FCS aggregates household-level data on the diversity and frequency of food groups consumed over the previous seven days, which is then weighted according to the relative nutritional value of the consumed food groups. For instance, food groups containing nutritionally dense foods, such as animal products, are given greater weight than those containing less nutritionally dense foods, such as tubers. Based on this score, a household’s food consumption can be further classified into one of three categories: poor, borderline, or acceptable. The food consumption score is a proxy indicator of household caloric availability. The formula used to calculate FCS is as follows:

$$FCS = a_{staple} X_{staple} + a_{pulse} X_{pulse} + a_{veg} X_{veg} + a_{fruit} X_{fruit} + a_{animal} X_{animal} + a_{sugar} X_{sugar} + a_{dairy} X_{dairy} + a_{oil} X_{oil}$$

Where

FCS is the Food Consumption Score

X_i is the Frequencies of food consumption = number of days for which each food group was consumed (see list of food groups in Table 2) during the past 7 days

a_i is the weight of each food group (see weight of each food group in table 2)

Table 2: Food items, food groups and weight used to calculate the FCS

Food items	Food groups	Weight
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Maize , maize porridge, rice, sorghum, millet pasta, bread and other cereals	Cereals and Tubers	2
Cassava, potatoes and sweet potatoes		
Beans, Peas, groundnuts and cashew nuts	Pulses	3
Vegetables and leaves	Vegetables	1
Fruits	Fruit	1
Beef, goat, poultry, pork, eggs and fish	Meat and fish	4
Milk yogurt and other diary	Milk	4
Sugar and sugar products	Sugar	0.5
Oils, fats and butter	Oil	0.5
Condiments	Condiment	0

Once the FCS has been computed, different thresholds as shown in Table 3 are used to determine whether the food consumption of the household is poor, borderline or acceptable. The score has a minimum of 0 and a maximum of 112.

Table 3: Threshold of FCS to determine poor, borderline and acceptable food consumption

Threshold	Profiles
0 - 21	Poor food consumption
21.5 - 35	Borderline food consumption
>35.5	Acceptable food consumption

Indicator 2: Proportion of households who experienced food shortage

To write methodology

Indicator 3: Proportion of underweight, stunted and wasted children

To write methodology

SDG 3: Ensure healthy lives and promote well-being for all at all ages

Indicator 1: Under-five mortality rate

To write methodology

SDG 4: Quality Education

Indicator 1: Adult literacy rate

To write methodology

Indicator 2: Gross primary/secondary enrollment rate

To write methodology

Indicator 3: Proportion of schools having access to safe drinking water and sanitary toilets

To write methodology

SDG 6: Ensure access to water and sanitation for all

Indicator 1: Proportion of households with an unimproved water source and with distance to water source being greater than 30 minutes

To write methodology

Indicator 2: Proportion of households with an unimproved toilet source and households sharing toilet facilities with other households

To write methodology

SDG 7: Ensure access to affordable, reliable, sustainable and modern energy

Indicator: Proportion of population with access to electricity

The above indicators are also disaggregated by some individual (e.g by gender), household (e.g by household size, wealth quintiles, etc) and geographic characteristics (e.g province, commune and colline) for a more in-depth analysis.

To write methodology

Results

This chapter shows the current situation of some of the SDG indicators in the provinces of Cibitoke and Kirundo, Burundi.

SDG 1: End poverty in all its forms everywhere

1.1 The situation in Burundi

Burundi is home to over six million poor people, ranking among the poorest Sub-Saharan and Low Income Countries. The Survey on Households Living Conditions (ECVMB 2013-14), shows that 64.9 percent of the population (around 6.1 million people) lives below the national basic needs poverty line of BIF 41,054 per adult per month. About 3.6 million Burundians (38.7 percent) live in extreme poverty and cannot meet the minimum nutritional requirements of 2,200 kilocalories (Kcal) per adult equivalent per day (Figure ES.2). Using the international poverty line of US\$1.9 per capita per day (in 2011 Purchasing Power Parity exchange rate), Burundi's poverty rate stands at 72.9 percent, around 8 percentage points higher than the national poverty rate. This indicates that poverty is around 30 percentage points higher than LIC and SSA averages of 47.2 percent and 42.7 percent, respectively. A large share of the non-poor population is clustered just above the poverty line and is highly vulnerable to fall into poverty. Around 50 percent of the non-poor population stagnates at a consumption level right above the poverty line, within a range of around US\$ 0.5 per capita per day (in 2011 PPP). They are therefore prone to fall back into poverty in case of unexpected economic shocks. Any slight increase in the value of the poverty line would induce a significant rise in the estimated poverty levels. However, while most of the non-poor are close to the poverty line and are vulnerable to economic downturns, the majority of the poor are far below the poverty line (with an average consumption level of about 75 percent of the poverty threshold) and would need substantial assistance and special care in the development programs to help them enhance their livelihoods and productivity.

1.2 Assessment of Progress on SDG 1 by indicators in provinces Kirundo and Cibitoke

Indicator 1: Proportion of the population living below the international poverty line of \$1.25 and \$1.90 and national poverty line

During the last few decades, poverty has been stagnant in Kirundo and Cibitoke. Those two provinces are in fact the poorest provinces of Burundi with almost everyone living there living in

severe poverty conditions. The proportion of the population living on less than \$1.25 a day measured at 2005 international prices, adjusted for purchasing power parity (PPP) was estimated by the World Bank as the measure of extreme poverty. This was the average of 15 national poverty lines from some of the poorest countries in the world. This poverty line has been updated with proportion of population living on less than \$1.90 a day at 2011 international prices adjusted for PPPs used as the new measure of extreme poverty. As shown in table 1, given the poverty line of \$1.25, 98.9% are poor in the 2 provinces under study. Using the new international poverty line of \$1.90, it is found that 99.5% of the population are termed poor.

The Enquêtes de Conditions de Ménages et de Vie au Burundi (ECMVB) 2013/2014 survey published by the statistical office estimated the monetary poverty line at 636 510 Burundian francs (BIF) at national level per year, or at 1744 BIF per day per person. This poverty line was measured using a basket of commodities consisting of both food and non-food items. According to the ECMVB-2013/2014 report, poverty affects almost 2/3 of the population with a strong dominance in rural areas. The monetary poverty rate, 2014, stood at 64.6% of the total population of Burundi against 67.1% in 2006. In other words, close to two out of three Burundians are unable to meet their daily basic needs (food and non-food items). It is found that the situation is even worse for the two provinces under study with 98.3% of population living on less than the national poverty line, that is 1744 BIF per day. Given that almost all the respondents of the study are poor using either international or national definitions of poverty, as expected, a disaggregation by province, commune, colline and age group shows that people are irrespective of those characteristics (see Figure 1 – Figure 4).

Table 4: Percentage of poor people according to the international poverty lines of \$1.25, \$1.90 and the national poverty line

Percentage of poor people according to different threshold of poverty	
International poverty line - \$1.25 per day	98.9%
International poverty line - \$1.90 per day	99.5%
National poverty line – 1744 BIF per day	98.3%

Figure 1: Poverty rates by province

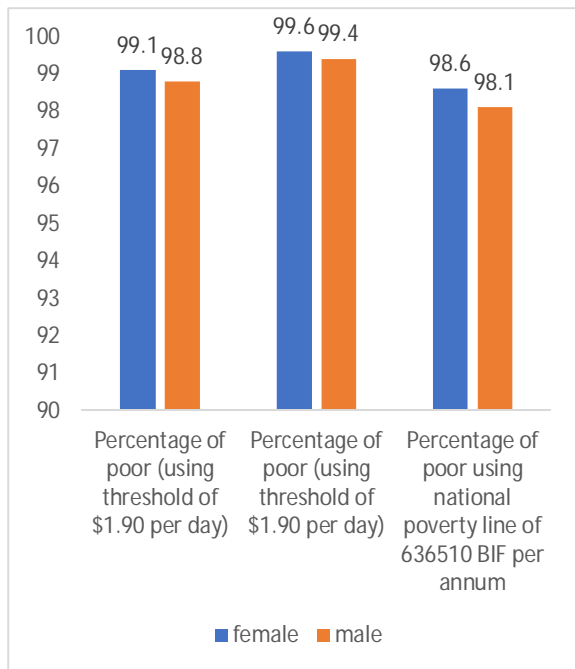


Figure 2: Poverty rates by commune

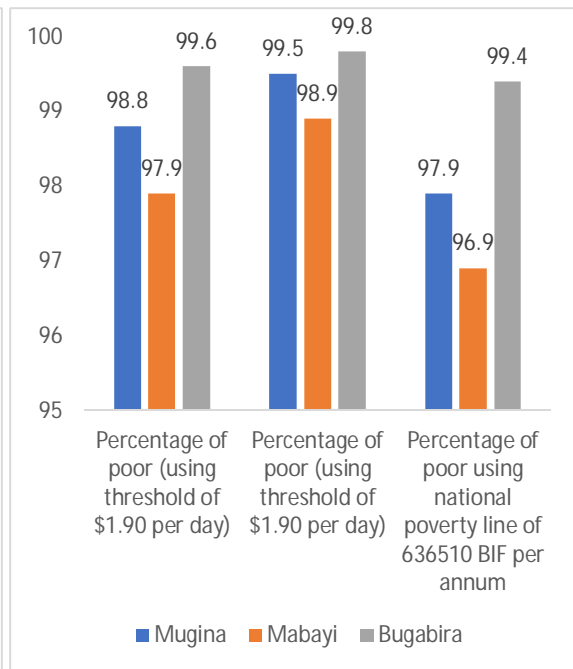


Figure 3: Poverty rates by collines

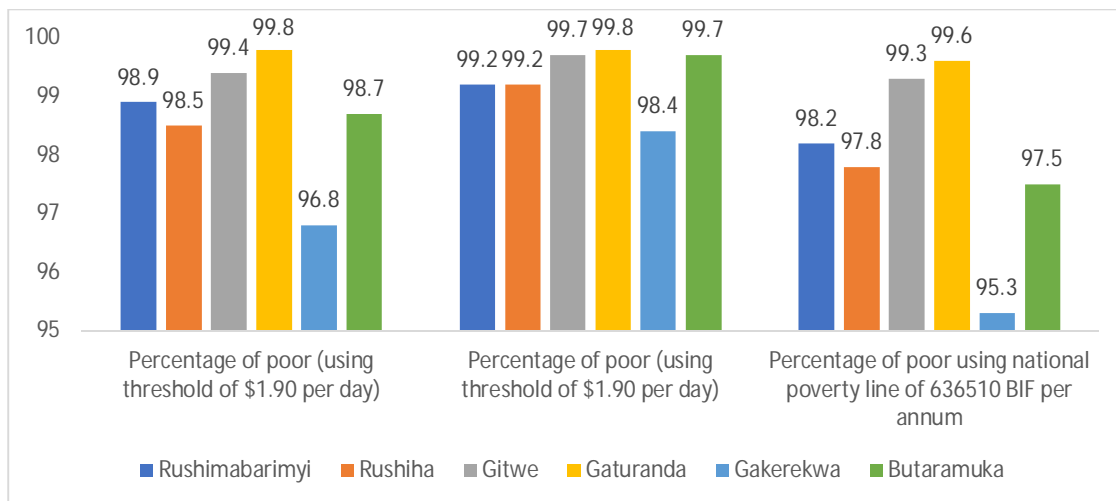
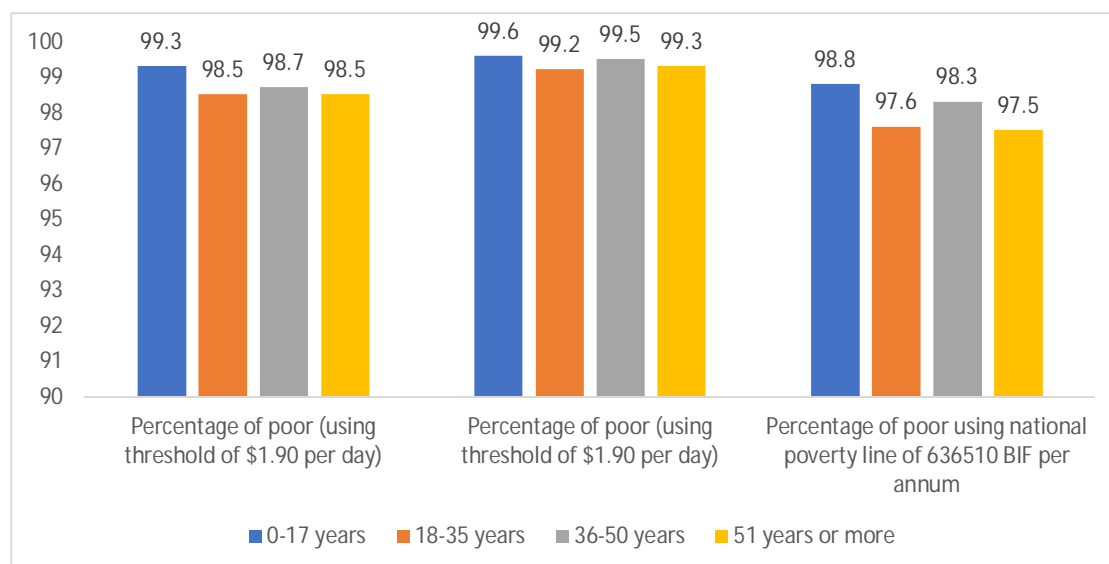


Figure 4: Poverty rates by age group of the population



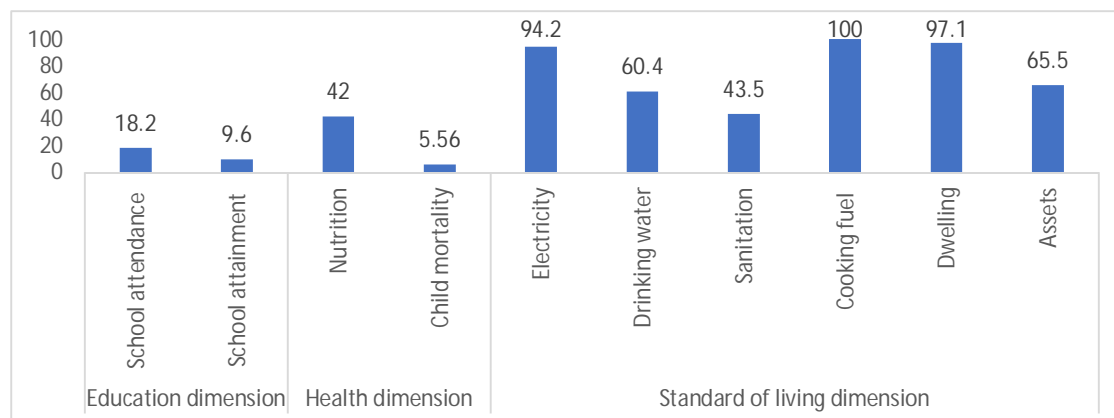
Indicator 2: Proportion of multi-dimensionally poor households

As elaborated in the methodology chapter, the Multidimensional Poverty Index (MPI) developed by OPHI is used to calculate the percentage of multi-dimensionally poor households in the regions under study. From the three dimensions of well-being used, it is found that the dimension of *Standard of Living* yields highest deprivation rates: 100% of the inhabitants uses unimproved cooking fuel, 97.1% of them have an unimproved dwelling measured, 94.2% do not have electricity, 60.4% do not basic drinking water whilst 65.5% suffers from deprivations in assets (see Figure 5).

