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A Profile of Sustainable Development Goals in Gikindu Location, Murang'a County, Kenya

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A Profile of Sustainable Development Goals in Gikindu Location, Murang'a County, Kenya

Abstract

Since the adoption of the SDGs, Kenya has made great advances in placing the country on a firm implementation path (Republic of Kenya, 2017) Inadequate data however continues to be a challenge in assessing progress of SDG implementation. The main objective of this study was to assess progress towards achieving the SDG targets in Gikindu Location, Murang'a County. Data used was collected using CBMS methodology entailing as census of household in Gikindu location. A total of 3479 households were interviewed. Results indicate that for some of the SDG indicators, the county is on track to meet the target. For other indicators, however, the county is far away from the target and deliberate effort needs to be made if the targets are to be met.

Key words: SDG, indicators, progress, patterns

JEL codes: I31 I32 021

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I. Introduction

Between 2000 and 2015, the global development agenda was inspired by the Millennium Development Goals (MDG). These were eight international development goals established following the adoption of the United Nations Millennium Declaration in 2000. Kenya was committed to the MGD and mainstreamed them in its development processes. The MGD resonated well with the country's post-independence agenda of eradicating disease, ignorance, and poverty. Kenya's commitment bore some fruits as evidenced by the progress made in achieving the MDG.

In terms of MDG Goal 1, eradicating extreme poverty and hunger, Kenya reduced the number of people living below the national poverty line from 43.4% in 1990 to 36.1% in 2015-2016 (Kenya National Bureau of Statistics, 2018b). While these reductions were slower than expected, the country began the Sustainable Development Goals (SDG) journey at an advantage. Even greater achievements were made with regard to Goal 2 (universal primary education), and net attendance ratio rose from 78.7% in 2003 to 85.7% in 2014. Much has also been achieved in terms of gender equality: the primary school gender-parity index rose from 0.94 to 1.02 and the secondary gender-parity index rose from 0.89 to 1.08 (Central Bureau of Statistics et al., 2004; Kenya Bureau of Statistics et al., 2015). Good progress has been made in the improvement of maternal and child health, though both still fell far below the target set for 2015, as well as in the fight against HIV/AIDS.

With the expiration of the MDG, the United Nations set SDG to guide the post-2015 agenda. The SDG cover a broader range of social and economic development issues compared to the MDG, including poverty, hunger, health, education, climate change, gender equality, water, sanitation, energy, urbanization, environment, and social justice. Kenya is committed to the implementation, monitoring and evaluation of the SDGs. Since the adoption of the SDGs, Kenya has made great advances in placing the country on a firm implementation path (Republic of Kenya, 2017). Inadequate data however continues to be a challenge in assessing progress of SDG implementation. The main objective of this study was to assess progress of SDG indicators in Gikindu Location, Murang'a County, and to show how these indicators vary by households' socioeconomic status.

II. Methodology, data and study site

This section describes the methodology used in this study, data and provides a brief description of the study site

2.1. Methodology

This study used descriptive analysis to generate SDG indicators for Gikindu Location, Murang'a County. Descriptive statistics and tabulations were used to describe the status of the SDG indicators in the study area. The overarching commitment of the SDG was "to leave no one behind." To realize this, relevant vulnerable groups were taken into account whenever possible. SDG indicators were disaggregated into relevant categories for further understanding of the dynamics that influenced the achievement of SDG in Gikindu Location.

2.2. Data

This study used data collected from Gikindu location using the CBMS¹ methodology. In line with this methodology, a census of households in Gikindu location, Murang'a County was done. The census took place between February and March 2018. The data was collected using a household questionnaire. The questionnaire was loaded to android tablets which were used to collect data. Using this application, the interview, encoding of answers, and recording of household GPS location were accomplished in one visit. The data from the tablets were sent to the CBMS Portal, and consolidated data were then available for download. The downloaded data was processed using STATA software.

2.3. Study site

Gikindu location is found in the central part of Kenya. It has three sub-locations: Kambirwa, Gikindu and Mirira. Agriculture is the main economic activity in this location. The people mainly engage in small-scale crop farming and livestock husbandry. The most common crops grown include maize, beans, potatoes, and cassava. The livestock reared include cattle, goats, and sheep. A total of 3,479 households were covered with a total of 9,482 individuals interviewed. Mirira sub-location had

¹ CBMS is a system of collecting data at the local level from all households in a chosen area and seeks to promote evidence-based decision-making by integrating data into the planning and implementation of projects (Reyes et al., 2014)

the highest number of households interviewed, followed by the Kambirwa and Gikindu. Below is a map of Murang'a County showing the position of Gikindu location within the Muranga County. The map also shows the position of Murang'a county within Kenya. Table 1 provides the distribution of households and individuals by gender and sub-location.

