



# **Past and Recent In-Migrations Accelerated by High Population Growth Rate Culminating in Socio-Economic and Environmental Changes in Greater Kamwenge, Western Uganda**

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## **ABSTRACT**

Greater Kamwenge, composed of Kamwenge and Kitagwenda districts has one of the highest population growth rates in the country (3.91%) during the period 2002 to 2014 compared to the national average of 3.03% (UBOS, 2014). The increasing population has resulted in an increase in population density from 82.69, 114.7, and 172.8 persons per square km in 1991, 2002, and 2014 respectively (UBOS, 2016). This paper was guided by three objectives: To examine the positive and negative implications of the continued increase of population in greater Kamwenge by both natural growth and in-migration. To analyze the positive and negative contributions of the in-migrants into the area. Suggest measures for improving the livelihoods of the inhabitants of the area. The paper utilised data from key informants and literature review. Land use land cover maps of the area of study were classified (maximum likelihood classification) using ArcGIS 10.8 software and the changes in land cover over the years were compared. The data was obtained from satellite images from 2000 to 2020. The authors observe that a number of benefits such as a variety of crops were introduced by the in-migrants at different times. Areas that were formerly infested with tsetse flies were made habitable by the in-migrants and animal rearing extended into areas that were not formally used for economic activity. On the other hand, the increase in population has led to encroachment on areas that were not formerly settled and cultivated leading to soil creep, erosion, destruction of wetlands, forests, and woodlands. The authors recommend strengthening the benefits of the immigrants in order to reduce poverty in the area. In addition, the authors recommend vigorous campaigns for modern family planning methods to reduce the high population growth, emphasize education and mindset change.

**Keywords:** population growth, in-migrants, greater Kamwenge, poverty reduction, positive and negative contributions.

## **INTRODUCTION**

Greater Kamwenge is part of Tooro region that formerly constituted one of the four kingdoms of South Uganda. Others being Buganda, Bunyoro and Ankole (Langlands, 1971). It is composed

of Kamwenge and Kitagwenda districts. Kamwenge was curved from Kabarole district in 2000. In July 2019, Kitagwenda was also curved out of Kamwenge district. It has one of the highest population growth rates in the country (3.91%) during the period 2002 to 2014 compared to the national average of 3.03% (UBOS, 2016). The increasing population has resulted in the increase in population density from 82.69, 114.7 and 172.8 persons per square km in 1991, 2002 and 2014 respectively (UBOS, 2016). This paper was guided by three objectives: To examine the positive and negative implications of continued increase of population in Greater Kamwenge by both natural growth and in-migration. To analyse the positive and negative contributions of the in-migrants into the area. Suggest measures of improving livelihoods of the inhabitants of the area. Kamwenge area is a good example of high population growth as a result of both high natural fertility and in-migration. The latter being as a result of internal Government resettlement policy, voluntary migration and existence of Rwamwanja refugee camp.

According to (Langlands (1975), the original inhabitants of Toro of which greater Kamwenge is part of, were “Abasangwa” one group of autochthonous people (possess no tradition of having migrated from anywhere else). They were cultivators with short-horned cattle. They were later incorporated into the kingdom of the Batembuzi who came from the north followed by the Chwezi also from the north. The Chwezi were light skinned people who resembled the Hima but were not Hima. They were cattle keepers with long horned cattle. They were rulers accompanied by much larger numbers of “Bairu” agriculturalists. The Chwezi were soon followed by the Bito also from the north. These were darker skinned. The Bito like the Chwezi ruled with the “Bairu and were also wealthy because they owned cattle”. By 1960, 6% of Toro were Bito clan, 5% Hima and the rest Bairu.

## **STUDY AREA AND METHODOLOGY**

### **Study Area**

Greater Kamwenge (Kitagwenda and Kamwenge districts) located in South Western Uganda (00 11N, 30 27E) is bordered by Kyenjojo district to the North, Kyegegwa and Kiruhura districts to the North East, Ibanda to the East and South East, Rubirizi to the South West, Kasese to the West and Kabarole district to the North West (Tumwine et al., 2018). It covers an area of approximately 2,439.4 square kilometres and of this, 64.1 square kilometers (2.6%) is covered by open water. It is predominantly a rural district with very high poverty levels in the country. (Tumwine et al (2018). observe high levels of absolute poverty (26.9%) especially among female headed households (21.9%) in the region.