Deprivation in the *health* dimension are relatively lower but still problematic with 42% of households deprived in nutrition (having at least one stunted child) and 5.6% of households experiences child mortality in the last five years.

When it comes to the *education* dimension, it is found that some children of school age in 18.2% of the households do not attend schools while 9.6% of the households do not have a member who completed at least 6 years of schooling.

Figure 5: Deprivation rates in MPI indicators for total sample



The disaggregation of the deprivation rates by province (see Figure 6) shows that the province of Kirundo experiences higher deprivations in all of the indicators with the exception of the Nutrition where Cibitoke records the highest percentage of household with stunted children. A further disaggregation by commune shows that Bugabira is deprived in all indicators with again the exception of the dimension nutrition where Mugina is the most deprived (see figure 7).

Figure 6: Deprivation rates in MPI indicators by province

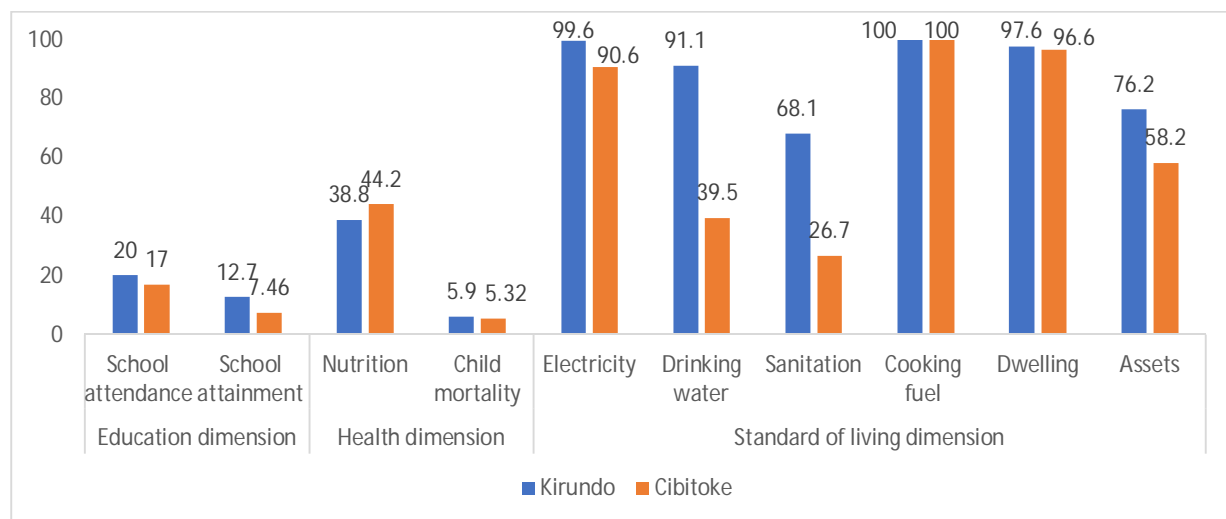
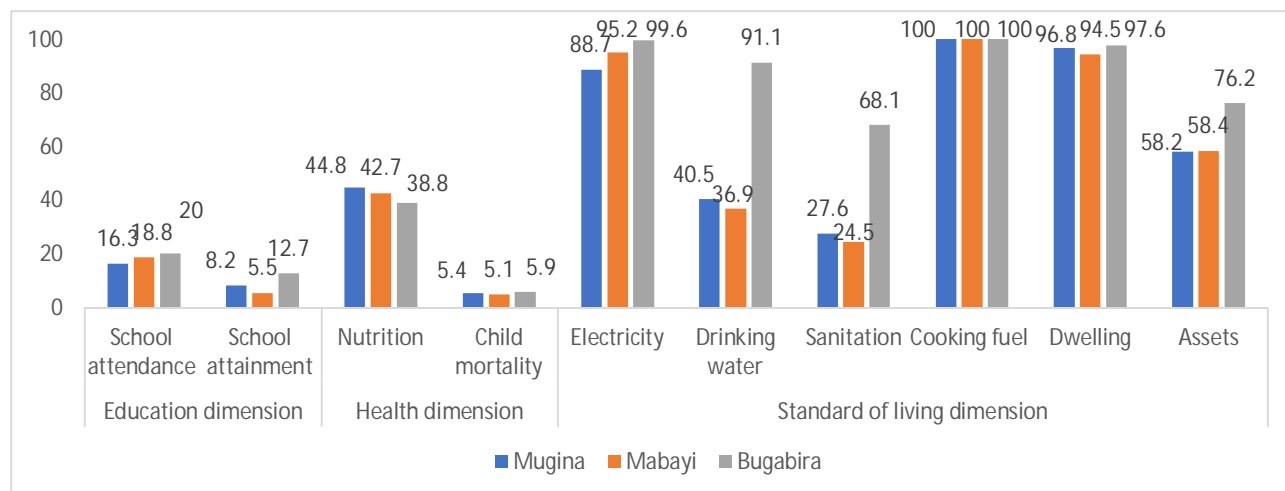


Figure 7: Deprivation rate in MPI indicators by commune



For the total sample, it is found that 72.8% of the households are multi-dimensionally poor (measure of target 1.2.1 of the SDG 1 – See table 5). Those multi-dimensionally poor households are, on average, deprived in 47.6% of the total indicators. In other words, the average intensity of deprivation amongst the poor is 47.6%. On disaggregating the MPI index by province, it is found that Kirundo is worse off with an MPI index of 0.486 as compared to Cibitoke with 0.461, this is driven by higher deprivation rates in both headcount (81.2% versus 62.3%) and intensity of deprivation (48.6% versus 46.1%) for Kirundo. When it comes to commune, it is observed that Bugabira is the most worse off with the highest MPI index of 0.486. With regards to collines, the most deprived one is Gitwe scoring an MPI index of 0.498. In fact, 86.2% of the households in the colline of Gitwe are multi-dimensionally poor and those poor households experiences, on average, deprivation in 49.8% of the MPI indicators.

As expected, households from the poorest wealth quintile have the highest proportion of multi-dimensionally poor households (80.2%) and also experiencing the highest intensity of deprivation (49.4%). It is nonetheless intriguing to note that even the households from the “richest” quintile have a significantly high proportion of multi-dimensionally poor households (57%) and experiencing almost similar intensity of deprivations (44.3%). Coming to household size, it is found that the more members in the household, the worse off it is in terms of multi-dimensional poverty.

Table 5: MPI headcount, intensity and index by profiling variables

		Percentage of MPI poor households (Headcount - H)	Average intensity of deprivation amongst poor households (A)	MPI index
Total sample		72.8	47.6	0.476
Province	Kirundo	81.2	48.6	0.486
	Cibitoke	62.3	46.1	0.461
Commune	Mugina	62.6	46.4	0.464
	Mabayi	59.4	43.5	0.435
	Bugabira	81.2	48.6	0.486
Colline	Rushimabarimyi	73.9	47.7	0.477
	Rushiha	54.5	43.1	0.431
	Gitwe	86.2	49.8	0.498
	Gaturanda	72.5	46.1	0.461
	Gakerekwa	65.1	45.9	0.459
	Butaramuka	47.9	43.4	0.434
Wealth Quintile	5th quintile (richest)	57	44.3	0.443
	4th quintile	70.2	46.4	0.464
	3rd quintile	73.1	47.6	0.476
	2nd quintile	76.1	48.2	0.482
	1st quintile (poorest)	80.2	49.4	0.494
Household size	7 or more members	73.5	48.6	0.486
	4-6 members	71.9	47.6	0.476
	1-3 members	74	46.8	0.468

SDG 2: Zero hunger

1.1 The situation in Burundi

According to the 2018 World Food Security Report by FAO¹, Burundi has the highest hunger score and is the 9th food security crisis in the world, sharing similar levels with Somalia. As per the same report, climate shocks were one of the leading causes of food crisis situations in 2017.

¹ FAO (2018). The State of Food Security and Nutrition in the World. Building Climate Resilience for Food Security and Nutrition. Retrieved from: <http://www.fao.org/3/i9553en/i9553en.pdf>

Burundi is definitely affected by climate shocks such as droughts and also affected by situations of conflicts. The situation of the country is regarded as even more fragile given that it is listed as one of the countries with high dependency on agriculture. The report also shows that 55.9% of children in Burundi, representing 1.1 million children, under 5 years are stunted and 26.7% of women, representing 0.7 million Burundian women in the reproductive age of 15-49 years have anemia.

1.2 Assessment of Progress on SDG 2 by indicators in provinces Kirundo and Cibitoke

Indicator 1: Proportion of households with Score of Food consumption: Poor Limit and Acceptable

As explained in the methodology section, a score of food consumption developed by the World Food Programme is calculated to determine the percentage of households with a poor, borderline and acceptable diet. It is found that 31.9% of the households under study have a poor diet, 42.4% have a borderline diet while only around one quarter (25.7%) consume an acceptable diet.

The disaggregation of the results by geographical and household characteristics are done in Figure 6-10. It is found that the province of Kirundo is worse-off than Cibitoke with 47.5% of households having a poor diet in contrast to Cibitoke where 20.3% have a poor diet (see figure 6). It is also noted that a higher proportion of households in Cibitoke (34%) than Kirundo (14.5%) consume an acceptable diet. Further analysis shows that the commune of Bugabira has almost half of its households (47.5%) consuming a poor diet in contrast to Mugina and Mabayi commune where the percentages are 16.9 and 29.5 percent respectively (see Figure 7). The commune of Bugabira also has the smallest percentage of households (14.5%) consuming an acceptable diet. The other two communes are doing better with around one third of households consuming acceptable diets (34.6% for Mugina and 32.5% for Mabayi).

When further sub-disaggregating the results by colline (see figure 8), it is found that Gitwe and Gaturanda collines are doing worse with the highest proportion of households having poor diets (49.3% and 44.1% respectively) and the lowest proportion of households consuming acceptable diets (12.8 and 17.6% respectively). The collines Butaramuka, Rushimabarimyi and Rushiha are doing better with lower proportions of households consuming a poor diet and higher proportions of households consuming an acceptable diet. It is to be noted though that the majority of

households in those three provinces consume borderline diet (45.8%, 50.2% and 40.3% respectively).

As expected, the majority of households in the poorest wealth quintile (43.1%) consume poor diets (see Figure 9). As the level of wealth of the household increases, the percentage of household consuming acceptable diets increases. Large proportions of households (between 38% and 47%) in all quintiles consume borderline diets. It is worth noting that despite being in the richest quintile, 21% of households still consume a poor diet. Given poverty rates of above 98%, this is probably because the households in the richest quintiles are also poor. It could also imply that they could have some money but there is no availability of food in the region where those households live or they choose to spend the money on other things than an acceptable diet.

Surprisingly, it is found that households with many members are doing better than household with less members when it comes to the score of food consumption (see Figure 10). This could be because there are more household members to work to be able to provide food in the households.