Figure 1: Map of Murang'a County Showing Gikindu Location

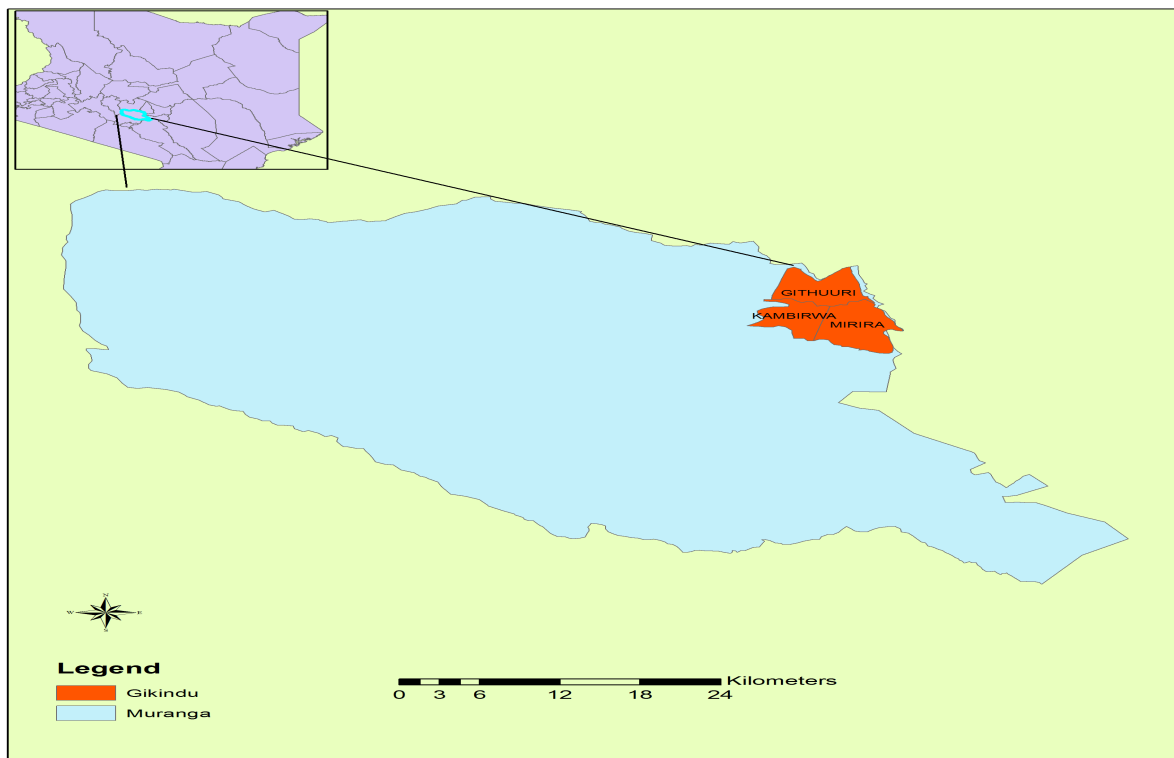


Table 1: Households and Individuals in Gikindu Location, by Sex (2018)

Location	Sub-location	Households Interviewed	Sex		
			Men	Women	Total
Gikindu	Kambirwa	1,225	1,778	1,830	3,608
	Gikindu	931	1,226	1,262	2,488
	Mirira	1,323	1,684	1,702	3,386
	Total	3,479	4,688	4,794	9,482

Source of data: CBMS Census, Gikindu Location, 2018.

III. CBMS Census Results

This section presents the results. The results are presented in line with the SDG goals. This study covered most but not all the SDG goals.

3.1. SDG Goal 1: End poverty in all its forms everywhere

We focused on two indicators under this goal: eradicating extreme poverty (measured as living below 1.25 dollars per day) and reducing, by at least half, the proportion of people who lived below the national poverty line. In Kenya, individuals are considered to be poor or to live below the national poverty line if their monthly adult equivalent total consumption is less than Kshs. 3,252 in rural and peri-urban areas and less than Kshs. 5,995 in core urban areas. Individuals living below the national poverty line in Kenya increased from 43.4% in 1990 to 46.6% in 2005-2006 but then declined to 36.1% in 2015-2016 (KNBS, 2018c). Extreme poverty also declined from 19.5% in 2005-2006 to 8.6% in 2015-2016 (KNBS, 2018c).

We found that 18% of the population in Gikindu Location, was in extreme poverty (i.e., their daily expenditure was less than 1.25 dollars). About 24% lived below the national rural poverty line. This rate is slightly below the national poverty rate. Mirira had the highest proportion of residents who lived below the national poverty line, followed by Kambirwa. The Gikindu sub-location was the least poor. Women were poorer than men, and disabled people were more likely to be poor compared to those who not disabled. More details are presented in Table 2.

Table 2: Proportion of Individuals below International and National Poverty Line, Gikindu Location

Total	Sub-location			Gender		Disability status	
	Kambirwa	Gikindu	Mirira	Men	Women	Disabled	Not disabled
Number	3608	2488	3386	4688	4794	131	9351
Proportion living below international poverty line	25.03	23.95	22.71	24.10	23.74	32.06	23.80
Proportion living below national poverty line	19.73	18.13	16.10	18.11	17.92	28.24	17.87

Source of data: CBMS Census, Gikindu Location, 2018.