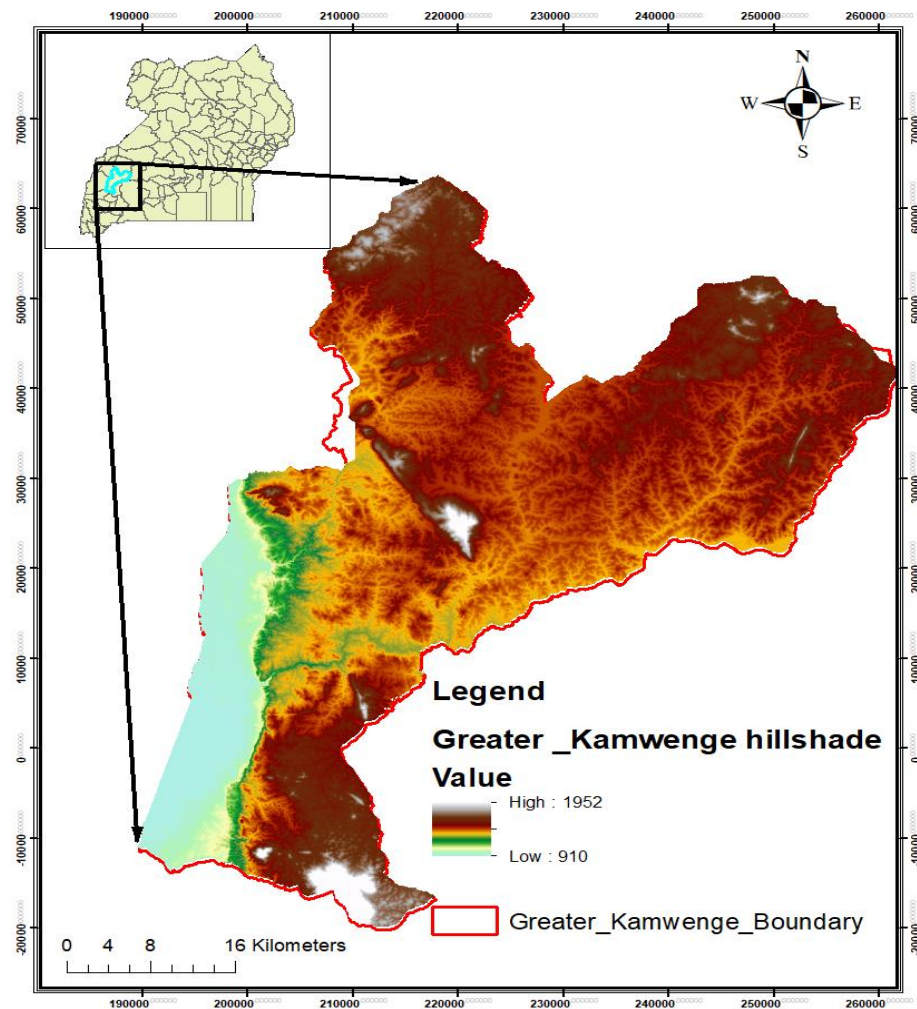


**Figure 1: Location of study area**

The area is gifted with tropical high forests dominated by Kibale National Forest Park and Kakasi- Kitomi Forest Reserve (10.43%), woodland (11.12%), grassland (21.83%), papyrus reeds/swamp (3.08%), open water (2.63%) with farmland and built up area covering 49.19% and 0.03% respectively. In Bwizi sub-county, there are pockets of highland tropical forest on the hills. There are numerous aquatic systems within the district like Katonga nature reserve, Queen Elizabeth National Game Park, Rivers: Mpanga; Kitomi; Nkurungo; Rwambu; Dura; Kyarutanga; Ruhagura; Nkurungo; Kikoyo; Rwambu and Rushango as well as Lake George.

The area receives well distributed bimodal annual rainfall (February to April and September to December) averaging 1200mm throughout the year for most parts. The greatest amount of rainfall is received in the North- Eastern and Southern parts of the district. On the other hand, the district also has drought prone areas such as Nkoma, Rwizi, Kamwenge and Nyabbani sub-counties which are part of the cattle corridor of Uganda. Altitude of the district ranges between 1300 to 3800m above sea level. The landscape of the Greater Kamwenge is representative of Wayland's peneplain II underlain by Precambrian rocks which are either wholly granitized amphibolitic or under differentiated acid gneisses. As a result, temperatures range between 20 and 30 degrees centigrade.

The population of the area was 201,700 according to the 1991 national population census. The next census in 2002, put the population in the district at 263,700, of whom 51.5% were female and 48.5% were male. In 2014, the population of the district was 332,000. According to Uganda Bureau of Statistics (2016); in 2016, Kamwege district had a population estimates of 442,600 of which 56,938 (13%) were refugees. By May 2017 the district hosted 62,250 refugees many of whom were in Rwamwanja Refugee Camp. Kamwenge is one of the areas with one of the highest population growth rates in the country (3.91%) during the period 2002 to 2014 compared to the national average of 3.03% (UBOS, 2016). By 2020, the population of the area was projected to be 513,500 growing at 3.75 percent per annum (UBOS, 2020). The increasing population has resulted in the increase in population density from 82.69, 114.7 and 172.8 persons per square km in 1991, 2002 and 2014 respectively (Tumwine et al, 2018) .The 2020 projections show population densities 198 and 249 per square km for Kamwenge and Kitagwenda districts respectively (UBOS, 2020).

Although there are other socio-economic activities, agriculture is the main source of livelihoods in the area with the main cash crops being coffee, tea, sun flower, cotton and pine apples (though not on large scale) and the food crops include bananas, maize, millet, beans, peas, ground nuts, sorghum, tomatoes, onions among others. In the recent, bee farming (apiary) has been well embraced by several households in area (Tumwine et al, 2021).

## **Methodology**

The paper utilises data from key informants and literature review. Land use land cover maps of the area of study were classified (supervised classification) using ArcGIS 10.8 software and the changes in land cover compared. A combination of multi-temporal Landsat satellite images was used in this study. Three Landsat images, each representing a decade from 2000 to 2020, were acquired from the United States Geological Survey (USGS) Earth explorer website (<https://earthexplorer.usgs.gov>. Path and Row of 170/059 and a cloud cover of less than 30% was used in the search criteria.