Figure 8: Percentage of household having a poor, borderline or acceptable Score of Food Consumption

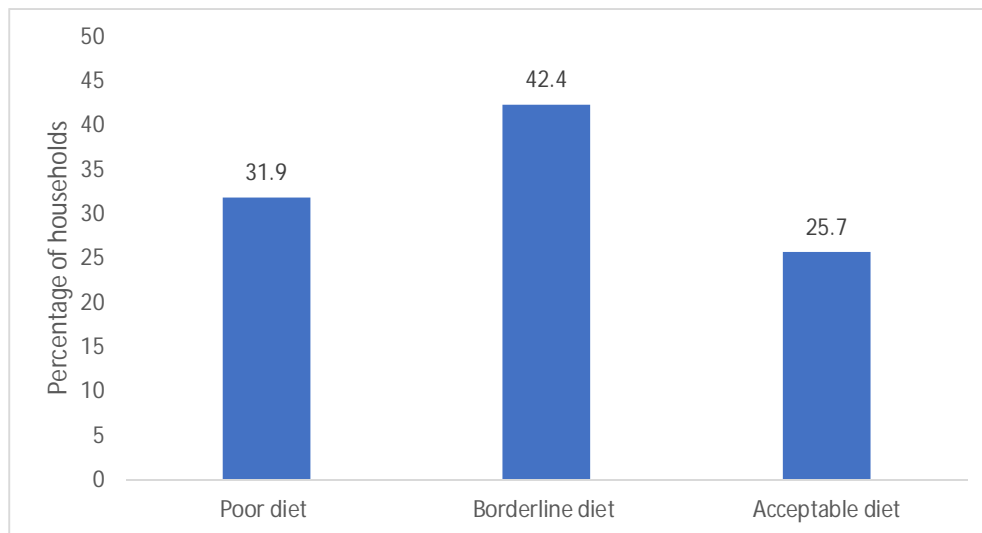


Figure 9: Score of food consumption by province

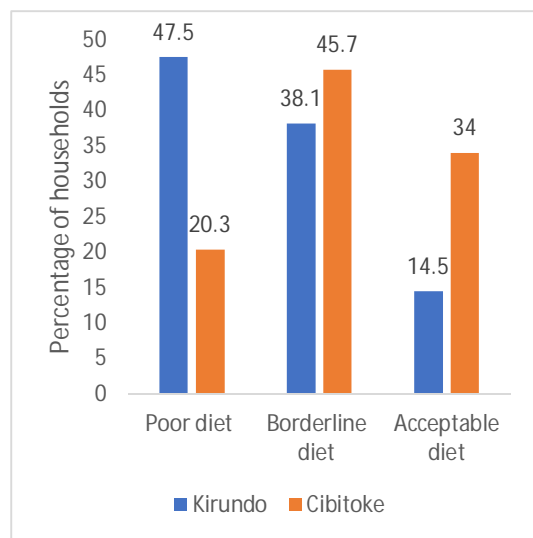


Figure 10: Score of food consumption by commune

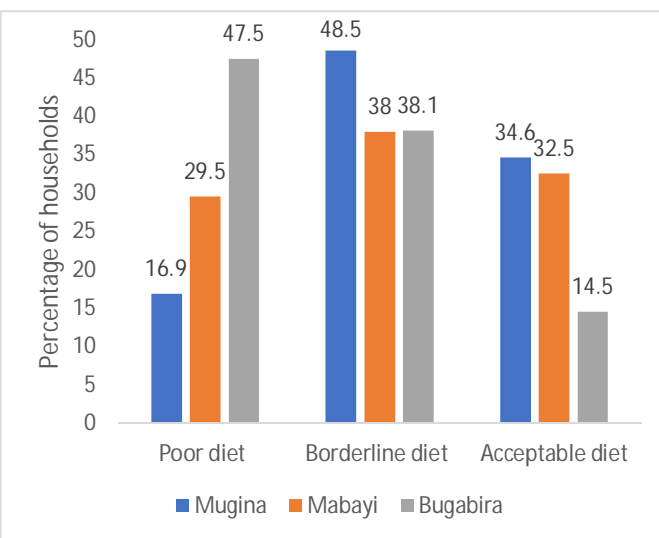


Figure 11: Score of food consumption by colline

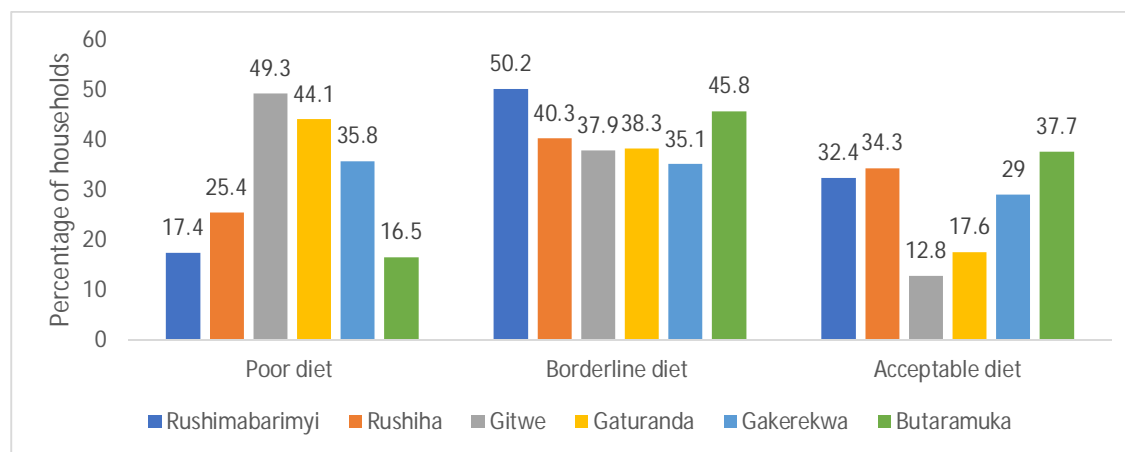


Figure 12: Score of food consumption by wealth quintile

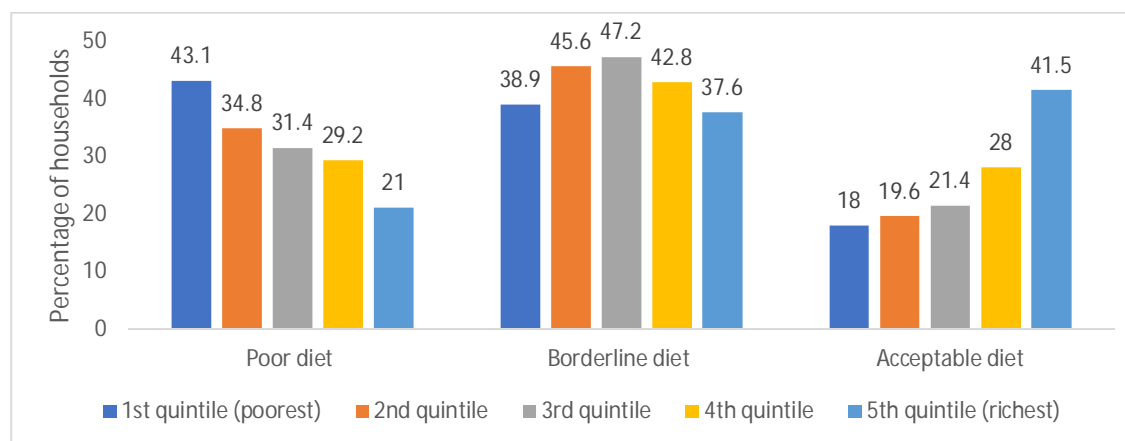
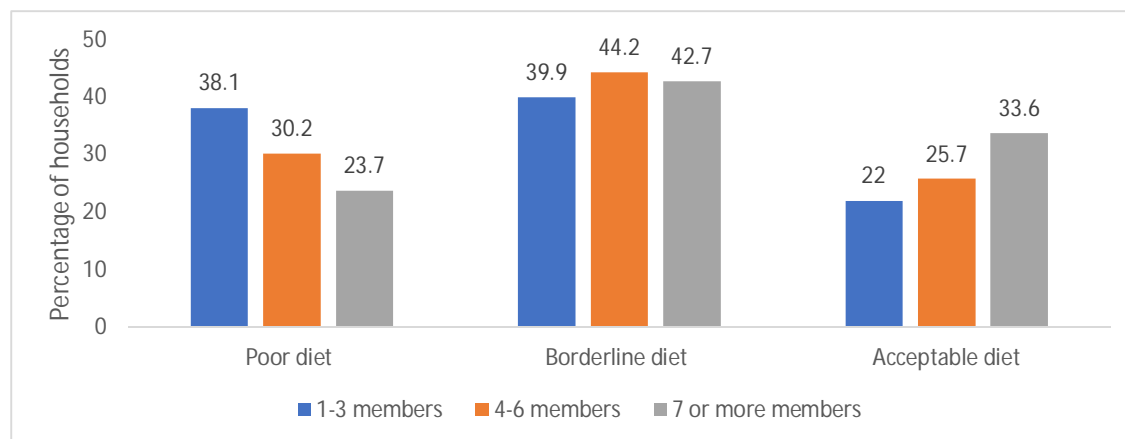


Figure 13: Score of food consumption by household size



Indicator 2: Proportion of households who experienced food shortage

Table 6: Households experiencing food shortages in total sample

In the total sample under study, it is found that 66.7% of the households experiences food shortages. The disaggregation of the rate by province (see Figure 14) shows that Kirundi has a higher proportion of households suffering from food shortages as compared to Cibitoke (80% versus 56.8%). With regards to commune (see Figure 15), Bugabira shows the highest percentage of household with food shortage (47.5% versus 29.5% in Mabayi and 16.9% in Mugina). The collines of Gaturanda (82.4%) and Gitwe (78.8%) have the highest proportion of households with food shortages whilst the colline of Rushiha having the lowest (51.1%) (see Figure 16). When disaggregating the results by wealth quintiles, it is found that the richer the quintile, the lower the percentage of households experiencing food shortages (see Figure 17). While for the poorest wealth quintile, 77.1% of households suffers from food shortages, in the richest quintile, 46.7% have food shortages. The higher the household members, the higher the proportion of households with food shortages (see Figure 18) although the difference between the categories are very low (66.6% for households with 1-3 members, 68.8% for households with 4-6 members and 69.7% for households with 7 or more members).

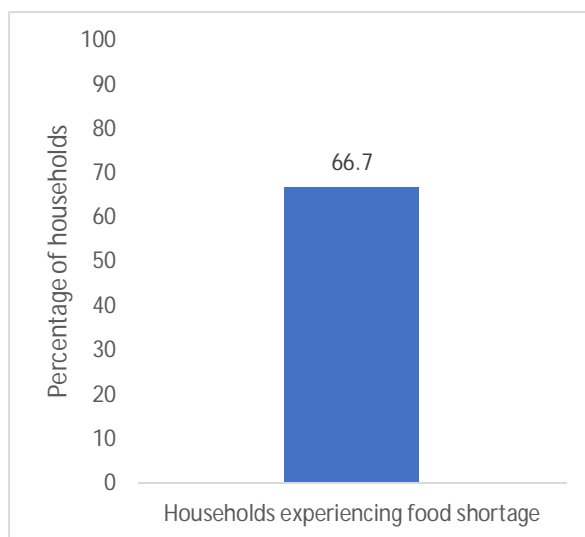


Figure 14: Food shortage by province

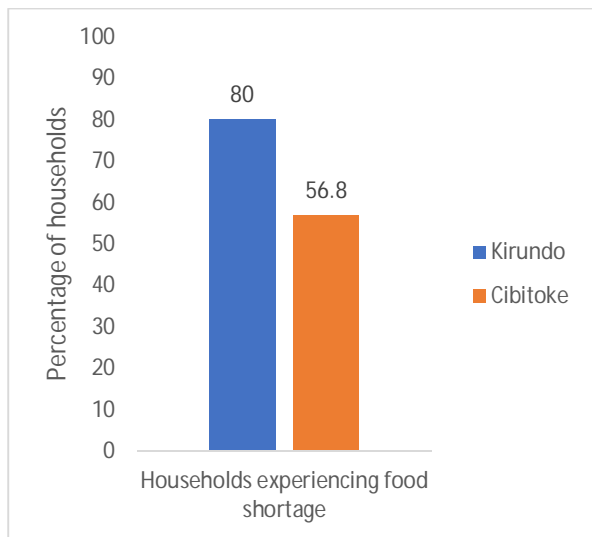


Figure 15: Food shortage by commune

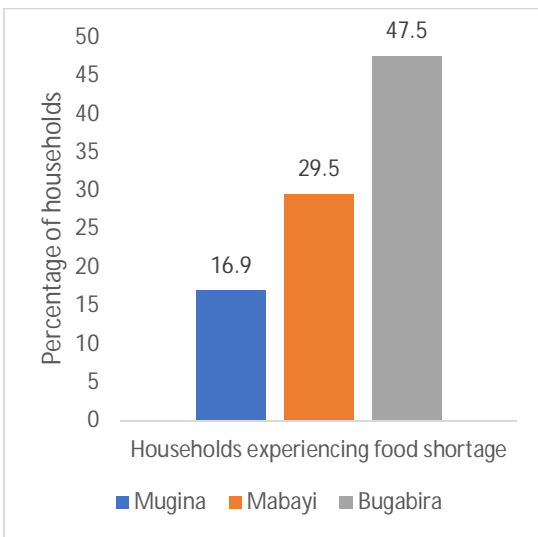


Figure 16: Food shortage by colline

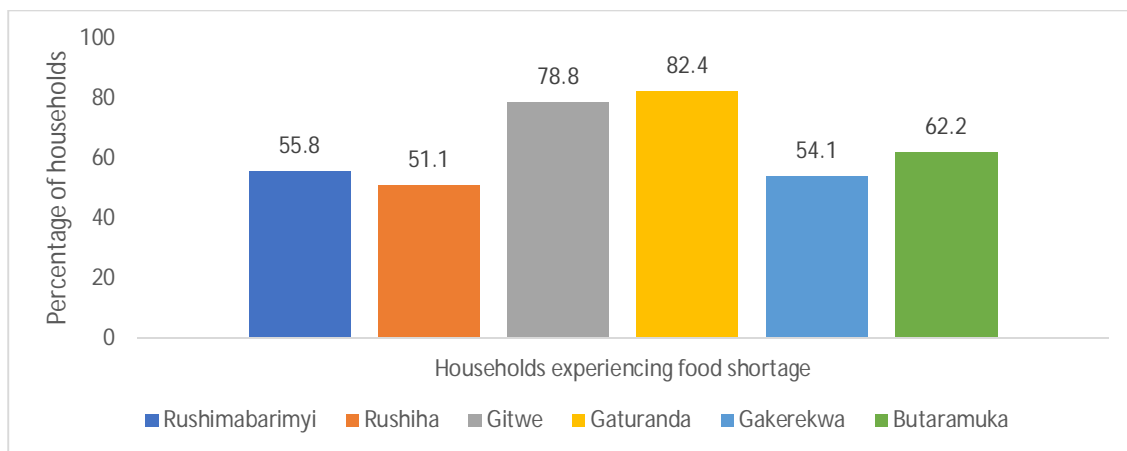


Figure 17: Food shortage by wealth quintile

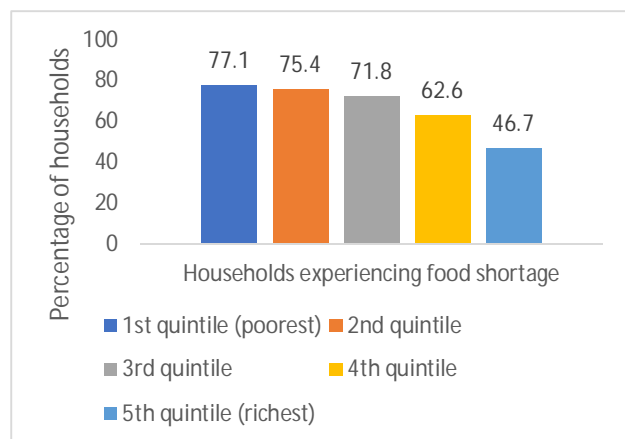
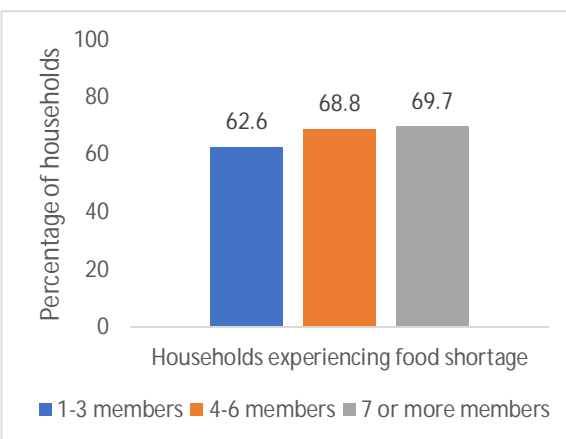