Among the initiatives of the Murang'a County government to alleviate poverty in Gikindu

Location, and elsewhere in the county, are a dairy-marketing support program (Murang'a County Creameries) and a women's co-operative (Murang'a Women Sacco). Most farmers in Murang'a are mixed farmers who own one or two dairy cattle and also farm crops. Beginning in 2015, the county government grouped small-scale dairy farmers into thirty-five dairy co-operatives under the umbrella of Murang'a County Creameries. Gikindu Dairy Cooperative, consisting of sixty-seven members in Gikindu Location, was a new cooperative and benefited from milk coolers procured by the county government and a milk supply contract with Brookside Dairies, Kenya's largest milk processor. As a result of these interventions, the price of milk increased from Ksh. 18 to Ksh. 35 per liter, a price secured by the contract. The income that small-scale dairy farmers receive in Gikindu Location has greatly improved, adding to poverty-reduction efforts (Republic of Kenya, 2018)

Murang'a Women Sacco is an umbrella organization that brings together women's table banking groups across Murang'a County. Two women's table-banking groups in Gikindu Location—Gikindu Women Star, with thirty-nine members from the Gikindu sub-location, and Mirira Mwangaza, with fifty-four members from the Mirira sub-location—are part of the organization. The county government supports economic empowerment of members by matching their contributions with county grants to fund implementation of investment ventures. Recipients are also awarded county government tenders. Among the projects that have been undertaken is the construction of student hostels at the Murang'a University of Technology.

Since 2015, the national government has conducted cash transfers to the elderly, the orphaned, and the disabled through the Inua Jamii National Safety Net Programme. One hundred ninety-eight residents of the Gikindu sub-location have benefitted from the program. Each beneficiary receives Ksh. 4,000 monthly in an effort to alleviate extreme poverty.

3.1.1. Multidimensional poverty

The multidimensional poverty index (MPI) is an index that measures the nature and intensity of poverty based on the number of deprivations that an individual may experience (Alkire & Robles, 2017). MPI has three dimensions: health, education, and standard of living. Table 3 gives the dimensions, indicators, deprivation thresholds, and weights of the MPI computed in this study. Table 4 shows that the MPI for Gikindu location is 0.14. This means that approximately 34% of households in this location were MPI poor. This means they were deprived in either all the dimensions of an indicator or in combinations across dimensions. Multidimensional poverty was highest in Gikindu Location, followed by Kambirwa and Mirira.

Table 3: Dimensions, Indicators, Deprivation Thresholds, and Weights of MPI

Dimension	Indicator	Deprived if ...	Relative weight
Living standards	Electricity	The household has no electricity	1/15
	Housing	The roof of the main house is made of grass, makuti, or tin and the walls are made of wood, iron sheet, grass, or tin	1/15
	Sanitation	The household does not have access to improved toilet facilities.	1/15
	Drinking water	The household does not have access to clean drinking water.	1/15
	Assets	The household does not own more than one radio, TV, refrigerator, car, bicycle, land, livestock	1/15
Education	Years of schooling	No household member has completed primary education.	1/6
	School attendance	At least one school-aged child (6-13 years) does not attend school	1/6
Health	Child Mortality	At least one child has died in the family	1/6
	Malnutrition	At least one member is malnourished	1/6

Source of basic data: CBMS Census, Gikindu Location, 2018.

Table 4: Indicators of Multidimensional Poverty, Gikindu Location (2018)

Indicators	All	Kambirwa	Gikindu	Mirira
MPI Index	0.14	0.14	0.15	0.12
MPI Poor	33.54	33.8	37.92	30.23
Poverty Intensity	0.40	0.40	0.40	0.40

Source of basic data: CBMS Census, Gikindu Location, 2018.

3.2. SDG Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

This study focused on two indicators: prevalence of moderate or severe food insecurity and prevalence of malnutrition. Kenya largely depends on rain-fed agriculture for its food requirements,

but ongoing climate change has made rainfall increasingly erratic. Furthermore, 80% of in Kenya is either arid or semi-arid with very low productivity. This implies that food security is not assured in many parts of the country, so some areas are dependent on relief food from the government and other donors. According to the 2015-2016 Kenya Household and Budget Survey, the national food poverty headcount rate for individuals was 32%(Kenya National Bureau of Statistics, 2018b).

Gikindu Location is part of the 20% of Kenyan land that includes arable areas that seldom experience food shortages. Our study revealed that only 1.55% of the households in Gikindu Location experienced food shortages in the three months prior to the census. Kambirwa sub location was the most affected (3.67% experienced hunger) while Mirira sub-location was the least affected (only one household experienced food shortages). Table 5 presents the food shortage situation in Gikindu Location. Other than hunger, the study also considered the nutritional status of children below 5 years of age. The results showed that 2.01% of children in Gikindu Location were underweight and about 0.63% were severely underweight. Table 6 shows that Mirira sub-location had the highest proportion of underweight and severely underweight children, closely followed by Kambirwa.

Table 5: Proportion of Households that Experienced Hunger, Gikindu Location (2018)

Sub-location	Households whose members experienced hunger	Total number of households	Proportion (%)
Kambirwa	45	1,225	3.67
Gikindu	8	931	0.86
Mirira	1	1,323	0.08
Total	54	3,479	1.55

Source: CBMS Census, Gikindu Location, 2018.

Table 6: Proportion of Children Who Are Malnourished by Sub-Location

Sub-location	Kambirwa	Gikindu	Mirira
Underweight	1.68	3.57	1.32
Severely underweight	0.34	1.02	0.66

Source: CBMS Census, Gikindu Location, 2018.