It should be noted that Landsat images of the study area for the specific year 2000 were characterised by high cloud cover and this necessitated the use of the most adjacent year (-1 or +1 to this decade). The other thing to note is that the study area lacked a one whole sum Landsat image to cover it altogether and therefore we resorted to mosaicking the right and right images from which we later extracted the full image of the study area.

Particularly, Landsat images were prioritized over other images in this study because of its rich historic database (10 million Landsat scenes) back dating up to 1972. The images are also medium resolution (30 × 30 m) per pixel. The study also considered major changes that could be visible in satellite images after every decade at most. Training datasets (separate from validation data), averaging 35 training samples per land cover class, were randomly created in the image using visible land cover classes. Signature files were generated for training maximum likelihood.

The study adopted the following steps as used in land cover change studies: data collection, image pre-processing and development of classification scheme, training, image classification, ground trothing and change dictation. A combination of ArcGIS 10.6.1, software packages, and Google Earth Pro was used in various stages of image preparation and analysis for this study.

### Accuracy Assessment:

The accuracy assessment of the classified images was assessed and this was performed by comparing a map created by using remote sensing analysis to a reference map based on different information sources such as Google earth pro and original images or maps for those time periods where Google earth is not available (Nagendra et al., 2013). For performing this analysis randomly selected points were taken as references for the land cover maps of 2010 and 2015. An interpretation was made of how close the newly produced land use/cover map from the remotely sensed data matches the reference map. A 2020 classified map was used as a reference when overlaid on other old two maps of 2010 and 2020

**Table 1: Land cover classification scheme used in the study**

| Land cover class | Description                                                                                                                                                                                                                                                                                                              |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Forest           | Degraded or encroached part of the mixed natural forest with indigenous trees, top layer trees less than 20% cover, and second layer mixed with shrubs and bush, consisting of seasonal broadleaf tree communities with an annual cycle of leaf-on and leaf-off periods. It includes both planted and natural resources. |
| Wetland          | Mainly lowland and lake shore wetland encroached upon by communities for various purposes.                                                                                                                                                                                                                               |
| Water            | Main focus on lakes, streams and river in the study area.                                                                                                                                                                                                                                                                |

### Landsat Image Classification:

The Maximum Likelihood (ML) method performed was used during image classification since supervised classification is commonly used because it is simple and quick to implement, allows a clear interpretation of the outcomes, and mostly delivers satisfactory accuracy.

### Land Use/Cover Change Detection:

Change detection analysis was performed using the Post-Classification Comparison (PCC) technique based on supervised classification products. The method involved overlaying independently classified coincident thematic maps and comparing their corresponding classes to determine change transitions starting with the latest year (2020).

In this study, three registered and independently classified images (2020, 2010 and 2000) covering two decades (2000–2020) were used to calculate major changes in land cover. Using the back dating approach, the classified 2020 image was used as a reference to classify older images. In order to ensure that the changes are not arising from noise, especially for the older image (2000 and 2010), the 2020 image was superimposed on older image(s) to identify changes, hence creating respective land cover maps for the older years (2010 and 2000).

Equation (1) below was used to determine the Magnitude of Change, MoC (km<sup>2</sup>):

$$\text{Magnitude of Change, MoC km}^2 = Y_f - Y_i \quad \dots\dots\dots (1)$$

Where  $Y_i$  = Class Area (km<sup>2</sup>) at the initial year,  $Y_f$  = Class Area (km<sup>2</sup>) at the final year, and  $n$  = number of years of the time period.

The classified land cover maps were used to establish the nature of land cover flows between the land cover classes. Land cover flows were established using the raster calculator function

in ArcGIS Pro using Equation (2). The resultant statistics were used to establish land cover flows “from 2000” and “to 2020”.

$$\text{Land cover flow (km}^2\text{)} = (y_1 * (n + 1)) + (y_2) \dots\dots\dots (2)$$

Where  $y_1$  = area of all land cover classes of the initial year,  $y_2$  = area of all land cover classes of the final year, and  $n$  = number of land cover classes.

### **CAUSES, RESULTS AND IMPLICATIONS OF IN-MIGRATION AND HIGH POPULATION GROWTH RATE**

Between 1948 and 1959, Tooro’s population grew at an average rate of 2.7% against national average of 2.5% per annum. Between 1959 and 1969 the growth averaged 5% against national average of 3.8% per year. This was due to the refugee movements in Kibale county (Langlands, 1971) . The population growth rate of greater Kamwenge between 2002 and 2014 was 3.8 percent per annum as compared to the national average of 3.3 (UBOS, 2016). While the national average population growth rate reduced to 3.1% per annum in 2020, it remained at 3.8 for greater Kamwenge in the same period (UBOS, 2020). This is attributed to low levels of contraception, high unmet need of family planning, low levels of education, low age at first marriage and high number of in-migrants from Kigezi and Ankole regions.