Figure 18: Food shortage by household size



Indicator 3: Proportion of underweight, stunted and wasted children

Anthropometrics variables are good proxy to measure the situation of food security in any country. For this study, such data was collected for children under five years old. As shown in

Figure 19: Underweight, stunted and wasted children in total sample

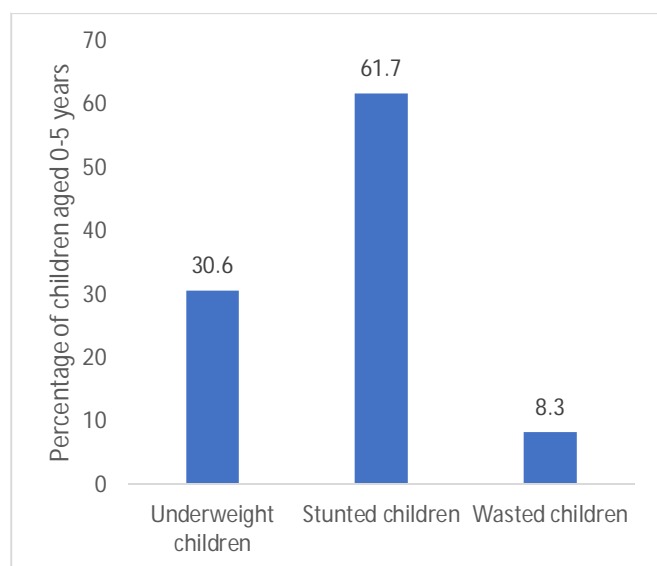


Figure 19, 30.6% of children are

underweight, 61.7% are stunted and 8.3% of them are wasted. The rates are disaggregated by geographical location, wealth quintile and household size in Figure 20-24. While the province of Kirundo has the highest percentage of underweight (34.7% versus 28.1%) and wasted (10.4% versus 6.9%) children, Cibitoke records the highest percentage of stunted children (64.1% versus 58%). With respect to commune, Mugina has the

highest percentage of stunted children (64.5%) while Mabayi has the highest percentage of underweight (41%) and wasted (11.5%) children. It is worrying to note that the big majority of children in Rushimabarimyini (81.9%) and Gakerekwa (72.5%) are stunted. The Gaturanda and Rushiha collines have the highest proportion of underweight (42.3% and 42.2% respectively) and wasted (16.2% and 13.3% respectively) children. The disaggregation by wealth quintile shows

that the proportion of underweight, stunted and wasted children are almost the same across the quintiles. There is a slightly lower proportion of underweight and stunted children for the 'richest' quintile but the difference is very low. There is also not much difference between the anthropometrics results by household size.

Figure 20: Anthropometrics results by province

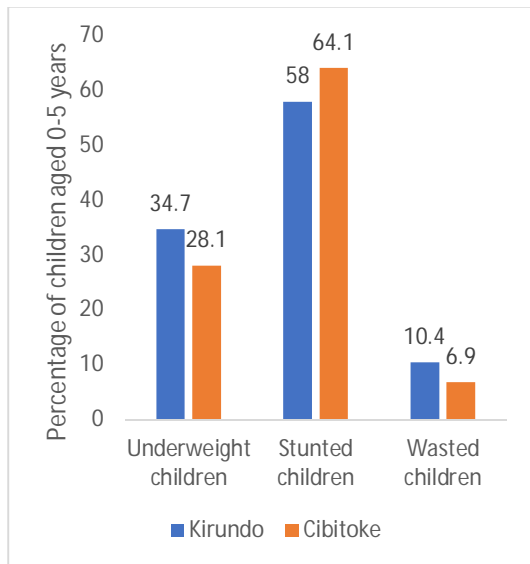


Figure 21: Anthropometrics results by commune

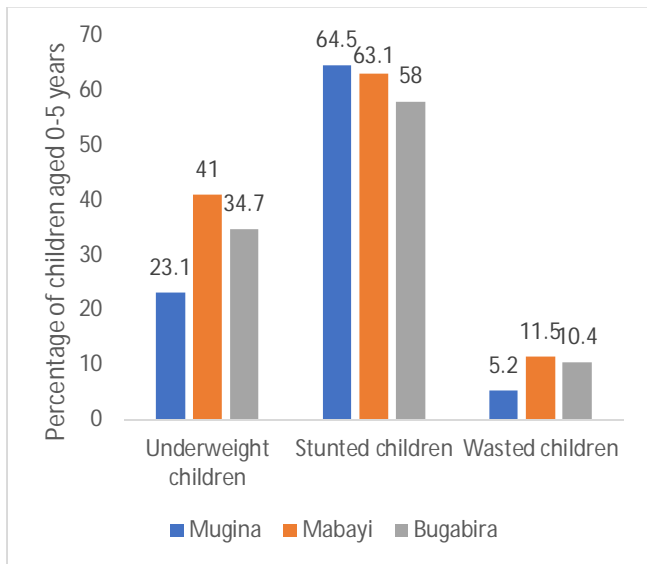


Figure 22: Anthropometrics results by colline

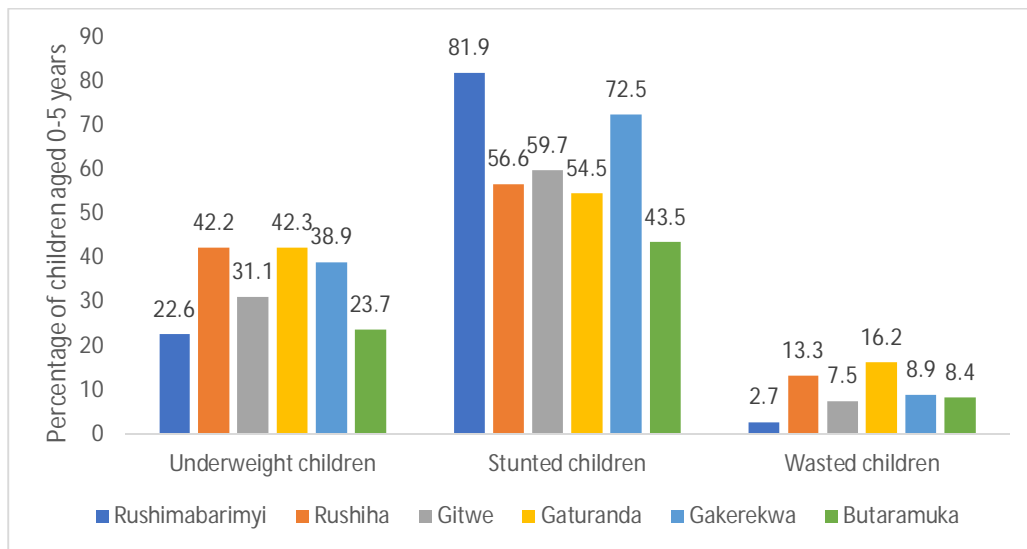


Figure 23: Anthropometrics results by wealth quintile

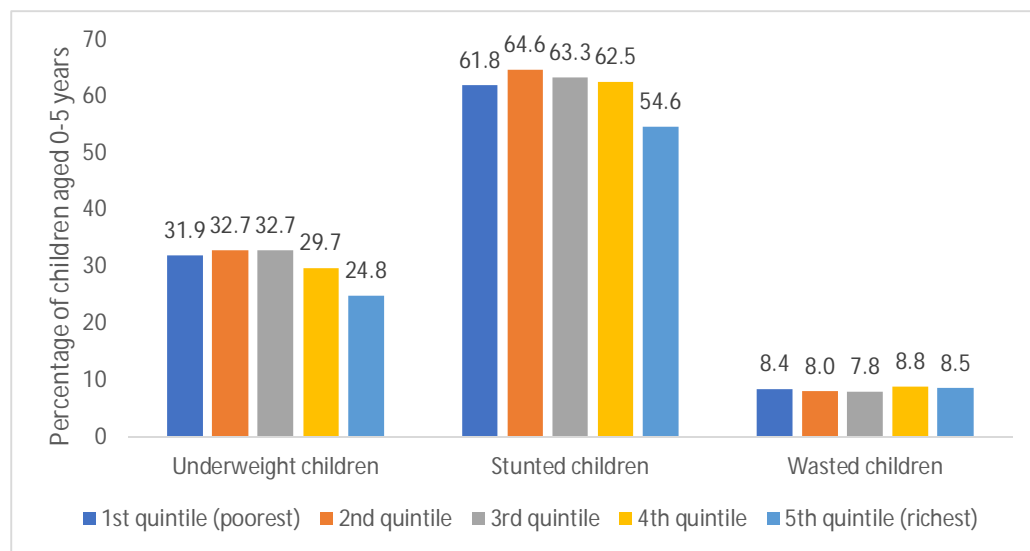
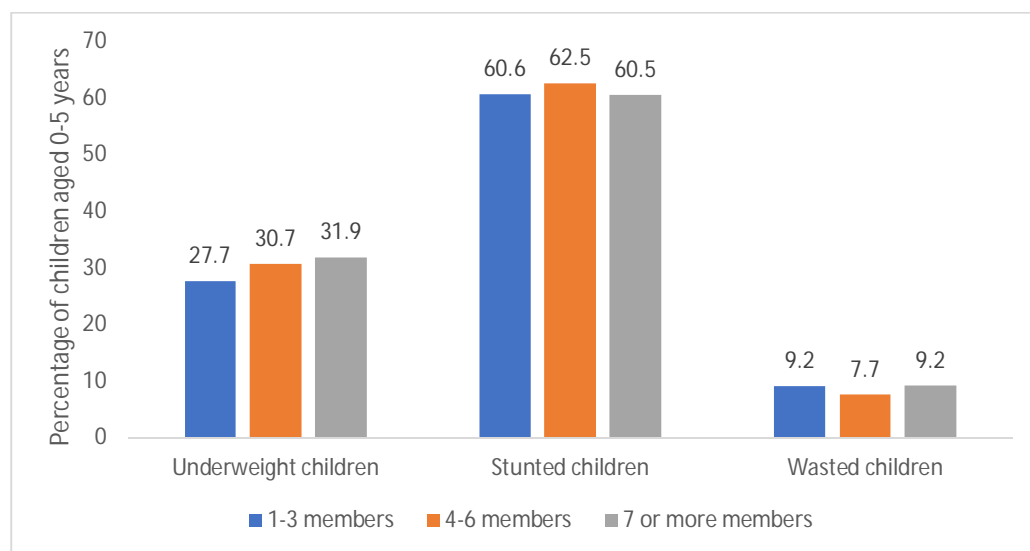
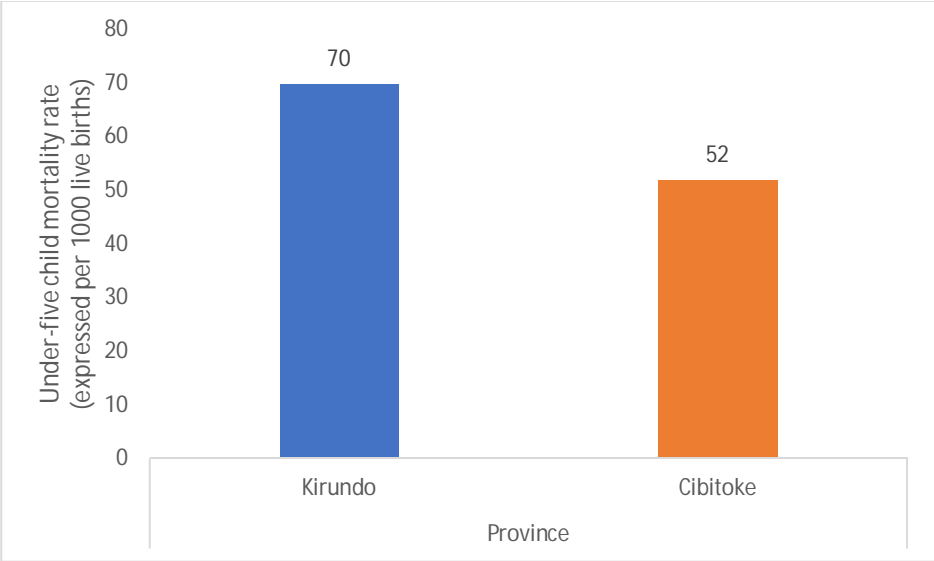
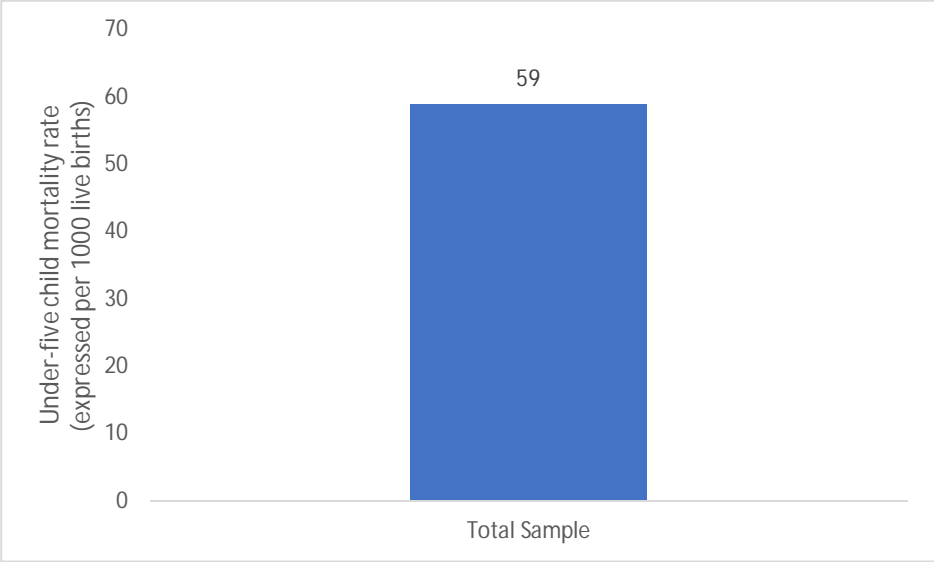