Since April 2017, the Murang’a County government has distributed free hybrid seeds and fertilizers to farmers to fight hunger and food shortages among food-insecure households. Through the *Njaa Marufuku* program—implemented with the assistance of local agricultural extension officers—every food-insecure household receives two packets of hybrid maize seed and a bag of fertilizer at the beginning of every planting season. Free sweet potato vines are also given to farmers at no cost in an attempt to diversify food sources and reduce dependence on maize alone for food security (Republic of Kenya, 2018)

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

We focused on two indicators under Goal 3: maternal mortality ratio and under-five mortality rate. Kenya has made good progress in promoting the health of both mothers and children. Statistics show that the maternal mortality ratio in Kenya declined from 590 in 1998 to 362 in 2014 (Kenya Bureau of Statistics et al., 2015). Further, the under-five mortality rate declined from 115 in 2003 to 52 in 2014 (Kenya Bureau of Statistics et al., 2015). Statistics from Gikindu Location show that no woman had died in the previous year of complications related to pregnancy, childbirth, or the post-birth period. There were however 3 deaths of children under 5 years in the previous year. One of these children came from the Kambirwa sub-location and two came from the Gikindu sub-location.

Health is a devolved function in Kenya and is largely a responsibility of county governments. The Murang’a County government is in charge of all public-health facilities, including the Kambirwa Health Centre, which hires personnel and supplies drugs for the well-being of the local population. Maternal health has, in the recent past, received a great deal of attention from the national government, county governments, and non-governmental organizations (NGOs). In 2014, the First Lady of the Republic of Kenya, Mrs. Margaret Kenyatta, started the “Beyond Zero Campaign” to improve maternal and child health outcomes in Kenya. Through the initiative, county governments

received mobile clinics that moved among villages to administer healthcare to pregnant women. The Murang’a County government received two mobile clinics which have benefited pregnant women across all locations, including Gikindu Location. Ahadi Kenya, an NGO, also operates “Ambulance Mashinani,” motorbike ambulances that transport poor, pregnant women from otherwise inaccessible villages to maternity wards for safe child delivery. Since 2016, Ahadi Kenya has assisted seventeen beneficiaries in Gikindu Location.

3.4. SDG Goal 4: Ensure Inclusive and Equitable Quality Education and Promote Lifelong Learning Opportunities for All

Under this goal, we focused on the participation rate in organized learning before a child joined primary school and the participation rate of youth and adults in formal and non-formal education and training in the previous twelve months, by sex. Education is fundamental to the development of future workforce and supports higher levels of productivity, adaptability, and innovation. Education also fosters more stable and prosperous societies (i.e., larger and more sustainable markets for products and services). In Kenya, pre-primary education usually consists of three classes: the play group (for 3 year olds), pre-primary 1 and pre-primary 2 (for 4 and 5-year-olds). Statistics from Gikindu Location showed that only 65% of children between 3 and 5 were in pre-primary (the proportion was highest in Mirira). We also observed disparities by gender, especially in the Gikindu and Mirira sub-locations. Details are presented in Table 7.

As part of the comprehensive Early Childhood Development and Education (ECDE) program funded by the county government, Murang’a County has hired one thousand ECDE caregivers. The county also provides free lunch to the pupils and learning aids for all public ECDE centers in the County.

Table 7: Proportion of Children 3-5 in Pre-Primary, Gikindu Location (2018)

Sub-location	Children in ECD			Total children 3-5 years			Proportion (%)		
	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls
Total	340	184	156	522	282	240	65.13	65.25	65.00
Kambirwa	112	60	52	182	97	85	61.54	61.86	61.18
Gikindu	99	49	50	155	85	70	63.87	57.65	71.43
Mirira	129	75	54	185	100	85	69.73	75.00	63.53

Source: CBMS Census, Gikindu Location, 2018.

The Net Enrollment Ratio is the ratio of children of official school age (as defined by the

national education system) who are enrolled in primary school to the total population of children of school age. The primary Net Enrollment Rate in 2016 was 91.2%, implying that 9.8% of children of primary-school age were not in school. In Gikindu Location, the rate was slightly higher than the national rate with a net enrolment ratio of 94%. By gender, more boys were out of primary schools than girls. The need to empower girl children in Kenya has been heavily emphasized, and this has increased school-enrollment rates for girls. Table 8 shows the proportion of children aged 6-13 years who were enrolled in primary school by sub-location and gender.

The free primary-education program of the national government, in place since 2003, has greatly contributed to increased enrollment in the five public primary schools in Gikindu Location. The Ministry of Education builds and maintains the infrastructure, employs teachers, and is in charge of managing all public primary schools in Gikindu Location. Though the role of county governments in Kenya is constitutionally limited to administering ECDE, the Murang'a County government has assisted the national government by building additional classrooms and making land available as the local population increases, raising demand for education in the face of limited budgetary allocations.

Table 8: Proportion of Children Aged 6-13 in Primary School, Gikindu Location (2018)

Sub-location	Children in primary school			Total children 6-13 years			Proportion (%)		
	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls
Total	1386	713	673	1480	761	719	93.65	93.69	93.60
Kambirwa	543	273	270	585	295	290	92.82	92.54	93.10
Gikindu	333	176	157	358	189	169	93.02	93.12	92.90
Mirira	510	264	246	537	277	260	94.97	95.31	94.62
Sub-location	Children in primary school			Total children 6-13 years			Proportion (%)		
	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls
Total	1386	713	673	1480	761	719	93.65	93.69	93.60
Kambirwa	543	273	270	585	295	290	92.82	92.54	93.10
Gikindu	333	176	157	358	189	169	93.02	93.12	92.90
Mirira	510	264	246	537	277	260	94.97	95.31	94.62

Source: CBMS Census, Gikindu Location, 2018.