Migration whether temporary or permanent, has been, and still remains one of the most effective means of solving political, economic, religious, cultural or racial problems (Kagambire, 1972). According to Key informants, Greater Kamwenge has become a home of many clans and tribes from within Uganda and outside. The Batooro are believed to have been the earliest inhabitants of Greater Kamwenge area before 1926 when the boundaries of modern Uganda were finalised. The Batooro are believed to have been one group of the Bantu that occupied modern Uganda from Eastern Congo (Figure 2)

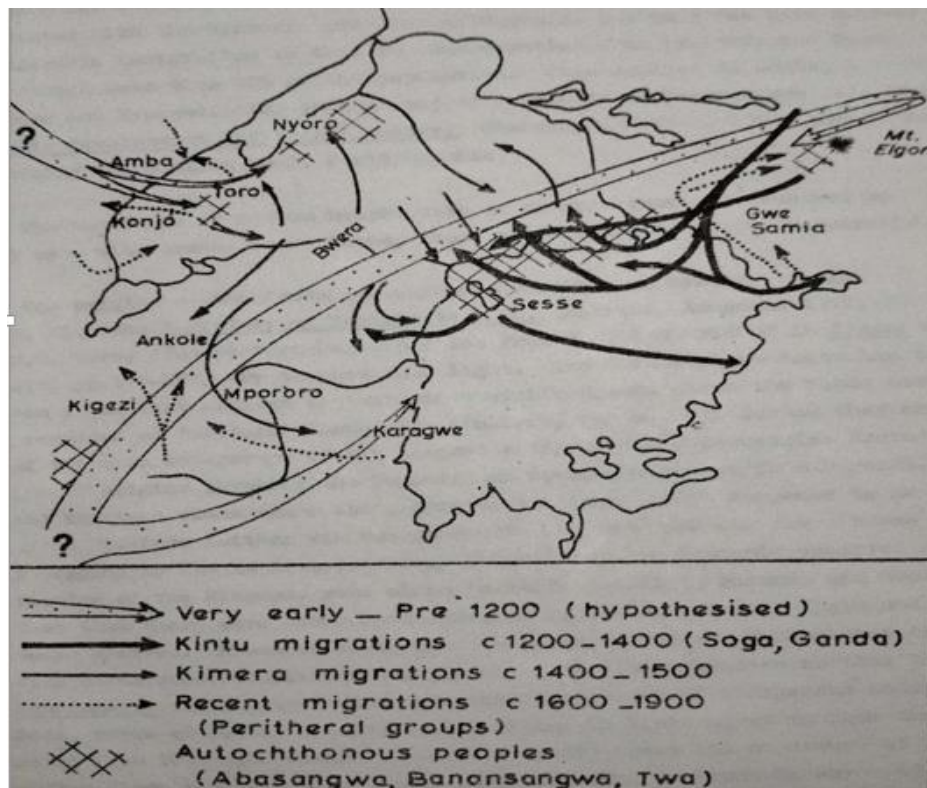


**Figure 2: Bantu migrations**

Source: (B.W Langlands)

A number of key informant's state that Abaishikatwa /Abanyamberya of Kitagwenda and Ibanda, descendants of Ibona Kanyamberya who migrated from Mpororo, Bwishikatwa near Lake Nyabihoko around 1600 AD were among the earliest in-migrants of the area. Ibona settled at Nyakanyoga, Kagazi. He settled on the concave (gentle slope) where there are bananas and *ficus natalensis* (Omutooma) tree on the left was used for settlement and growing of crops such as millet. The area is currently used for growing bananas, coffee and cassava. In the background, the steep slope and the flat top of the hill would be used for cattle grazing. The top of the hill was also essential for security purposes. There was need to keep watch of the intruders from Mpororo kingdom on top of the hill and other enemies from the lower areas as far as Lake George. The area had two permanent rivers (Nyabitoma and Kanyandaro) which supplied reliable clean water for human beings and animals. Kanyandaro river valley is clearly seen in the background (Figures 3a and 3b). This river valley has a gorge on top where Banyamberya girls who got pregnant before marriage would be taken by their brothers and thrown there to death. This was because pre-marital pregnancy was not accepted.



**Figure 3 (a): First settlement site of the Banyamberya**



**Figure 3 (b): First settlement site of Banyamberya**

Ibona was nicknamed “Karya-mberya” by the people he found in the area who thought that he ate grass known as “emberya” “Enkyenzi” which look liked finger millet. Kanyamberya came with the Abaliisa and Abakurungo. The Abaliisa on the other hand under the leadership of Kakondo settled at Kikondo and are therefore referred to as “Abakondo” and the “Abakurungo” whose ancestor was Kakurungo settled at Kikurungo. The Banyamberya had many cattle. They also ate finger millet (*Eleusine coracana*). Apart from being cattle keepers, the Banyamberya were hunters. One key informant stated that being hunters helped the Banyamberya to survive in the area that was originally occupied by animals such as buffalos, elephants, leopards and lions. These animals were forced to move farther west to the shores of Lake George currently Queen Elizabeth National Park. Figure 4 shows Banyamberya key informants with the author.



**Figure 4: Key informants with the author**

During the reign of Jjunju Sendegeya (1780 -1797), Buganda conquered Buddu (present Masaka) from Bunyoro. His reign was interrupted by struggles between him and his brother Prince Semakookiro, who rebelled against him. During the rebellion, Semakookiro ordered his men to go and capture Kabaka Jjunju and bring him to the rebel prince. The expedition went badly. Kabaka Jjunju was killed during the attempted capture in 1797. When the regiment returned, Samakookiro was so upset that he expelled all the regiment members together with their families and friends from Buganda, or else they would suffer the same fate as his brother. The expelled people fled westwards to present day Kitagwenda, Ibanda and Rubirizi districts. One oral tradition state that Kitagwenda and Bunyaruguru were named from this group of people from Buganda. Batagenda meaning those that cannot go further and Banyaruguru those with strong legs who climbed the hills to go to higher altitude. According to one key informant, this was the origin of the Batagwenda of Omurwera in Kicece sub-county and Mahyoro landing site in Mahyoro sub-county of Kitagwenda district. These people still speak Luganda language, have Baganda clan names, they practice Islam and are mainly traders.