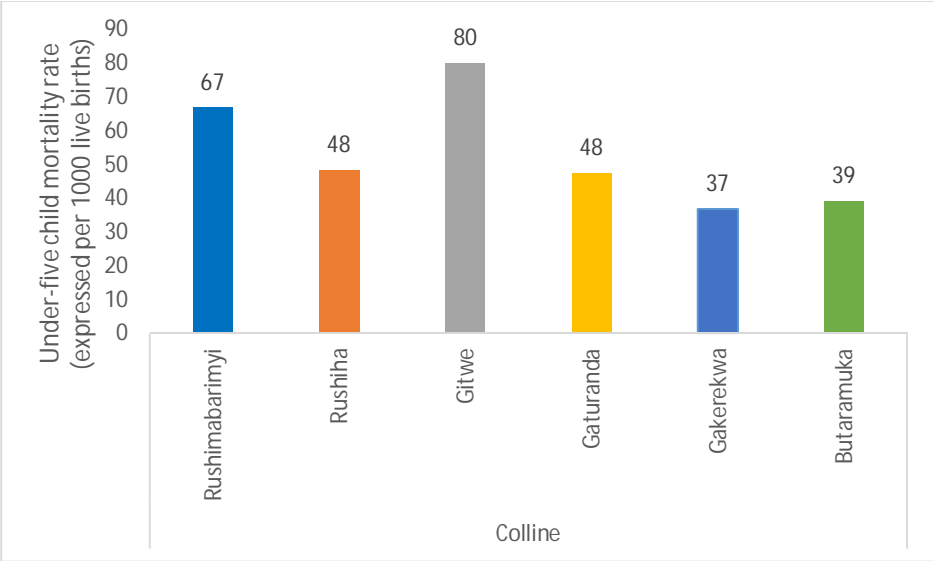
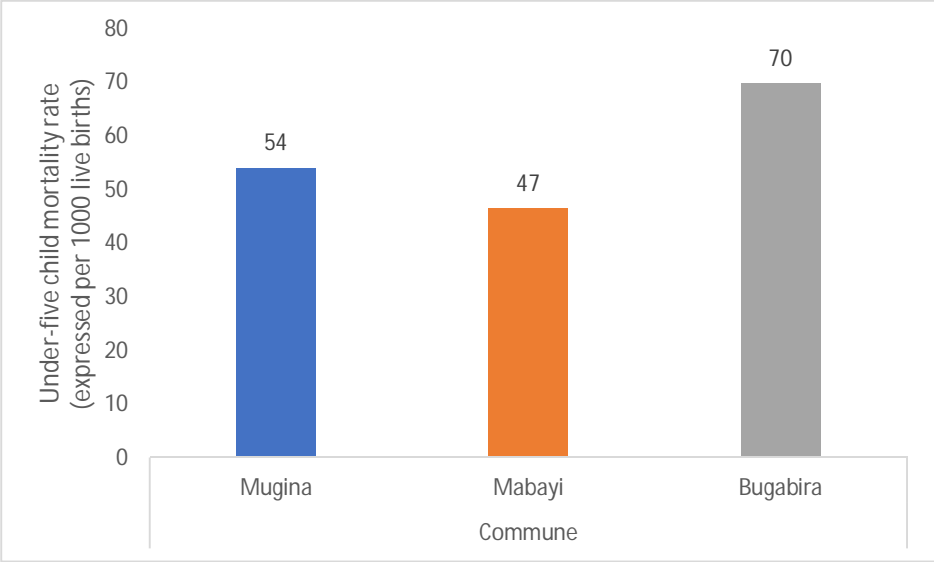
Figure 24: Anthropometrics results by household size

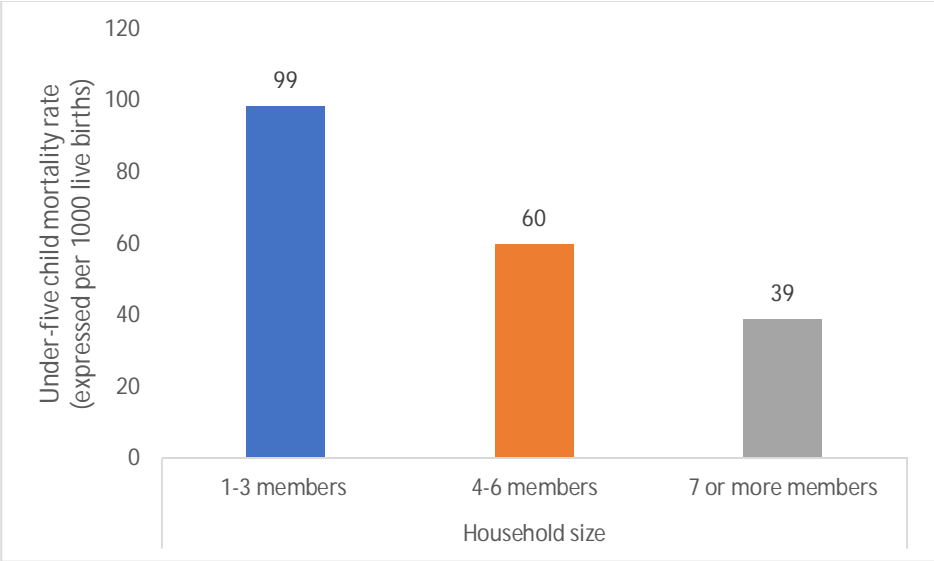
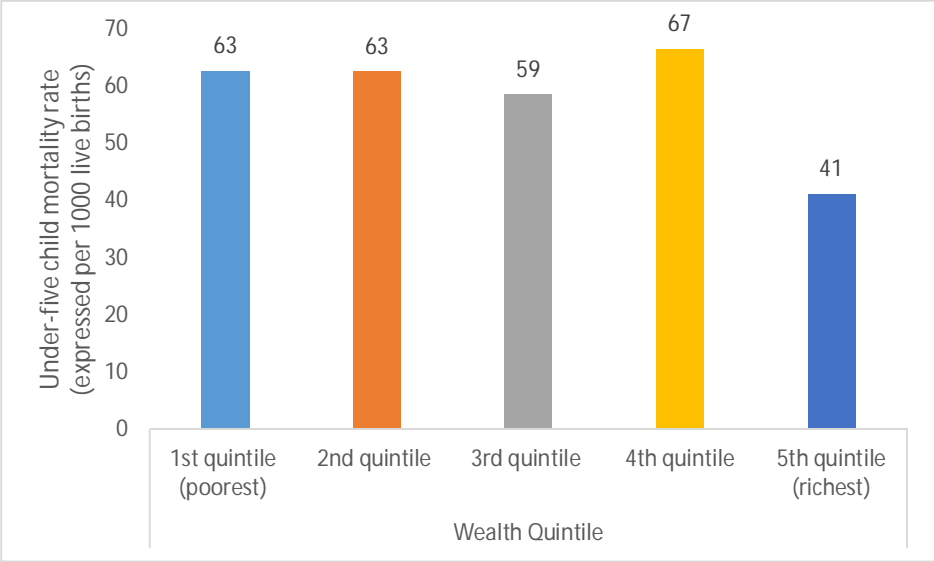


SDG 3: Ensure healthy lives and promote well-being for all at all ages

Indicator 1: Under-five mortality rate

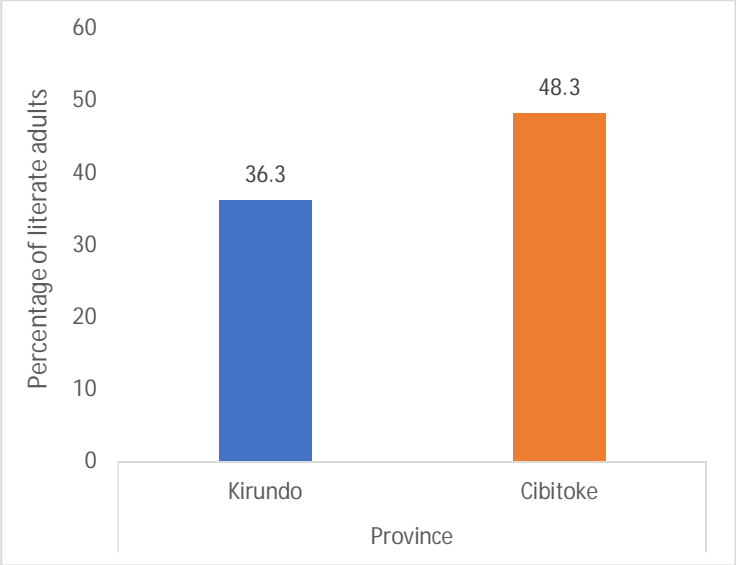
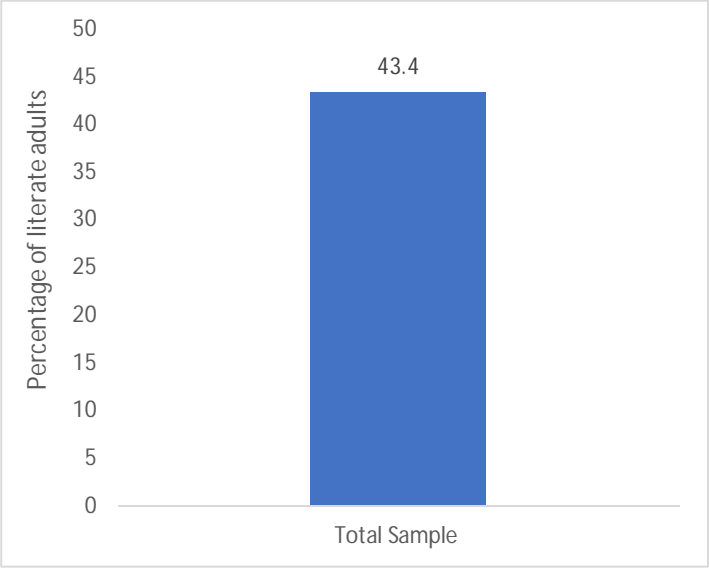


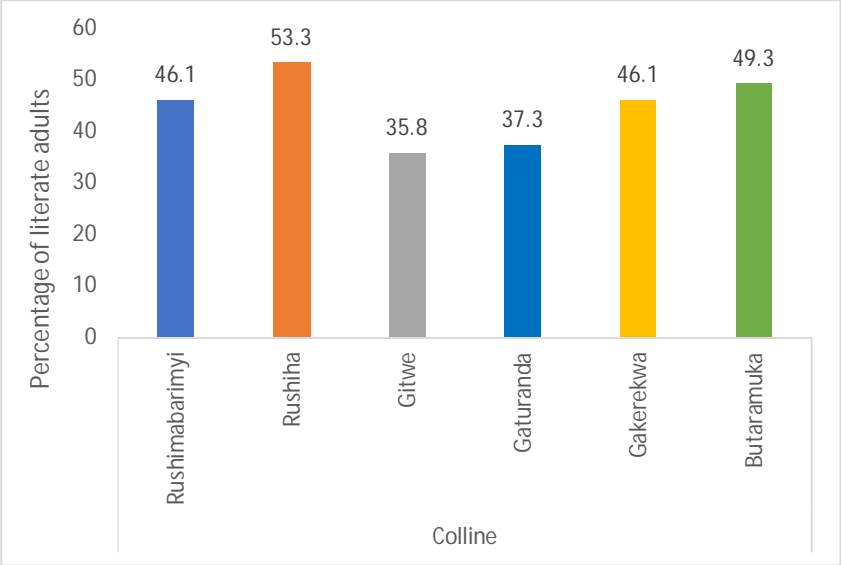
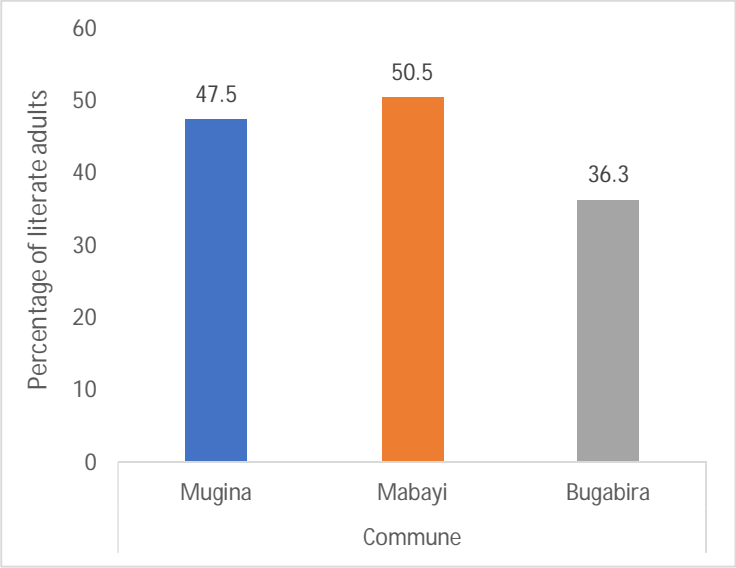