In 2016, the secondary Net Enrollment Rate in Kenya was 49.5%, implying that 50.5% of children of secondary-school age were not in secondary (Republic of Kenya, 2016). These figures clearly indicate that the primary-to-secondary school transition is a major bottleneck in the education system. One reason given for the low transition rate is physical access to secondary

schools (there are only approximately 6,500 secondary schools across the country compared to more than 26,000 primary schools). Other reasons include school fees and other costs (Glennester et al., 2011). In Gikindu Location, the proportion of children of secondary-school age in secondary school is 69.42%, higher than the national secondary Net Enrollment Rate. However there are still many who should be in secondary school but not in secondary school

In order to promote secondary-school enrollment, Murang'a County set up an annual scholarship fund of seventy million Kshs. established in 2013. The fund extends support to needy students to cover school fees for secondary and tertiary. The government of Kenya also launched a free day secondary-education program in 2008. Under this program, secondary students in day secondary schools pay no fees while those in secondary boarding schools pay only for the expenses of boarding. Three hundred and twelve students in three public secondary day schools within Gikindu Location have benefited. The program has improved secondary-school enrollment and completion rates.

Table 9: Proportion of Children Aged 14-17 in Secondary School, Gikindu Location (2018)

Sub-location	Children in secondary school			Total children 14-17 years			Proportion (%)		
	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls
Total	470	228	242	677	345	332	69.42	70.14	72.89
Kambirwa	191	91	100	287	146	141	66.55	68.49	70.92
Gikindu	115	55	60	162	78	84	70.99	76.92	71.43
Mirira	164	82	82	228	121	107	71.93	67.77	76.64

Source of data: CBMS Census, Gikindu Location, 2018.

Table 10 shows that most youth of tertiary-school age youths were not in tertiary institutions: only 13% of youth actually attended. The rate was even lower for girls (11%) compared to boys (16%). Low net enrollment in tertiary institutions is a problem in all sub-locations. As Table 11 shows, most young people who are not in tertiary institutions have actually dropped out of the education system. About 76% of girls are not in school or in training compared to 64% of boys.

To cater to young people who, for one reason or another, are not able to proceed to secondary or higher institutions, the Murang'a County government started an initiative called *fundi kwa vijana* that absorbs such youths into vocational institutions. Courses are offered for free, and students are taught such diverse technical skills as mechanics, driving, carpentry, and hair and

beauty, among others. Thus far, 10,000 young people have been trained.

Table 10: Proportion of Youth Aged 18-24 in Tertiary Institutions, Gikindu Location (2018)

Sub-location	Children in tertiary institutions			Total youths 18-24 years			Proportion (%)		
	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls
Total	144	80	64	1075	499	576	13.40	16.03	11.11
Kambirwa	61	40	21	420	202	218	14.52	19.80	9.63
Gikindu	39	19	20	297	132	165	13.13	14.39	12.12
Mirira	44	21	23	358	165	193	12.29	12.73	11.92

Source of data: CBMS Census, Gikindu Location, 2018.

Table 11: Distribution of Youth Aged 18-24 in the Education System

	Number			Proportion		
	All	Men	Women	All	Men	Women
In tertiary institutions	144	80	64	13.40	16.03	11.11
Still in primary and secondary	173	99	74	16.09	19.84	12.85
In vocational school	38	26	12	3.53	5.21	2.08
In college	68	33	35	6.33	6.61	6.08
In university	38	21	17	3.53	4.21	2.95
Out of school	758	320	438	70.51	64.13	76.04
Total	1075	499	576			

Source of data: CBMS Census, Gikindu Location, 2018.

3.5. SDG Goal 5: Achieve gender equality and empower all women and girls

The indicator under this goal is the proportion of time spent on unpaid domestic and care work, by sex, age, and location. Data from Gikindu showed that 12.58% of women are homemakers. Kambirwa had the highest proportion of women homemakers (14.29%) followed by Gikindu (12.33%) and Mirira (10.90%).

3.6. SDG Goal 6: Ensure availability and sustainable management of water and sanitation for all

There are two indicators under this goal: proportion of households without access to safe drinking water and proportion of population that uses safely managed sanitation services, including a hand-washing facility with soap and water. The Kenyan constitution entrenches water and sanitation in the bill of rights stating that every person has the right to clean and safe water in adequate. In addition, the Kenya Vision 2030 targets included ensuring that 80% of urban residents had access to safe and reliable water (75% for rural areas) by 2015 (Republic of Kenya, 2017b) (Government of Kenya, 2007). The MDG target for 2015 was 78% and the SDG goal for 2030 was to achieve universal and equitable access to safe and affordable drinking water for all.

Both the international and national goals and targets have proved to be elusive, not only at national level but also in Gikindu Location. In 2016, the proportion of the population with access to safe and reliable water in Kenya was 53% for urban and 49% for rural areas. In this context, lack of access to safe drinking water means that drinking water was taken from ponds, dams, rivers, lakes, and unprotected springs and wells. In Gikindu Location, the proportion of households with access to improved drinking water was 56.45%. Gikindu sub-location was the worst hit: only 46% of the population had access to safe drinking water. Mirira followed with 57.6 %, and the Kambirwa sub location was closest to achieving the SDG indicator target at 63%. Details are in table 12.

Table 12: Proportion of Households with Access to Safe Drinking Water, Gikindu Location (2018),

Sub-location	Households with access to safe drinking water	Total number of households	Proportion (%)
Kambirwa	771	1,225	62.94
Gikindu	431	931	46.29
Mirira	762	1,323	57.60
Total	1,964	3,479	56.45

Source of data: CBMS Census, Gikindu Location, 2018.