The Babiito clan are descendants of the Babiito who ruled a vast kingdom of Bunyoro Kitara who came from the North of the present-day Uganda, a place called El Gazhal and established the Jobito dynasty around 1500 AD. The Babito arrived in Kitagwenda between 1730 and 1757 during the reign of King Duhaga I. Wakoli who was the biological son to King Duhaga and was the founder of the Babiito dynasty in Kitagwenda. According to oral tradition, Wakoli was sent by his father Duhaga together with his young brother Nyarwa from Hoima with instructions to establish a Babiito dynasty in Kitagwenda to stem the northern advance of Mpororo Kingdom. They came to be known as Abahaga Babiito, a name they acquired from their founder Duhaga just like the Ababoyo dynasty of Tooro took their name from their founder Kaboyo who established the Tooro Kingdom around 1830.

The two brothers raised an army which was commanded by Wakoli himself and subdued the local population in Kitagwenda and the surrounding areas. According to the Babiito key informants, it is believed that the name “Kitagwenda” originated from Wakoli who was known as “Rutagwenda” meaning “one who does not like his heart or life” due to his extra ordinary bravery he exhibited while coming from Kitara and overthrowing the Mira Mira regime of the Bahororo in Kitagwenda. The majority of the key informants agree with this version of the origin of the name Kitagwenda mainly because up to now the Batagwenda recognise the King of Tooro as their King. They also use and like petty names that were introduced by the Babiito. The Babiito intermarried with the clans they found in the area (Baishikatwa/ Banyamberya, Abaliisa, Abakurungo, Abayitira and Bahinda). The Bahaga Babiito dynasty of Kitagwenda did not accept the Kaboyo rulership as they continued paying tribute to Bunyoro Kitara kings until the British colonialists defeated King Kabalega and annexed it to Tooro kingdom by 1900 and 1906 Tooro agreements.

Problems in Rwanda and Kigezi region played a big role in the high population growth of Kamwenge area, part of Tooro. The Bakiga of southern Kigezi occupied the area in 1500 AD. In the 19<sup>th</sup> century, Rwanda was torn by inter-tribal wars and suffered many epidemics and hunger. This forced many of them to migrate to southern Kigezi. Between 1927 and 1941 there was land shortage in Kigezi leading to fights between sons and fathers as well as families with neighbours in counties of Ndorwa and Rukiga.

A number of reasons were responsible for the high population in Kigezi: High fertility due to early marriages, low incidence of venereal diseases due to limited pre-marital sex, better rule by the British than the Belgians who punished Rwandans by canning (corporal punishment). This encouraged immigration of Rwandese into Kigezi. Introduction of medicine by the British was yet another factor that enabled population growth in the area by reducing mortality. A hospital built in Kabale in 1917. Mission hospital at Kabira directed at prevention of yaws, couphs and other diseases. Building of the leprosarium at Bwama, an island on Lake Bunyonyi to prevent spreading of leprocy (Kagambire, 1972) .The wattle industry also contributed greatly to the resettlement or migration of the Bakiga from Kigezi (Tunanukye, 2022).Wattle was introduced in 1924 and boomed by 1940s. While population was seriously increasing, the effects of wattle industry triggered land scarcity for food cultivation because wattle was a perennial plantation crop.

The high population growth rate led to overgrazing and over cultivation causing landslides and erosion. Soil fertility declined due to constant use. To make matters worse, between 1943 and 1944 droughts hit the area badly. In 1945, a remedial solution was needed. In 1946, apart from swamp reclamation, controlled voluntary migration to “new Rukiga” commenced. The first choice of voluntary migration was north Kigezi (Kinkizi and Rujumbura counties). These areas had big chunks of land, fertile soil, enough water, adequate rainfall, reasonable accessibility and building materials and reasonably healthy and able to grow their stable food crops. Inducements included: exemption from poll tax for two years, lorry transport provided to inspect the land first, buffalo meat provided by government, seeds and a family provided with 12 acres of land (3 for cultivation, 3 for resting and 6 for subsequent family increase).

Migration of the Bakiga later extended to Ankole and then Tooro in the 1950s and 60s. Ntozi et al (2011). having analysed inter-district migration flows using 1969 population census results,

confirms that there was population pressure in Kigezi as over 20% of those born in Kigezi were enumerated in other Uganda districts mostly in Ankole and Tooro. This made Kigezi district to have the highest negative net migration rate in the country in 1950s and 1960s. This is in agreement with Tunanukye (2022) noted that the Bakiga migration from Kigezi involved four phases: The first, under-populated parts of Kigezi, second, to Ankole, third to Tooro and fourth to Bunyoro. This paper refers to the third phase which involved the Bakiga migration to Tooro of which Greater Kamwenge is part (Figure 5). Conditions that favoured migrations to new lands were: Greater Kamwenge area had been depopulated by diseases such as small pox in the 19<sup>th</sup> century and rinderpest killed cattle, therefore reducing the wealthy and food of the people (Wilson,2021).