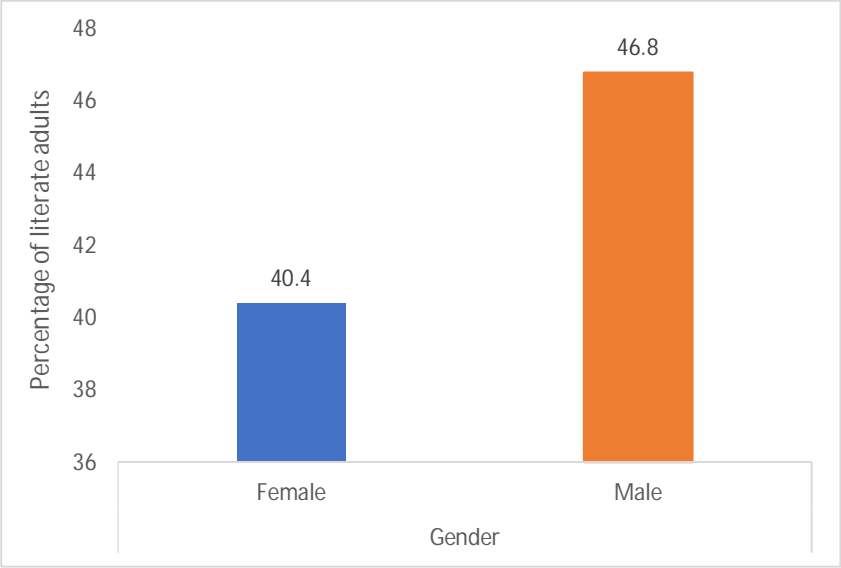


SDG 4: Quality Education

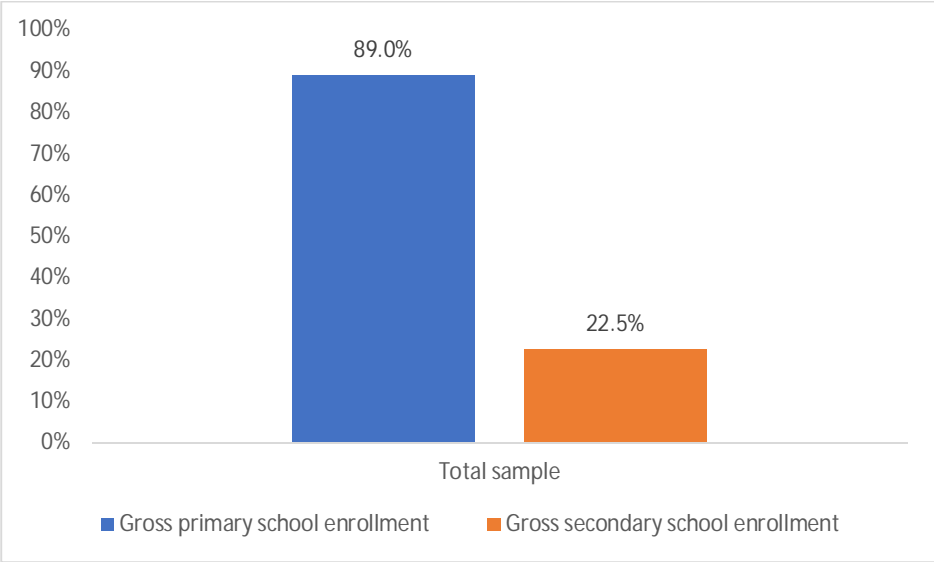
Indicator 1: Adult literacy rate

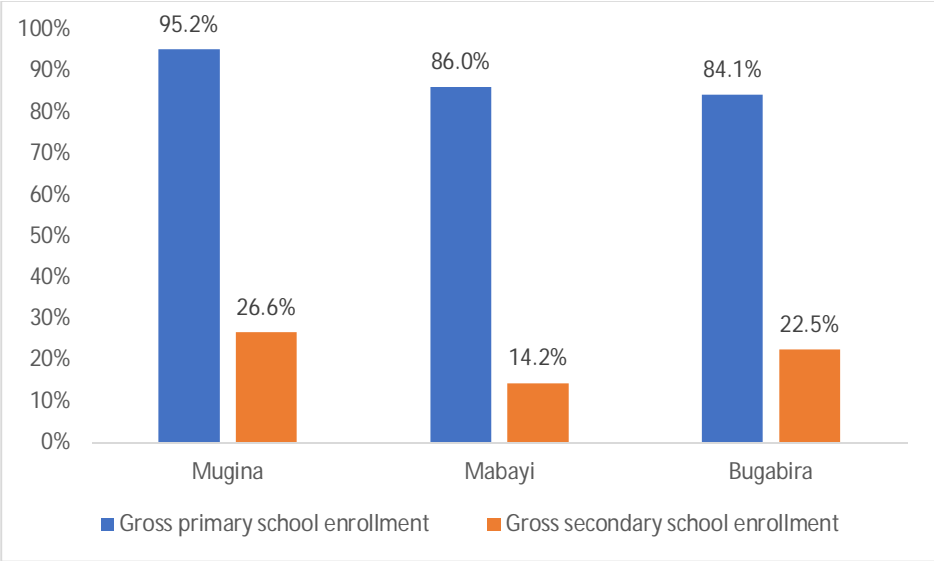
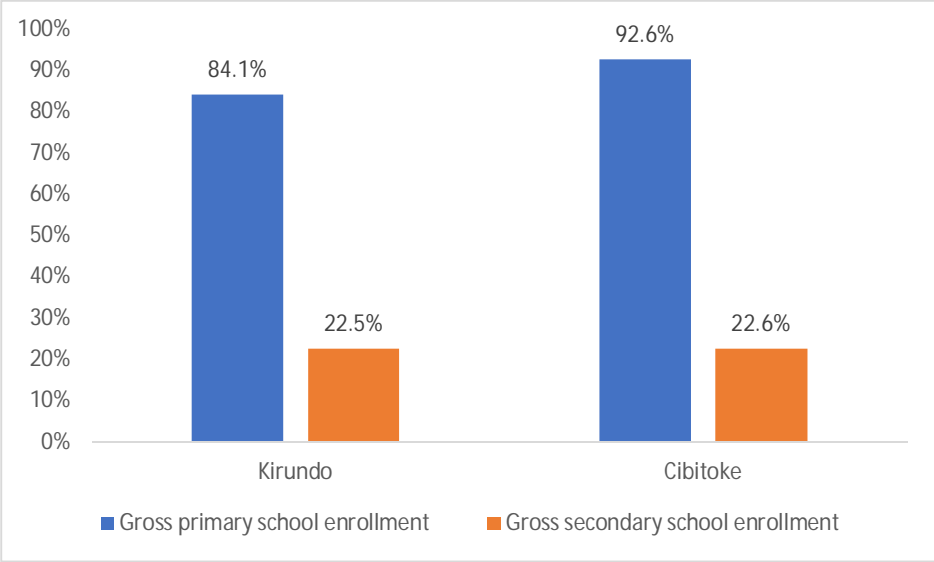


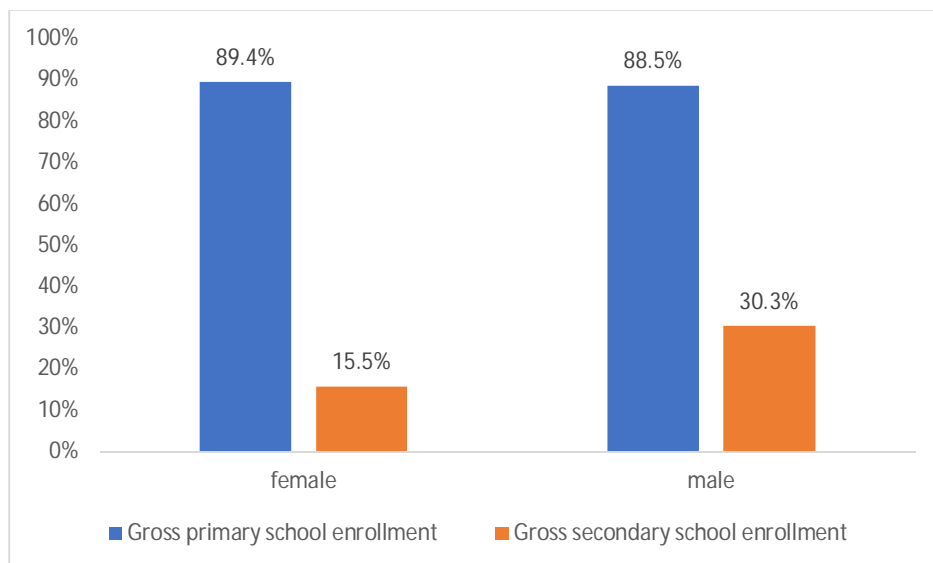
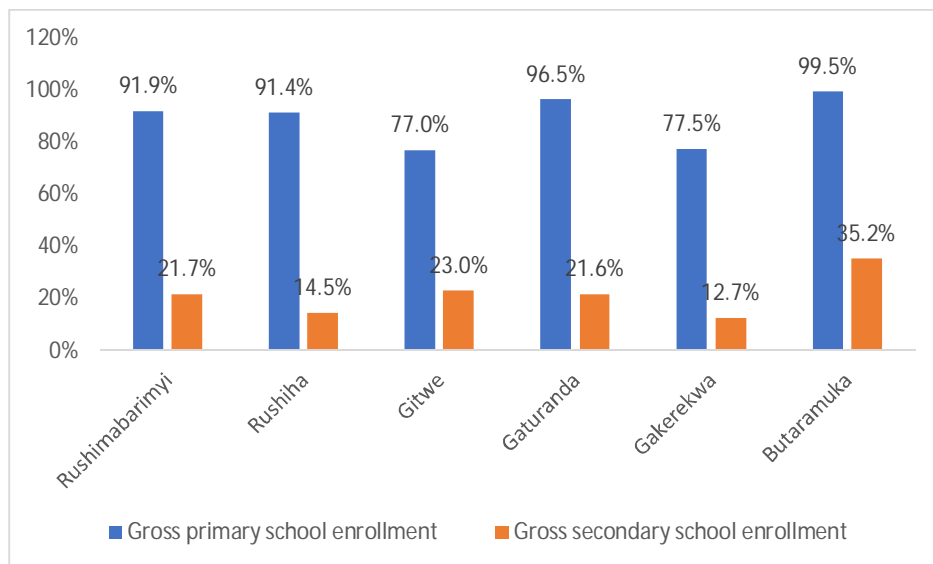




Indicator 2: Gross primary/secondary enrollment rate







Indicator 3: Proportion of schools having access to safe drinking water and sanitary toilets

There are 4 types of schools:

1. Pre schools
2. Elementary school
3. Secondary school
4. Vocational school -- note that there are no vocational schools in the collines surveyed

Pre schools

*Note: there is only 1 pre-school in the collines surveyed, it does not have access to safe drinking water but has access to toilets.

Elementary schools

*Note: there is are 8 elementary schools in the collines surveyed

Only 1 out of the 8 schools has access to safe drinking water.

6 out of the 8 schools have access to toilets.

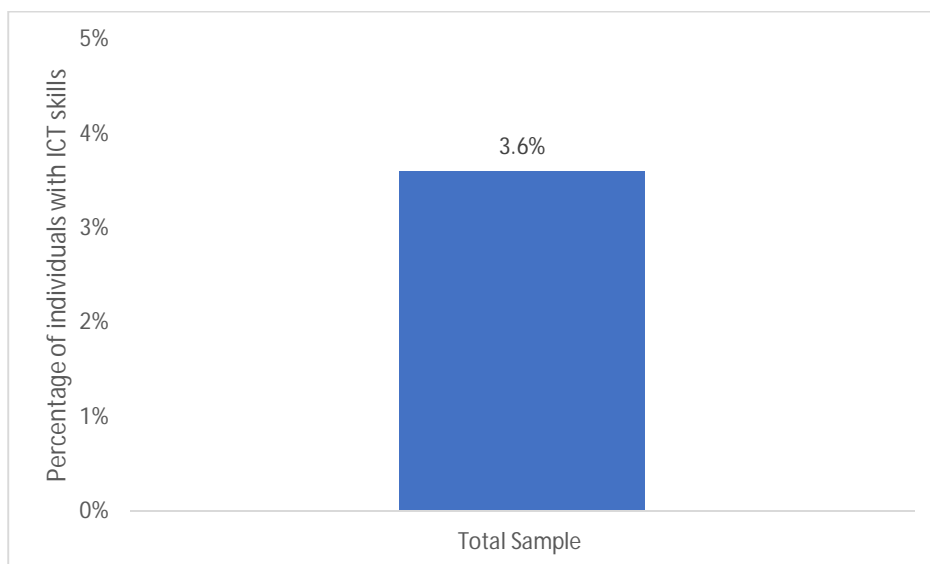
Secondary high schools

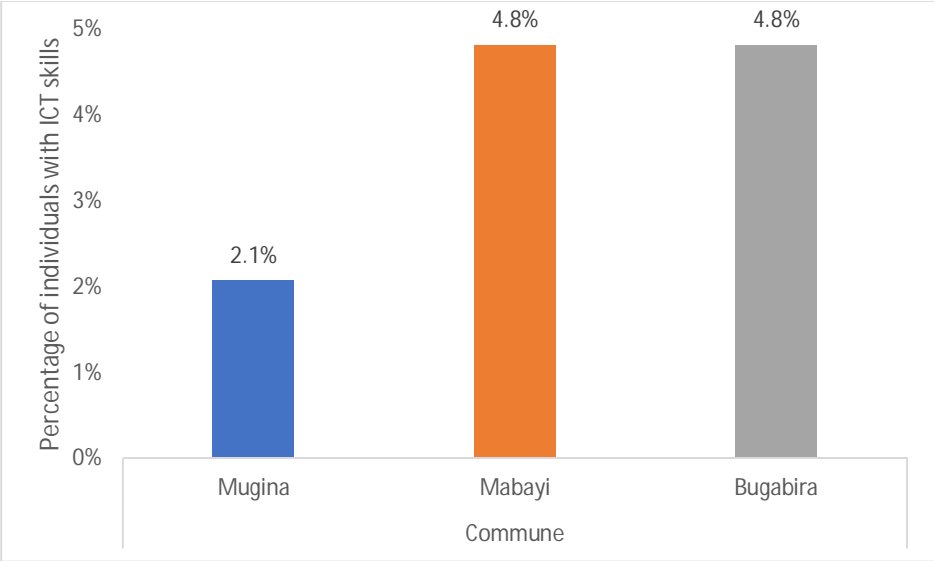
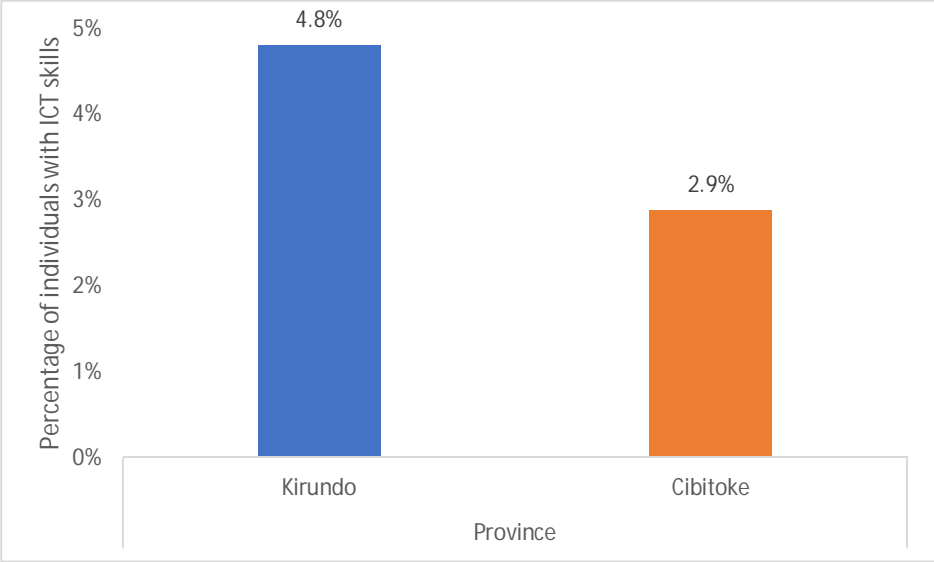
Note: there is are 3 secondary high schools in the collines surveyed