Gikindu Location is served by the Murang'a Water and Sewerage Company, the water-services provider mandated by both the Murang'a County government and the Ministry of Water and Sanitation. Some households in the location receive piped water, though the supply is sometimes affected by low water levels in the source rivers as a result of droughts and dilapidated infrastructure.

Sanitation is also a key development priority because inadequate sanitation affects both individual health and dignity and national economic productivity. The Kenya Environmental Sanitation and Hygiene Policy 2016-2030 defines an improved sanitation facility as one that hygienically separates human excreta from human contact, thus creating barriers to transmission of diseases (Republic of Kenya, 2017a). The Kenya Vision 2030 target for 2015 was to provide 77.5% and 72.5% of residents with access to safe sanitation in urban and rural households, respectively, while the MDG target for sanitation was 77%. SDG Goal 6 targets universal and sustainable sanitation for all.

Kenya barely managed even half of the previous targets. As at 2015, only 32% of the rural population had access to improved sanitation (WHO/UNICEF, 2015). Gikindu Location is doing comparatively much poorer in terms of sanitation. The census established that only 9.4% of households had access to improved sanitary facilities. This means that these households mainly used an uncovered pit latrine while some used a bucket-latrines or bush system. Gikindu sub-location was the worst hit: only 6.6% had access to an improved sanitary facility; the Mirira and Kambirwa sub-locations closely followed at 9.52% and 11.35%, respectively. Details are in table 13.

Table 13: Proportion of Households with Access to Sanitary Toilet Facilities, Gikindu Location (2018)

Sub-location	Households with access to sanitary toilet facilities	Total number of households	Proportion (%)
Kambirwa	139	1,225	11.35
Gikindu	62	931	6.66
Mirira	126	1,323	9.52
Total	327	3,479	9.40

Source of data: CBMS Census, Gikindu Location, 2018.

3.7. SDG Goal 7: Ensure access to affordable, reliable, sustainable, and modern energy for all

We focused on two indicators under this goal: proportion of population with access to electricity and proportion of population with primary reliance on clean fuels and technology. The United Nations sees transitioning to clean, sustainable energy as fundamental to continued human prosperity over the coming century. The adoption of low-carbon technologies and energy efficiency would address the release of energy-related pollutants that contribute to environmental degradation and global warming.

Kenya is a signatory to both the Kyoto Protocol and the Doha Amendment which, among other objectives, seek to promote modern energy usage to reduce pollution and preserve the environment. According to the Ministry of Energy, more than 60% of rural residents use traditional sources of energy such as wood fuel and kerosene. The situation is different in Gikindu Location, however: our findings showed that 63.27% of households had access to affordable, sustainable, and modern sources of energy such as LPG, biogas, and electricity. About 31% had access to electricity. Details are in tables 14 and 15.

Table 14: Proportion of Households with Access to Affordable, Reliable, Sustainable, and Modern Energy, Gikindu Location (2018)

Sub-location	Households with access to affordable, reliable, sustainable and modern energy	Total number of households	Proportion (%)
Kambirwa	725	1,225	59.18
Gikindu	574	931	61.65
Mirira	902	1,323	68.18
Total	2201	3,479	63.27

Source of data: CBMS Census, Gikindu Location, 2018.

Table 15: Proportion of Households with Access to Electricity, Gikindu Location (2018)

Sub-location	Households with access to electricity	Total number of households	Proportion (%)
Kambirwa	379	1,225	30.94
Gikindu	223	931	23.95
Mirira	462	1,323	34.92
Total	1064	3,479	30.58

Source of data: CBMS Census, Gikindu Location, 2018.

In 2015, the government of Kenya launched the last mile connectivity project (LMCP) through the Ministry of Energy to increase household access to affordable electricity with a target of reaching 70% connectivity by 2017. The project connects rural households to the national grid at subsidized rates. The costs of connection are payable over a one-year period to make them affordable. Since 2016, Gikindu Location has benefited from five electricity transformers, and about 145 more households were connected to the national grid through the project (Republic of Kenya, 2018). Through Finance Bill 2016, the national government removed taxes on LPG in an attempt to support environmental conservation by reducing over-reliance on traditional sources of energy such as wood fuel and charcoal.

3.8. SDG Goal 8: Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all

Two indicators were considered: unemployment rate, by sex, age, and disability status and proportion of youth (aged 15-24 years) not in education, employment, or training. This goal recognizes labor-force participation as the cornerstone of socioeconomic development. Jobs improve standards of living while affording workers the purchasing power needed to drive an economy.

The labor force is the economically active population and consists of employed and unemployed people. The national unemployment rate is about 7.4% (Kenya National Bureau of Statistics, 2018c). The unemployment rate in Gikindu Location stands at 3.65%. Kambirwa sub-location has the highest rate of unemployment while Mirira sub-location has the lowest. More men are unemployed than women. Table 16 shows the proportion of persons in the labor force who are unemployed by sub-location and sex.

Table 16: Proportion of Persons in Labor Force Who Are Unemployed, Gikindu Location (2018)

	Kambirwa		Gikindu		Mirira		Location Totals		
	Men	Women	Men	Women	Men	Women	Men	Women	Total
Unemployed	53	43	19	18	24	23	96	84	180
Total labor force	965	845	684	615	954	875	2603	2,335	4,938
Proportion of the unemployed (%)	5.49	5.09	2.78	2.93	2.52	2.63	3.69	3.60	3.65

Source: CBMS Census, Gikindu Location, 2018.