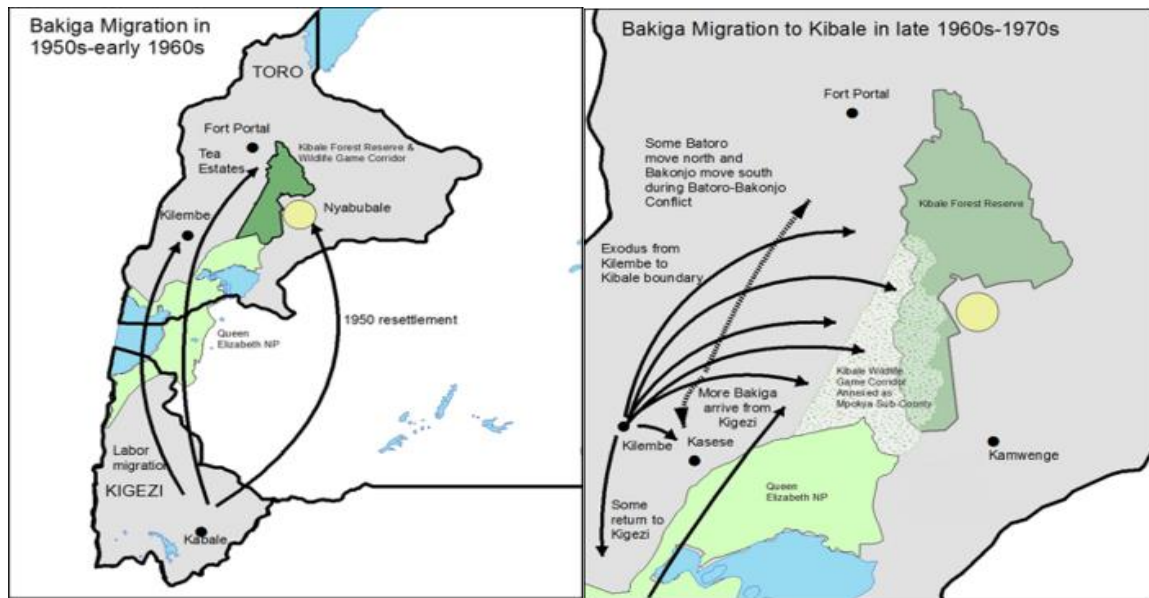


**Figure 5: Bakiga migration from in 1960s and 1970s**

To make matters worse, in 1888 there was drought in the whole of Tooro region that led to famine that was called “Bagwerekere”. Famine led to skin diseases and yaws due to poor health of the people (Wilson,2021). Crops like sorghum, peas, finger millet and beans which could grow well on fertile soils that were readily available. Young Bakiga opted to marry wives from Kigezi rather than Tooro. This also kept the migrants in contact with the relatives that remained in Kigezi. However, with increasing levels of education and living harmoniously for a long time, there is an increasing level of intermarriages between the in-migrants and the original inhabitants. One key informant reported that: *“Intermarriages are good because marriage is a permanent unifying factor”*.