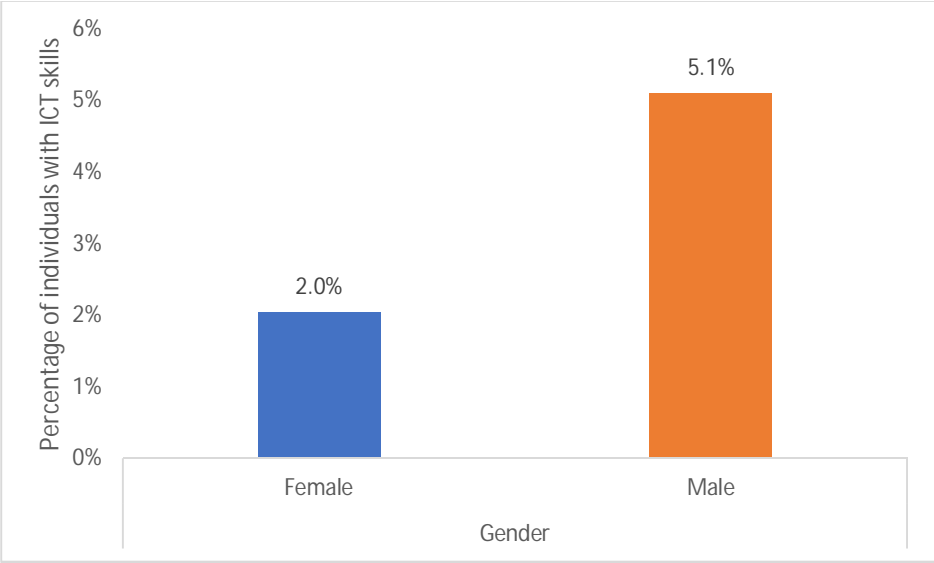
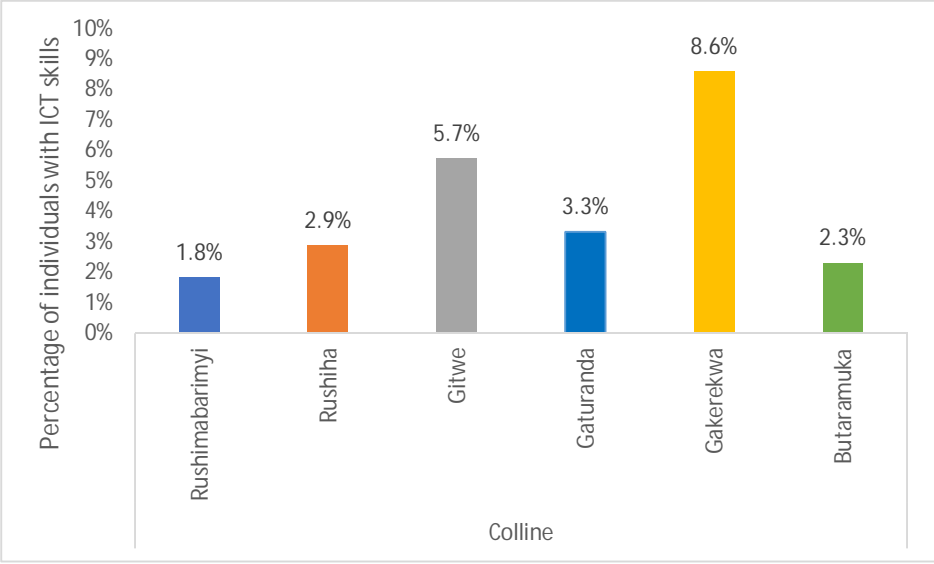
None of the 3 schools have access to safe drinking water.

2 out of the 3 schools have access to toilet.

Indicator 4: Proportion of population with Information and Communication Technology (ICT) skills

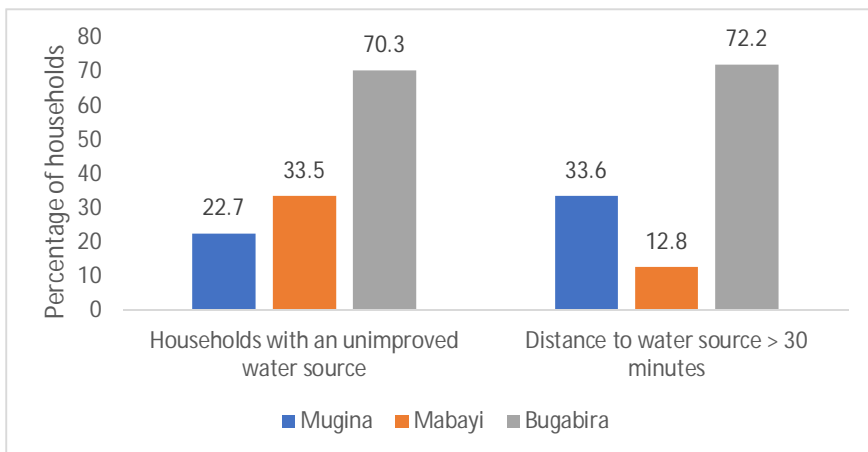
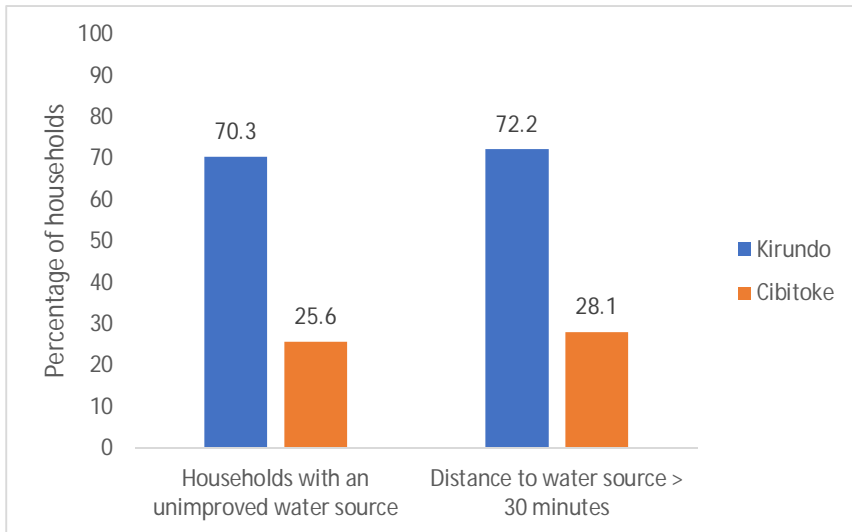
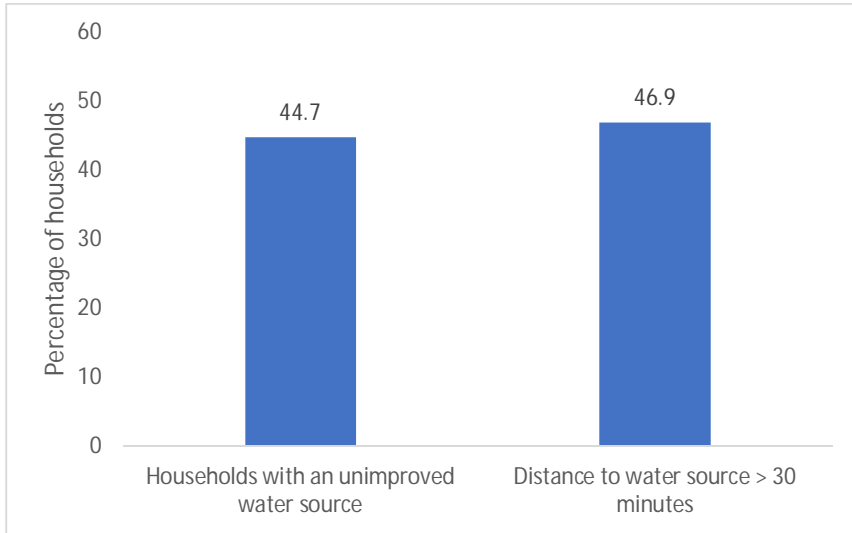


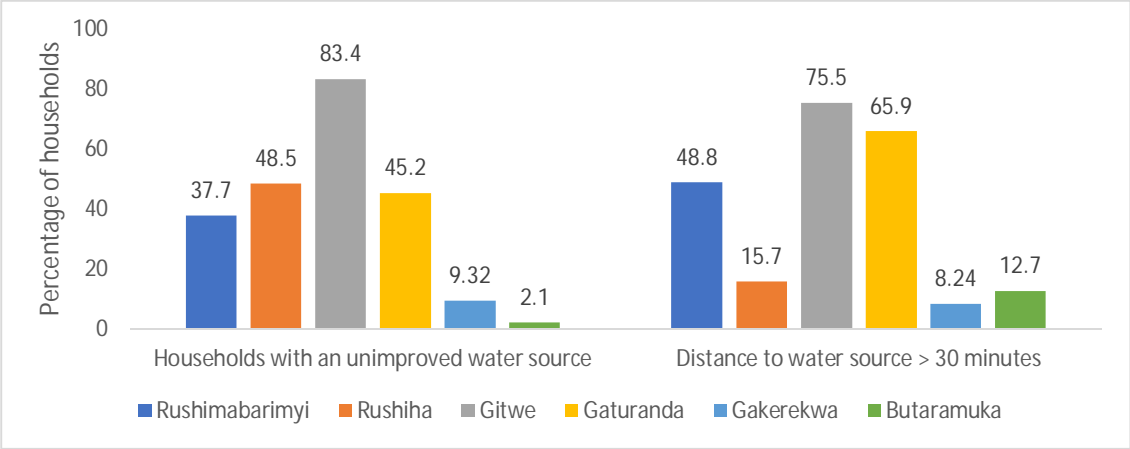




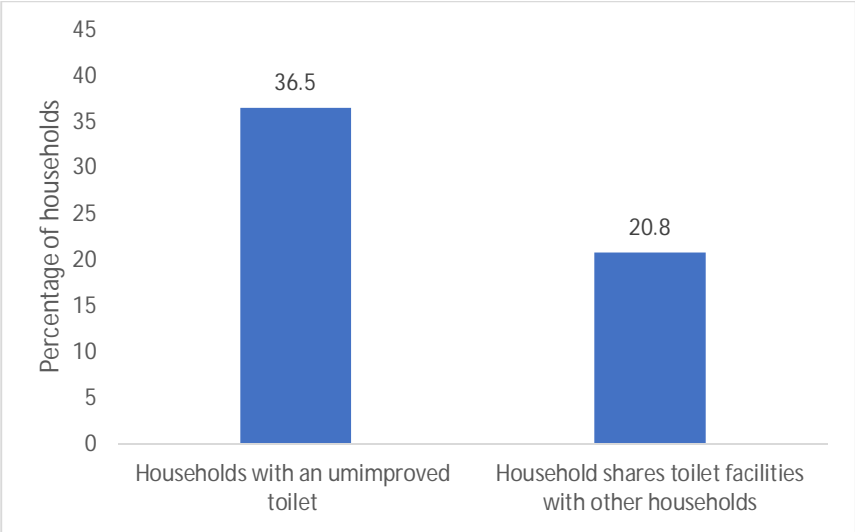
SDG 6: Ensure access to water and sanitation for all