The data from Gikindu further showed that 24% of individuals aged 15-24 years were not in training or in school. This is a very high number of idle youth. There is little variation by sub-location as can be seen in Table 17.

Table 17: Proportion of Youth (18-24) Not in Education, Training, or Employment

	All	Kambirwa	Gikindu	Mirira
Total	970	377	268	325
Number	232	88	63	81
Proportion	23.92	23.34	23.51	24.92

Source of data: CBMS Census, Gikindu Location, 2018.

Unemployment, especially youth unemployment, has been a major concern of both county and national governments. The Murang'a County government has revamped the county polytechnic curriculum to attract enrollment through a program dubbed *Ufundi kwa Vijana*. Through the program, thousands of youth from the county, including Gikindu Location, have received practical training and skills in masonry, carpentry, tailoring, and welding, among other skills. There has been shortage of skilled artisans in the local market, and the county government's program is meant to enhance the employability of thousands of unemployed youth. The county government also started the "one-youth, one-cow" program to provide an entry into dairy farming. Interested youth own dairy cattle, bought using low-cost loans in an arrangement between the county government and local financial institutions (Republic of Kenya, 2018).

Among the national government initiatives to promote job creation for employment-generation such as Access to Government Procurement Opportunities (AGPO) and government funds. Thirty percent of procurement opportunities in the public sector are set aside for youth, women, and the disabled, groups that face the greatest risk of unemployment. Government funds such as the Uwezo fund, the Youth Enterprise and Development Fund, and the Women Enterprise Fund provide low-cost capital to beneficiaries to enable them to participate in productive employment.

3.9. SDG Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

We focused on the proportion of population covered by a mobile network. Data from Gikindu Location showed that only 6% of the population did not own a mobile phone, a rate that was slightly higher among women than men. Gikindu had the highest proportion of individuals who did not own mobile phones while Mirira had the lowest. Details are in table 18.

Table 18: Proportion of Individuals Who Own Mobile Phones, by Gender and Sub-Location

	Total	Kambirwa	Gikindu	Mirira
All	93.83	92.10	93.97	95.57
Men	94.73	92.86	94.86	96.62
Women	92.95	91.37	93.11	94.54

Source of data: CBMS Census, Gikindu Location, 2018.

3.10. SDG Goal 10: Reduce inequality within and among countries

The indicator was proportion of people living below 50% of median income, by age, sex, and disability status. Results from Gikindu showed that more than 50% (52.1%) of the population lived below 50% of median income. Gikindu and Mirira had the highest proportion of residents below 50% of the median income, and, in all sub-locations, more men than women lived below the median income. Details are in Table 19.

Table 19: Proportion of Population Living below 50% of Median Income

	Total	Kambirwa	Gikindu	Mirira
All	49.99	47.20	51.93	51.54
Men	50.94	48.48	52.85	52.14
Women	49.06	45.96	51.03	50.94

Source of data: CBMS Census, Gikindu Location, 2018.

3.11. SDG Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

We focused on the proportion of the urban population that lived in slums, informal settlements, or inadequate housing. Statistics from Gikindu location indicate that only 2.39% of the households in Gikindu Location lived in settlements that could be considered inadequate. Kambirwa sub-location had the highest proportion of households whose residents lived in inadequate housing (2.94%), followed by the Mirira (2.34%) and Gikindu (1.72%) sub-locations.

3.12. SDG Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

The indicator was proportion of population subjected to physical, psychological, or sexual violence in the previous twelve months. According to the Kenya Police Service's annual crime report (2017), the overall crime recorded was 78,529 cases, an increase of 7% compared to 2016. Murang'a County, where we conducted our study, had 2,789 cases, or a crime index of 282 cases per 100,000 persons, ranking it as the ninth most crime-prevalent county in the country. In the twelve months preceding the survey, eighty-five cases of crime were reported in Gikindu Location, including theft, aggravated robbery, simple robbery, and breaking-and-entering. Of these eighty-five, fifty-

seven were reported in the Kambirwa sub-location, thirteen in the Gikindu sub-location, and fifteen in the Mirira sub-location. More men were victims of crimes—not surprising because men are more exposed to risks such as travelling late at night or working as watchmen, among other activities.

Table 20: Proportion of Persons Who Are Victims of Crimes, Gikindu Location (2018)

	Kambirwa		Gikindu		Mirira		Location Totals		
	Men	Women	Men	Women	Men	Women	Men	Women	Total
Victims of crimes	28	29	8	5	12	3	48	37	85
Total population	1,778	1,830	1,226	1,262	1,684	1,702	4,688	4,794	9,482
Proportion of crime victims	1.57	1.58	0.65	0.40	0.71	0.18	1.02	0.77	0.90

Source of data: CBMS Census, Gikindu Location, 2018.