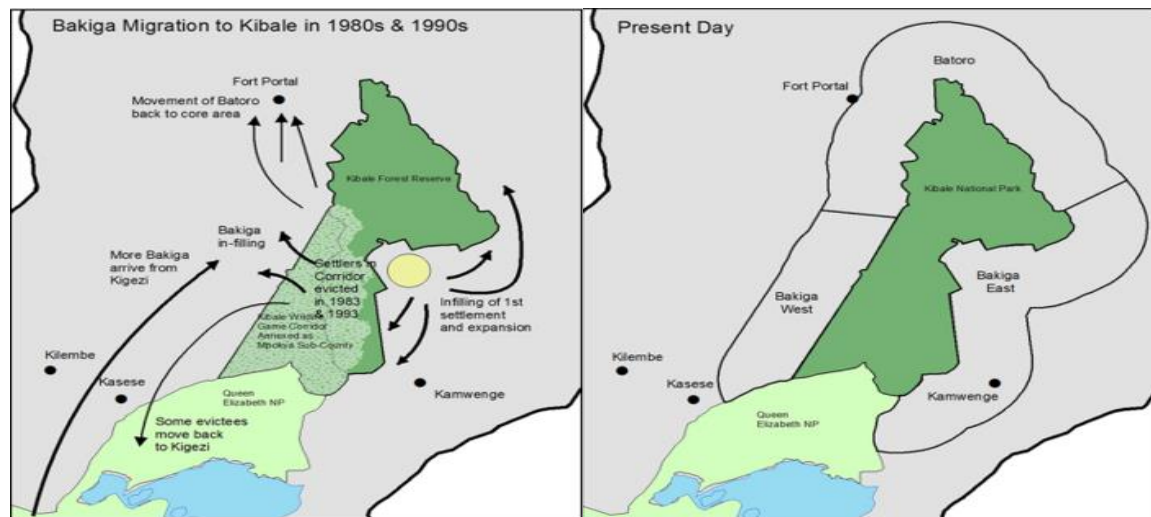


**Figure 6: Bakiga migration to Kibale from 1980s to the present.**

Due to the success of the voluntary assisted and un assisted migration of the people from Kigezi, to other parts of western Uganda from the 1960s to 1980s, more in-migrants have continued to migrate to what are called “Kigezi New Lands” (Figure 6). One key informant reported that in 1958, King Rukidi of Tooro Kingdom held a rally at Kicheche Gomborora (sub-county) headquarters to inform the people about the imminent arrival of the Bakiga who were to act as buffer zone for the Batagwenda against sleeping sickness. He was quick to add that the coming of the Bakiga apart from chasing away the tsetse flies by clearing the vegetation, it would increase the kingdom’s revenue collection. It also led to the construction of Ibanda –Kamwenge road to help in the transportation of the Bakiga from Mbarara. As a result, Pamoja Bus Company that was owned by Ruzinda, Kimunyu and Bitature (local investors) was established. This greatly improved transport from Mbarara to Fort Portal. One Mukiga key informant who had worked in Kilembe mines from 1961 to 1969 was told by his friend to come to Kitagwenda and acquire land and he obliged; *“We go and get land. There is land in Kitagwenda. There are our people there”* The land was being got free of charge how could such a fellow refuse to get free fertile land? Another key informant commented: *“The Bakiga have settled everywhere in Uganda apart from across River Nile”*. Another key informant added: *“In fact in many districts such as Kitagwenda, Kamwenge and Kibale, the Bakiga outnumber the original inhabitants”*.

A former Gomborora (sub-county) chief in the 1960s and 1970s emphasized that the Bakiga in-migrants were very important economically for Tooro district because they increased the amount of money that was earned from poll-tax. Poll-tax was an annual tax that was paid by every male person above eighteen years. Increased revenue meant more money for the district administration to construct roads and pay school fees for children in primary and secondary schools. One key informant who completed university education in 1982 stated: *“Tooro district administration paid for me school fees for my Advanced level secondary school education and since university was free for us from Tooro district we were being given what was called Tooro boom i.e., extra money in addition to what the government of Uganda was providing”*. He also supplemented: *“In addition in the 1970s and 1980s, Tooro district would also offer scholarships in ordinary level secondary school to students who would score at least 250 marks out of 300 in primary leaving examinations”*. However, it is was evident that there were high rates of out migrations in 1991 than in 2002(Figure 7).

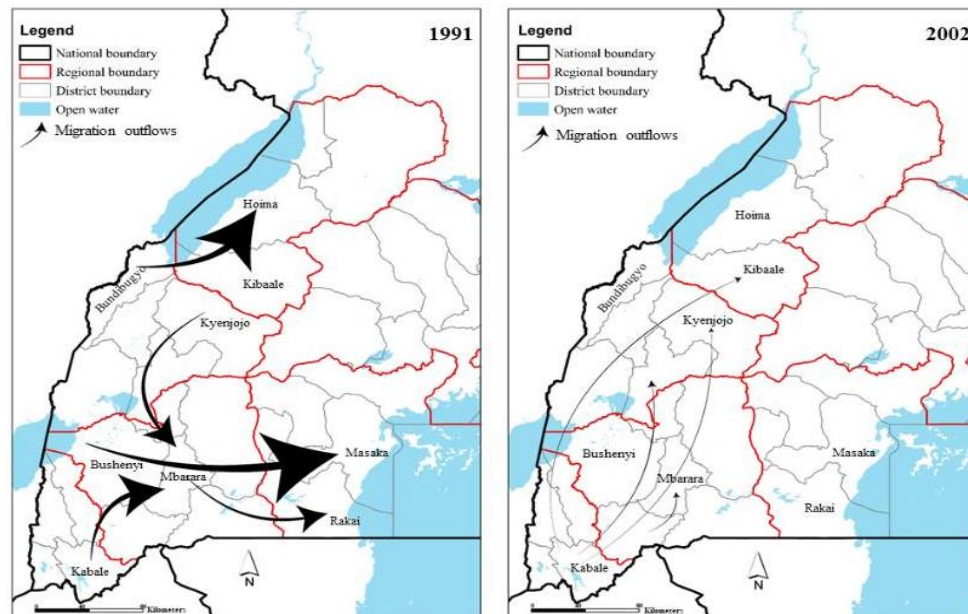


**Figure 7: Migration flows from Toro to Kigezi region in 1991 and 2002**

Kamwenge district is one of the fourteen refugee hosting districts in Uganda. This has significantly influenced the population growth of the area. Langlands (1971) stated that between 1959 and 1969 population growth of Tooro averaged 5% against national average of 3.8% per year. This was due to the refugee movements in Kibale county. Rwamwanja Refugee Settlement Camp is home to 68,000 refugees. It was established in 1964 to host refugees from Rwanda. It was temporarily closed in 1995. It was reopened in 2012 to host Congolise nationals who fled the M23 rebellion and the broad Kivu conflict. Therefore, most of the refugees in Rwamwanja settlement are Congolise nationals. Although some Ugandans neighboring the camp benefit from the cheap labour provided by the refugees, get market for their agricultural product as well as learning Kiswahili language, a number of negative aspects have been observed. These include: Overutilization of services such as health, water and education as well as taking land. One key informant complained that: *"Our hospital in Rukunyu is always lacking drugs because when the government is sending drugs, it does not take into consideration that we share the same with the many refugees from Rwamwanja Refugee Settlement camp"*. Many neighbouring Ugandans complain that while they do not have land the refugees are given free land which they believe is supposed to be theirs. This was because, when the refugee camp was closed in 1995, some Ugandans occupied the land. When the camp was reopened in 2012, they were told to vacate the land. One key informant bitterly commented: *"How can refugees be given free land and the Ugandans are deprived of the same. This means the government values refugees more than its own citizens"*