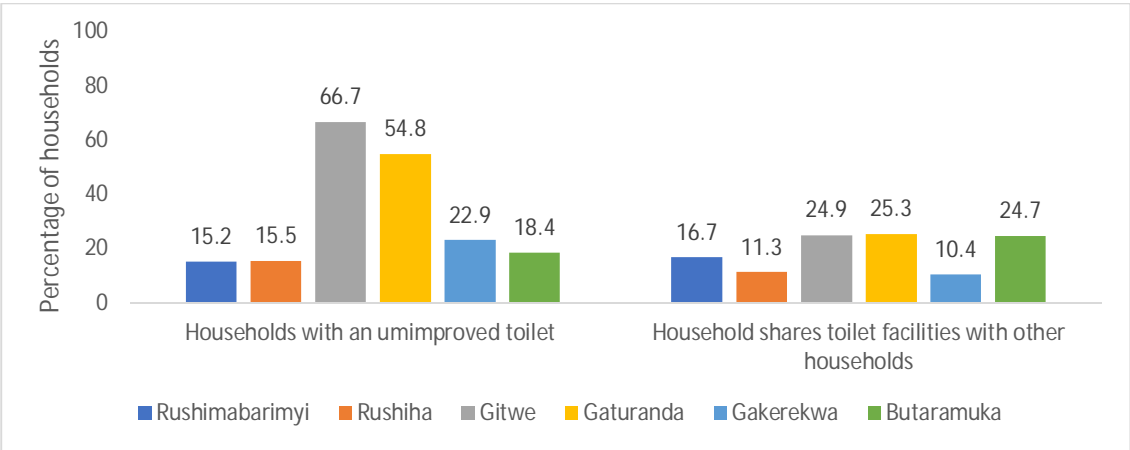
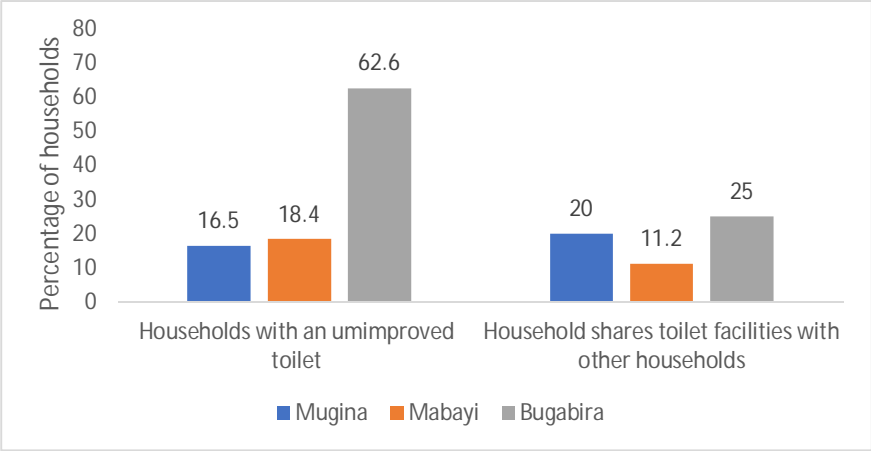
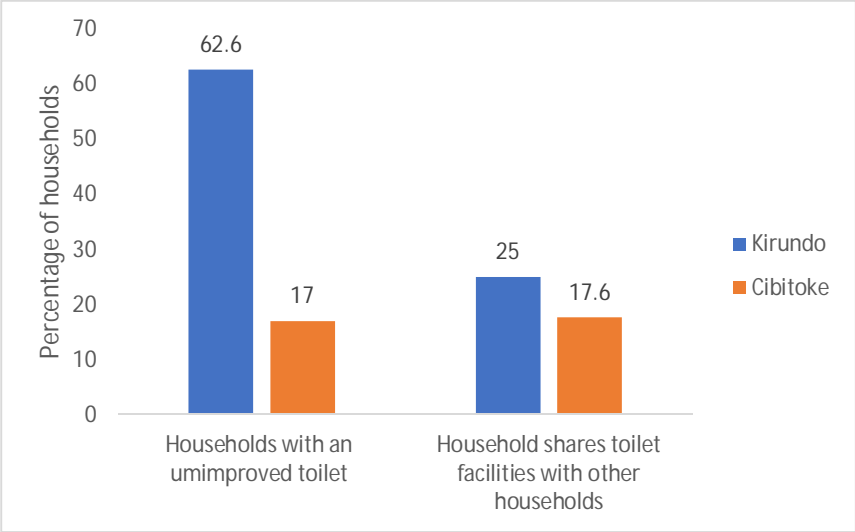
Indicator 1: Proportion of households with an unimproved water source and with distance to water source being greater than 30 minutes





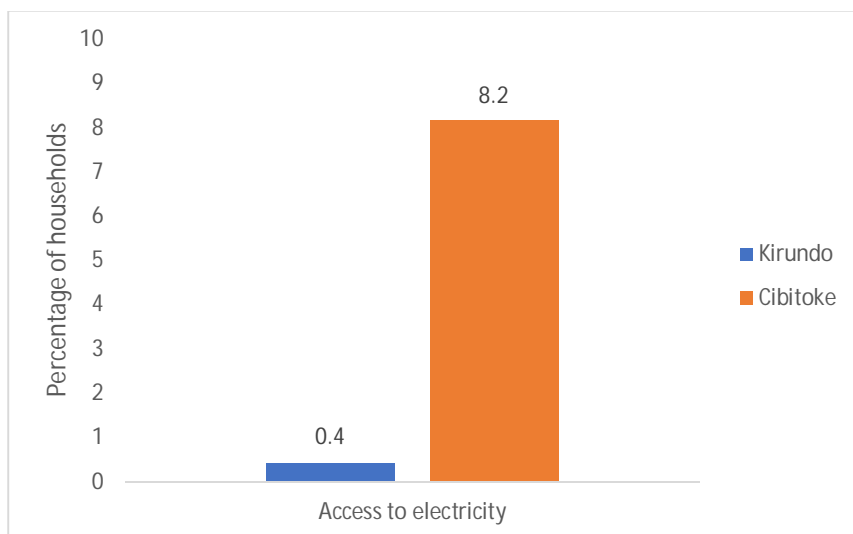
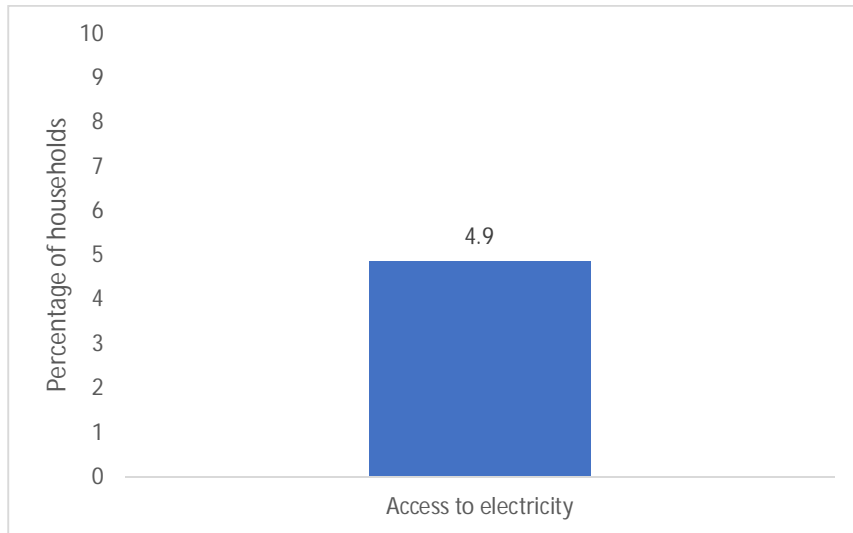
Indicator 2: Proportion of households with an unimproved toilet source and households sharing toilet facilities with other households

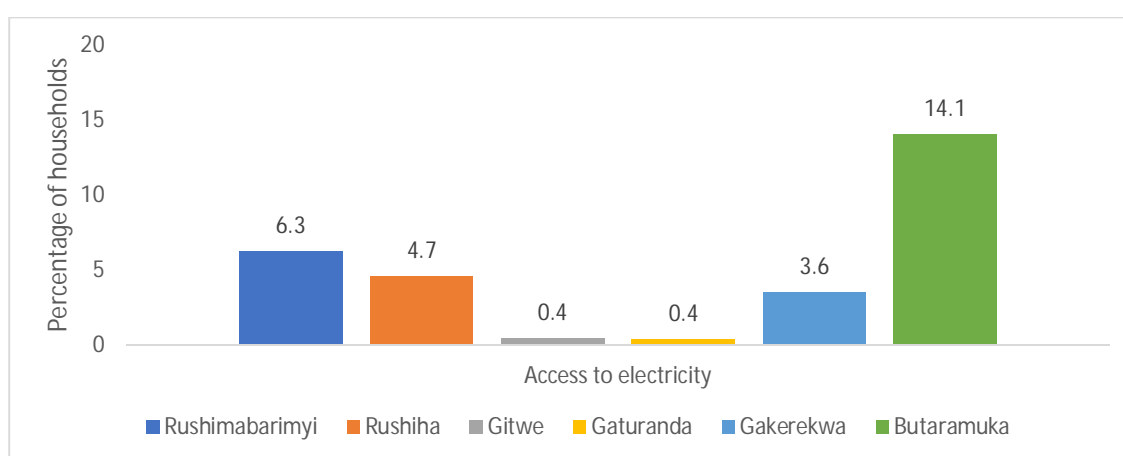
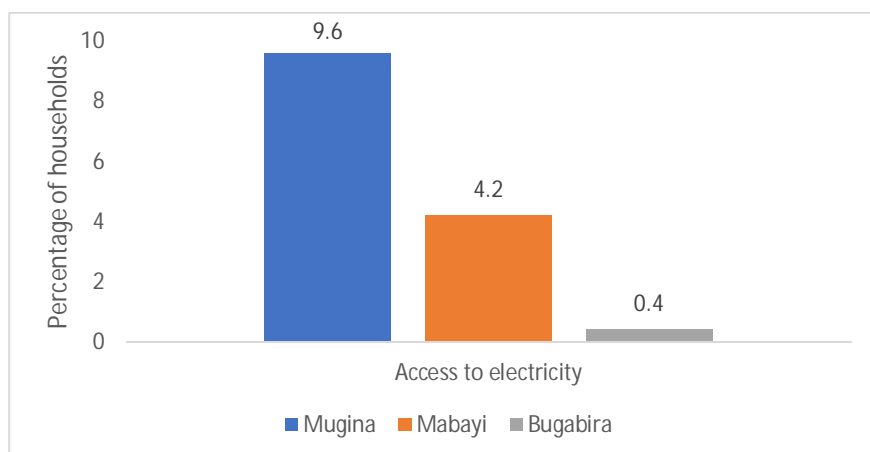




SDG 7: Ensure access to affordable, reliable, sustainable and modern energy

Indicator: Proportion of population with access to electricity





Key findings & recommendations

The key findings of the study along with suggested policy recommendations are summarized below:

- Key finding 1: Monetary poverty is almost universal in the two provinces under study using the international poverty lines of \$1.25, \$1.90 and the national poverty line

Recommendation: Universal approaches to social protection are required in those regions since almost everyone is poor using both national and international definition of poverty. Targeting the poor will not be efficient.

- Key finding 2: 72.8% of the households are multidimensionally poor, that deprived in at least 33% of total weighted indicators of well-being used. Multidimensional poverty is

mostly driven by the dimension *standard of living* with 100% of households using unimproved cooking fuel, 97% having unimproved floor materials, 94.2% having no access to electricity and so on.

Recommendation: Monetary assistance will not be enough to cater for the multidimensional needs of the population. “Cash plus programmes” which includes both cash and access to services and markets such as electricity services should be implemented. Besides, subsidies should be given for cooking fuel, electricity, buying materials for building a dwelling, etc.

- Key finding 3: Only 25% of the households consume an acceptable diet. 66.7% experiences food shortages. 61.7% of the children are stunted.

Recommendation: Households should be given incentives to grow their own crops and rear animals for consumption because food prices can be exorbitant for poor households. The Rwanda’s One Cow per poor family could be applied in those two provinces. Besides, seeds could be given to households as well as some capacity building in the field of agriculture can help them to become more self-sustainable.

- Key finding 4: For every 1000 live births, there is 59 children below the age of 5 who dies.

Recommendation: Child mortality is driven by many factors ranging from lack of adequate diet to absence of health facilities. There should be intense vaccination campaigns in those two provinces. Hospitals and health care centres should be well-equipped so as to deliver services especially to young children. The health centre could also be used as a hub where a package of services including food, vaccinations, clean water and information to parents are provided.

- Key finding 5: The Education quality is very poor in the two provinces. Less than half, 43.4% of adults are literate. Primary school enrollment is relatively high (89%) while secondary school enrollment is very low (22.5%). There is a lower proportion of girls enrolled in both primary and secondary schools. Schools have very poor access to safe drinking water and sanitary facilities. Only 3.6% of the population have ICT skills.

Recommendation: Given the immense opportunities that an educated population can bring in those two provinces, high investment in education is highly encouraged. In the immediate term, all schools should be equipped with safe drinking water and toilets. The presence of toilets will also increase the likelihood of a girl to go to school. Secondary education should be made free in those provinces given that almost everyone live in poverty. Food packages in the form of a bread or a fruit could be given to students to encourage school attendance.

- Key finding 6: Access to water and sanitation as well as electricity is quite problematic in the two provinces. 44.7% of households do not have access to an improved water source. It takes more than 30 minutes for 46.9% of the households to get water. On the other hand, 36.5% uses an unimproved water source and 20.8% shares their toilet facility. Only 4.9% of the households have access to electricity.

Recommendation: Safe drinking water and sanitation facilities are essential to ensure a healthy population. Access to clean piped water should be made a priority. Households should be encouraged to build improved toilets, they could be provided with the materials and skills needed. Access to subsidized electricity or alternatives for electricity such as solar panels should be provided at a lower price to the inhabitants of Kirundo and Cibitoke.

- Key finding 7: All the communes of the two provinces are not doing very well in the SDG indicators. Nonetheless, it is observed, almost consistently across the analysis, that Bugabira commune from the province of Kirundo is the poorest and most deprived of all.

Recommendation: Social assistance should be provided to all the collines and the communes under study. In the immediate term, urgent assistance is required for the inhabitants of Bugabira.

- Key finding 8: Not much differences are observed across wealth quintiles because almost everyone in the two provinces are poor. It is sometimes observed that the “richest” quintile is doing relatively better than the other 4 quintiles but not by a high percentage.

Recommendation: Targeted social assistance based on income or wealth will not be effective in the regions under study. As mentioned earlier, universal approaches are encouraged.

- Key finding 9: Gender inequality is observed across some indicators such as school enrollment, adult literacy rate and ICT skills where it is observed by males are more privileged than females.

Recommendation: Girls and women should be more empowered in the regions under study. Girls should be encouraged to go to school. Women should be made aware of their rights. Information sessions amongst women can be organized in community centres to increase their empowerment and encourage mothers to send their daughters to school. Adult classes can also be organized to promote literacy.