Security as a function belongs to the national government. The National Police Service is in charge of the entire security apparatus and crime prevention within Gikindu Location, including Gikindu police post and its security personnel. The police also partner with locals under the *Nyumba Kumi* community-policing initiative, which was started to encourage residents of an area to cooperate with local police by offering them security intelligence and help identify criminals in their midst (Republic of Kenya, 2018)

IV. Key Findings

Statistics from Gikindu location indicate that the county is on the right path towards attaining some of the targets but for others progress is slow. On goal 2 of ending hunger, ensuring food security and improved nutrition, the county is doing well with only 2% of households experiencing food shortage in the previous 3 months. Similarly only 2% of the children were underweight and 0.63% were severely underweight. Good progress has also been made as far as goal number 3 is concerned with no woman dying in the past 1 year and also only three children under 5 year died in the previous 1 year. On SDG goal 11, most of the residents also live in adequate human settlements with only 2% of the households living in what can be considered inadequate settlements.

For the other goals, however, the county is still lagging behind in attaining the targets.

Poverty remains high with 24% of the population living below the poverty line and inequality is also high with 50% of households living below 50% of median income. The county is also doing badly on access to sanitary facilities. Less than a quarter of the residents use sanitary facilities and about half of the population lack access to safe water supply. Also about one third of the population does not have access to electricity and use unsafe sources of energy. Similarly, net enrolment in secondary and tertiary institutions remains low especially in tertiary institutions. Further, about 24% of the youths aged 15-24 years are neither in school, in training or in employment.

V. Policy Recommendations

While the county is making good progress in the attainment of some of the goals, it is still lagging behind in others. Much work still needs to be done to achieve SDG targets by 2030. This would entail sustaining and improving initiatives that have been observed to work while implementing new ones. We ii hc iiiicfiititiyih9888pkk, propose that the following projects, programs, and policies be implemented by the national government and the Murang'a County government to realize SDG.

5.1. Ending poverty in all its forms everywhere

Our findings showed that the majority of households in Gikindu Location are small-scale farmers who grow mostly maize and beans and keep cattle, goats, and chickens. To reduce poverty, we propose diversification of farm enterprises through adoption of fruit farming, which is suitable for Gikindu's semi-arid conditions.

Encourage farmers to embrace new ways of marketing, such as contract farming. Cooperative societies' prices should be made fair to allow farmers to supply their crops to them. A majority of households in Gikindu Location sell their produce in local markets where middlemen buy their products at exploitative prices and later resell them in major cities. Farmers can be encouraged and supported to add value to such farm products as fruit, milk, and coffee.

5.2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

In Gikindu Location, households are over-dependent on rain-fed agriculture, which exposes them to droughts and famines. Households can be encouraged to harvest water

during rainy seasons for later use in ,girrigation as well as to practice drip irrigation and greenhouse farming. Households should also be introduced to drought-resistant crops such as cassava. Water needs to be made available for irrigation through de-silting of existing water sources, storing run-off water, and digging more water sources. Residents should be encouraged to use these alternatives.

5.3. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

This study found that net enrolments for secondary and tertiary institutions remain low in Gikindu location. The goal of the Kenyan government is to achieve 100% transition from primary to secondary school. In 2008, the government of Kenya introduced free day secondary school where the government only paid tuition and the parent paid the rest. As at 2018, the government effected a free full day secondary learning where the government covered all the costs except uniform. There is need for sensitization for the parents and children to know this so that no one is left behind when education is free. The county government can be involved in providing small grants to very poor parents to help them purchase uniform for their children. On tertiary education, currently the national government offers loans to college and university students. The Murang'a County department of education and technical training should ensure that as many youth as possible are aware of this and are able to apply for loans. Early marriages and child bearing can keep youths away from tertiary and secondary education. Sensitization and mentorship programs on these topics can go a long way to keep students in school.

5.4. Ensure availability and sustainable management of water and sanitation for all

The major water provider in Gikindu Location, MUWASCO, attributes the poor water supply to limited funding, weather, and dilapidated infrastructure. The government and donors can help provide clean water by funding water infrastructure development and service delivery. Residents in Gikindu location have protested high water rates, which make the commodity unaffordable to many. The government and water-service providers can subsidize water-connection fees and rates to reach a point at which water is provided to all. Promote public-private partnerships in providing water, and storm-water-management systems, including recycling and sanitation services. Public-private partnerships in providing water and sanitation services can complement government efforts because the public budget is often not enough.

5.5. Ensure access to affordable, reliable, sustainable and modern energy for all.

The Murang'a County government should enable and encourage investments in the generation of solar power. Solar energy is one of the cleanest sources of energy and could also be cheaper than other sources of energy given that Gikindu Location is well-endowed with sunshine. Some parts of Gikindu Location are hilly, making them suitable for tapping wind to generate power that can be consumed in the area. Farming, being the predominant economic activity in Gikindu Location, provides adequate materials for biogas generation.

5.6. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Promote the development of cottage industries that utilize local resources to create direct and indirect employment. Value-addition of locally produced commodities can spur industrialization and generate employment. Employment is a challenge locally and nationally but could be solved by supporting entrepreneurship. The government and non-governmental organizations can develop programs to train and mentor budding

entrepreneurs. Information asymmetry in the job market curtails employment for many. The national and county governments can start bureaus to enhance job placement. Some of the jobs available in Gikindu Location can be performed by locals, especially unskilled and low-skilled jobs. Employing non-residents to do such jobs denies employment to locals. Labor-based technologies can help create employment for many in a labor-surplus economy.

5.7. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

Community policing builds trust between residents and security forces. This process is crucial to crime eradication. Corruption is a major challenge within the national security forces. Criminals are often arrested but find their way out of custody because of rampant corruption. Fighting corruption would ensure justice for all while further building trust between the public and security personnel.

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