The most recent in-migrants are the pastoral Banyankole mainly from Kiruhura and Kazo districts that have settled on the shores of Lake George after 1995. They have either acquired free land on the wetlands of Lake George which were formerly un-occupied or bought land from other people who had settled near the wetlands earlier or both. Being cattle keepers, they have cleared the natural wetland vegetation leading to change in vegetation cover. A key informant states that: *"the pastoralists have a belief that in order to improve pasture for their animals, they should clear unpalatable and thorny plants as well as trees. This is not correct. Instead, they*

*degrade our environment by causing soil erosion and silting of the lake and are even encroaching on fish breeding grounds”*

The authors observe that a number of benefits such a variety of crops were introduced by the in-migrants at different times. These included: peas, and potatoes. Areas which were formerly infested with tsetse flies were made habitable by the in-migrants and animal rearing extended into areas that were not formally used for the economic activity. This was because the tsetse flies that spread sleeping sickness to humans and nagana to animals had made many areas inhabitable. However, the arrival of the hardworking Bakiga rendered them habitable as the dense vegetation that provided the habitat for the flies was cleared. The Bakiga being good bee keepers have played a big role in spreading bee farming in greater Kamwenge. These areas included Mahyoro, Ruhunga, Nyakasenyi and Nyabbani sub-counties in Kitagwenda district and Bigodi area of Kamwenge district. On the other hand, the increase in population has culminated to encroachment on areas that were not formerly settled and cultivated leading to soil creep, erosion, destruction of wetlands, forests and woodlands. Forests and wetlands have been the most affected as observed from the maps showing Land cover change from 2000 to 2020.

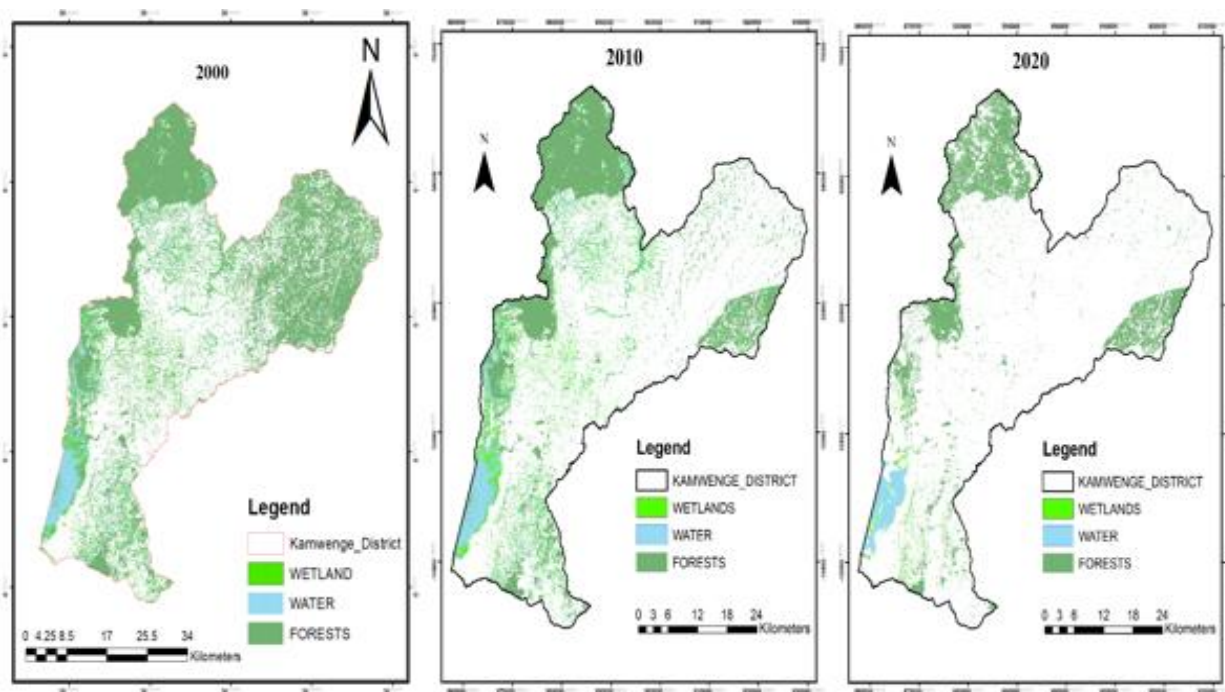


**Figure 8: Land Cover Change from 2000 to 2020**

### **Details of Land Cover Area for the Period from 2000 to 2020**

The results showed that much of the land under forest was being lost over the year since 2000 to 2020. However, it was noted that the loss in the current year (2020) was more evident and notable even by the community members. The loss was attributed to other land use practices like built up, farming among others.

Wetlands also registered a negative significant loss over the two decades and this was attributed to community encroachment participating in activities like art and craft but more was lost from the side of subsistence farming by the refugees and other community members.

## RECOMMENDATIONS

The authors recommend strengthening the benefits of the in-migrants in order to reduce poverty in the area. In addition, the authors recommend vigorous campaign for modern family planning methods to reduce the high population growth and emphasize education and mind-set change. In addition, afforestation and re-afforestation programs should be encouraged among the community to restore the degraded environment attributed mainly to built up and cultivation.

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